50 YEARS OF RB SUGARCANE VARIETIES

30 YEARS RIDESA

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1st edition

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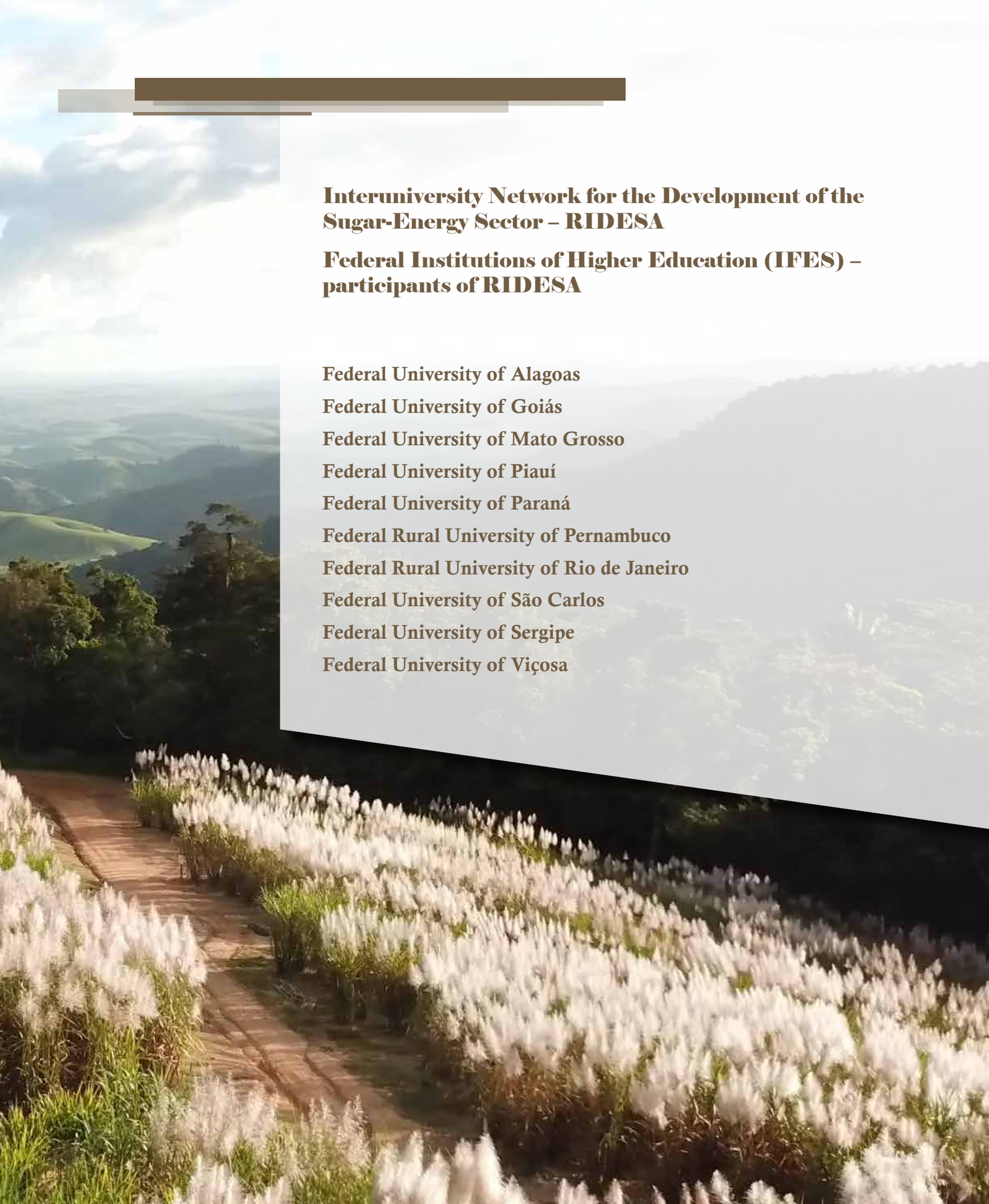
RIDESA



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Delta Sucroenergia – Unidade Volta Grande	UFV	Minas Gerais
Damfi – Destilaria Antônio Monti Filho Ltda.	UFV	Minas Gerais
Destilaria Rio da Prata Ltda.	UFV	Minas Gerais
DVPA – Destilaria Vale do Paracatu Agroenergia Ltda.	UFV	Minas Gerais
Fabiano Dias Lourenço	UFSCar; UFV	Minas Gerais
Sada Bio-Energia Ltda. – Usina São Judas Tadeu	UFV	Minas Gerais
Santa Vitória Açúcar e Álcool Ltda.	UFV	Minas Gerais
Usina Cerradão Ltda.	UFV	Minas Gerais
Usina Coruripe Açúcar e Álcool S/A – Unidade Carneirinho	UFV	Minas Gerais
Usina Coruripe Açúcar e Álcool S/A – Unidade Iturama	UFV	Minas Gerais
Usina Coruripe Açúcar e Álcool S/A – Unidade Limeira do Oeste	UFV	Minas Gerais
Usina Coruripe Açúcar e Álcool S/A – Unidade Campo Florido	UFV	Minas Gerais
Usina Jatiboca – Filial São Pedro	UFV	Minas Gerais
Usina Jatiboca – Unidade Ponte Nova	UFV	Minas Gerais
Usina Santo Ângelo Ltda.	UFV	Minas Gerais
Usina Uberaba S/A	UFV	Minas Gerais
Usina Vale do Tijuco Ltda.	UFV	Minas Gerais
Usina Vale do Pontal Açúcar e Álcool Ltda.	UFV	Minas Gerais
Vazante Agropecuária Ltda.	UFV	Minas Gerais

Veredas Agro Ltda.	UFV	Minas Gerais
W.D. Agroindustrial Ltda.	UFV	Minas Gerais
Usina Pagrisa	UFAL	Pará
Asplan – Associação dos Plantadores de Cana da Paraíba	UFRPE	Paraíba
Grupo Olho D'Água – Usina Giasa	UFRPE	Paraíba
Grupo Japungu – Destilaria Japungu	UFRPE	Paraíba
Destilaria Miriri – Miriri Alimentos e Bioenergia	UFRPE	Paraíba
Destilaria Pro-Fé Empreendimentos Agropastoril	UFRPE	Paraíba
Destilaria Agro Industrial Tabu S/A	UFRPE	Paraíba
Usina Monte Alegre S/A	UFRPE	Paraíba
Açúcar e Álcool Bandeirantes S/A – Bandeirantes	UFPR	Paraná
Grupo Maringá - Usina Jacarezinho – Jacarezinho	UFPR	Paraná
Cooperativa Agrícola Regional de Produtores de Cana Ltda. – São Carlos do Ivaí	UFPR	Paraná
Cooperativa Agroindustrial Nova Produtiva – Astorga	UFPR	Paraná
Cooperativa Agroindustrial Vale do Ivaí Ltda. – Jandaia do Sul	UFPR	Paraná
Dacalda Açúcar e Álcool Ltda. – Jacarezinho	UFPR	Paraná
Destilaria Melhoramentos S/A – Jussara	UFPR	Paraná
Destilaria Melhoramentos S/A – Nova Londrina	UFPR	Paraná
Usina Alto Alegre S/A – Açúcar e Álcool – Colorado	UFPR	Paraná
Usina Alto Alegre S/A – Açúcar e Álcool – Florestópolis	UFPR	Paraná
Usina Alto Alegre S/A – Açúcar e Álcool – Santo Inácio	UFPR	Paraná
Usina de Açúcar Santa Terezinha Ltda. – Filial – Moreira Sales	UFPR	Paraná
Usina de Açúcar Santa Terezinha Ltda. – Filial – Cidade Gaúcha	UFPR	Paraná
Usina de Açúcar Santa Terezinha Ltda. – Filial – Ivaté	UFPR	Paraná
Usina de Açúcar Santa Terezinha Ltda. – Filial – Paranacity	UFPR	Paraná
Usina de Açúcar Santa Terezinha Ltda. – Filial – Rondon	UFPR	Paraná
Usina de Açúcar Santa Terezinha Ltda. – Filial – São Tomé	UFPR	Paraná
Usina de Açúcar Santa Terezinha Ltda. – Filial – Tapejara	UFPR	Paraná
Usina de Açúcar Santa Terezinha Ltda. – Filial – Terra Rica	UFPR	Paraná
Usina de Açúcar Santa Terezinha Ltda. – Filial – Umuarama	UFPR	Paraná
Usina de Açúcar Santa Terezinha Ltda. – Matriz – Iguatemi	UFPR	Paraná
AFCP – Associação de Fornecedores de Cana de Pernambuco	UFRPE	Pernambuco
Grupo Olho D'Água – Usina Central Olho D'Água	UFRPE	Pernambuco
Grupo EQM – Usina Cucaú	UFRPE	Pernambuco
Usina Ipojuca S/A	UFRPE	Pernambuco
Usina JB – Companhia Alcoolquímica Nacional	UFRPE	Pernambuco
Usina Petribú S/A	UFRPE	Pernambuco
Usina São José S/A	UFRPE	Pernambuco
Usina Trapiche S/A	UFRPE	Pernambuco
Usina União e Indústria S/A	UFRPE	Pernambuco
Usina Comvap	UFPI	Piauí
Embrapa – Clima Temperado – Pelotas	UFPR	Rio Grande do Sul
Usina Estivas – Pipa Agroindustrial	UFRPE	Rio Grande do Norte

Epagri – Chapecó	UFPR	Santa Catarina
Açúcar e Álcool Oswaldo Ribeiro de Mendonça Ltda. – Colorado	UFSCar	São Paulo
Açucareira Quatá S.A. – Unidade Barra Grande	UFSCar	São Paulo
Açucareira Quatá S.A. – Unidade Quatá	UFSCar	São Paulo
Açucareira Quatá S.A. – Unidade São José	UFSCar	São Paulo
Agrícola Baldin S.A.	UFSCar	São Paulo
Agroterenas S.A. Cana – Unidade Maracaí	UFSCar	São Paulo
Agroterenas S.A. Cana – Unidade Paraguaçu Paulista	UFSCar	São Paulo
Alcoeste Bioenergia Fernandópolis S.A.	UFSCar	São Paulo
Associação dos Agricultores de Aramina e Região	UFSCar	São Paulo
Associação dos Fornecedores de Cana da Alta Noroeste	UFSCar	São Paulo
Associação dos Fornecedores de Cana da Região de Catanduva	UFSCar	São Paulo
Associação dos Fornecedores de Cana da Região de Novo Horizonte	UFSCar	São Paulo
Associação dos Fornecedores de Cana da Região de Orindiúva	UFSCar	São Paulo
Associação dos Fornecedores de Cana da Região Oeste Paulista	UFSCar	São Paulo
Associação dos Fornecedores de Cana de Açúcar do Noroeste Paulista	UFSCar	São Paulo
Associação dos Fornecedores de Cana de Araraquara	UFSCar	São Paulo
Associação dos Fornecedores de Cana de Capivari	UFSCar	São Paulo
Associação dos Fornecedores de Cana de Guariba	UFSCar	São Paulo
Associação dos Fornecedores de Cana de Piracicaba	UFSCar	São Paulo
Associação dos Fornecedores de Cana de Porto Feliz	UFSCar	São Paulo
Associação dos Plantadores de Cana da Região de Jaú	UFSCar	São Paulo
Associação dos Plantadores de Cana da Região de Ourinhos	UFSCar	São Paulo
Associação dos Plantadores de Cana do Médio Tietê	UFSCar	São Paulo
Associação dos Plantadores de Cana do Oeste do estado de São Paulo	UFSCar	São Paulo
Associação dos Plantadores de Cana e Outras Culturas da Região de Monte Aprazível	UFSCar	São Paulo
Associação Rural dos Fornecedores e Plantadores de Cana da Mean Sorocabana	UFSCar	São Paulo
Atvos Agroindustrial S.A. – Unidade Alcídia	UFSCar	São Paulo
Atvos Agroindustrial S.A. – Unidade Conquista do Pontal	UFSCar	São Paulo
Basf Proteção de Cultivos	UFSCar	São Paulo
Biosev Bioenergia S.A. – Unidade Continental	UFSCar	São Paulo
Biosev Bioenergia S.A. – Unidade Leme	UFSCar	São Paulo
Biosev Bioenergia S.A. – Unidade MB	UFSCar	São Paulo
Biosev Bioenergia S.A. – Unidade Santa Elisa	UFSCar	São Paulo
Biosev Bioenergia S.A. – Unidade Vale do Rosário	UFSCar	São Paulo
Branco Peres Agro S/A	UFSCar	São Paulo
Bunge Açúcar e Bioenergia S.A. – Unidade Guariroba	UFSCar	São Paulo
Bunge Açúcar e Bioenergia S.A. – Unidade Moema	UFSCar	São Paulo
Bunge Açúcar e Bioenergia S.A. – Unidade Ouroeste	UFSCar	São Paulo
Claudimir Geraldo Schiavon	UFSCar	São Paulo
Central Energética Moreno Açúcar e Álcool Ltda.	UFSCar	São Paulo
Central Energética Moreno Monte Aprazível Açúcar e Álcool Ltda.	UFSCar	São Paulo
Clealco Açúcar e Álcool S/A – Unidade Clementina	UFSCar	São Paulo
Clealco Açúcar e Álcool S/A – Unidade Penápolis	UFSCar	São Paulo

Clealco Açúcar e Álcool S/A – Unidade Queiroz	UFSCar	São Paulo
Cocal Comércio Indústria Canaã Açúcar e Álcool Ltda. – Unidade Narandiba	UFSCar	São Paulo
Cocal Comércio Indústria Canaã Açúcar e Álcool Ltda. – Unidade Paraguaçu Paulista	UFSCar	São Paulo
Cofco International Brasil S.A. – Unidade Catanduva	UFSCar	São Paulo
Cofco International Brasil S.A. – Unidade Meridiano	UFSCar	São Paulo
Cofco International Brasil S.A. – Unidade Potirendaba	UFSCar	São Paulo
Cofco International Brasil S.A. – Unidade Sebastianópolis	UFSCar	São Paulo
Colombo Agroindústria S/A – Unidade Ariranha	UFSCar	São Paulo
Colombo Agroindústria S/A – Unidade Palestina	UFSCar	São Paulo
Colombo Agroindústria S/A – Unidade Santa Albertina	UFSCar	São Paulo
Coplasa Açúcar e Álcool Ltda.	UFSCar	São Paulo
Da Mata S.A. – Açúcar e Álcool	UFSCar	São Paulo
Della Coletta Bioenergia S/A	UFSCar	São Paulo
Diana Bioenergia Avanhandava S.A.	UFSCar	São Paulo
Explante Biotecnologia	UFPR; UFSCar	São Paulo
Fernando Luís Camolezi and others	UFSCar	São Paulo
Ferrari Agroindústria S/A	UFSCar	São Paulo
Glencane Bioenergia S.A. – Unidade Nova Unialco	UFSCar	São Paulo
Glencane Bioenergia S.A. – Unidade Rio Vermelho	UFSCar	São Paulo
Global Comércio de Mudas	UFSCar	São Paulo
Henrique Nascimento Fioresi and others	UFSCar	São Paulo
Instituto Agronômico de Campinas	UFSCar; UFV	São Paulo
Ipiranga Agroindustrial S.A. – Unidade Descalvado	UFSCar	São Paulo
Ipiranga Agroindustrial S.A. – Unidade Iacanga	UFSCar	São Paulo
Ipiranga Agroindustrial S.A. – Unidade Mococa	UFSCar	São Paulo
Pilon S.A. Açúcar e Álcool – Santa Maria	UFSCar	São Paulo
Joanalice Gladenucci and others	UFSCar	São Paulo
Lins Agroindustrial S.A.	UFSCar	São Paulo
Nardini Agroindustrial Ltda.	UFSCar	São Paulo
Nova América Agrícola Ltda.	UFSCar	São Paulo
Nova Aralco Indústria e Comércio S/A – Unidade Alcoazul	UFSCar	São Paulo
Nova Aralco Indústria e Comércio S/A – Unidade Aralco	UFSCar	São Paulo
Nova Aralco Indústria e Comércio S/A – Unidade Figueira	UFSCar	São Paulo
Nova Aralco Indústria e Comércio S/A – Unidade Generalco	UFSCar	São Paulo
Onda Verde Agrocomercial S/A – Vale	UFSCar	São Paulo
Pedra Agroindustrial S/A – Unidade Buriti	UFSCar	São Paulo
Pedra Agroindustrial S/A – Unidade Ipê	UFSCar	São Paulo
Pedra Agroindustrial S/A – Unidade Serrana	UFSCar	São Paulo
Pitangueiras Açúcar e Álcool Ltda.	UFSCar	São Paulo
Propagines Plantio Inteligente	UFSCar, UFPR	São Paulo
Raízen Energia S.A. – Unidade Araraquara	UFSCar	São Paulo

Raízen Energia S.A. – Unidade Barra	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Benálcool	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Bom Retiro	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Bonfim	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Costa Pinto	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Destivale	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Diamante	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Dois Córregos	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Gasa	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Ipaussu	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Junqueira	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Maracaí	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Mundial	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Paraguaçu Paulista	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Paraíso	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Rafard	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Santa Cândida	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Santa Helena	UFSCar	São Paulo
Raízen Energia S.A. – Unidade São Francisco	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Serra	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Tamoio	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Tarumã	UFSCar	São Paulo
Raízen Energia S.A. – Unidade Univalem	UFSCar	São Paulo
Renato Trevizoli and others	UFPR; UFSCar	São Paulo
Rodrigo Spina	UFSCar	São Paulo
São Martinho S/A – Unidade Iracema	UFSCar	São Paulo
São Martinho S/A – Unidade Santa Cruz	UFSCar	São Paulo
São Martinho S/A – Unidade São Martinho	UFSCar	São Paulo
SBW do Brasil	UFAL; UFSCar	São Paulo
Syngenta Proteção de Cultivos	UFPR; UFSCar	São Paulo
Tereos Açúcar e Energia Brasil S.A. – Unidade Andrade	UFSCar	São Paulo
Tereos Açúcar e Energia Brasil S.A. – Unidade Cruz Alta	UFSCar	São Paulo
Tereos Açúcar e Energia Brasil S.A. – Unidade Mandu	UFSCar	São Paulo
Tereos Açúcar e Energia Brasil S.A. – Unidade São José	UFSCar	São Paulo
Tereos Açúcar e Energia Brasil S.A. – Unidade Severínia	UFSCar	São Paulo
Tereos Açúcar e Energia Brasil S.A. – Unidade Tanabi	UFSCar	São Paulo
Tereos Açúcar e Energia Brasil S.A. – Unidade Vertente	UFSCar	São Paulo
Tietê Agroindustrial S.A. – Unidade Paraíso	UFSCar	São Paulo
Tietê Agroindustrial S.A. – Unidade Ubarana	UFSCar	São Paulo
U.S.J. – Açúcar e Álcool S/A	UFSCar	São Paulo

Umoe Bioenergy S.A.	UFSCar	São Paulo
Usina Açucareira Ester S.A.	UFSCar	São Paulo
Usina Açucareira Furlan S/A	UFSCar	São Paulo
Usina Açucareira Guaíra Ltda.	UFSCar	São Paulo
Usina Açucareira São Manoel S/A	UFSCar	São Paulo
Usina Alta Mogiana S/A – Açúcar e Álcool	UFSCar	São Paulo
Usina Alto Alegre S/A – Açúcar e Álcool	UFSCar	São Paulo
Usina Batatais S/A Açúcar e Álcool	UFSCar	São Paulo
Usina Santa Adélia S.A. – Unidade Jaboticabal	UFSCar	São Paulo
Usina Santa Adélia S.A. – Unidade Pereira Barreto	UFSCar	São Paulo
Usina Santa Adélia S.A. – Unidade Sud Mennucci	UFSCar	São Paulo
Usina Santa Fé S/A	UFSCar	São Paulo
Usina Santa Isabel S/A – Unidade Mendonça	UFSCar	São Paulo
Usina Santa Isabel S/A – Unidade Novo Horizonte	UFSCar	São Paulo
Usina Santa Lúcia S.A.	UFSCar	São Paulo
Usina Santo Antônio S/A	UFSCar	São Paulo
Usina São Domingos – Açúcar e Etanol S/A	UFSCar	São Paulo
Usina São Francisco S/A	UFSCar	São Paulo
Usina São José da Estiva S.A. Açúcar e Álcool	UFSCar	São Paulo
Usina São Luiz S.A.	UFSCar	São Paulo
Vale do Paraná S.A. Álcool e Açúcar	UFSCar	São Paulo
Vale do Xingu Pecuária, Agricultura e Comércio Eireli – Cia. Müller de Bebidas	UFSCar	São Paulo
Viralcool – Açúcar e Álcool Ltda. – Unidade Castilho	UFSCar	São Paulo
Viralcool – Açúcar e Álcool Ltda. – Unidade Pitangueiras	UFSCar	São Paulo
Viralcool – Açúcar e Álcool Ltda. – Unidade Sertãozinho	UFSCar	São Paulo
Virgolino de Oliveira S/A – Açúcar e Álcool – Unidade Catanduva	UFSCar	São Paulo
Virgolino de Oliveira S/A – Açúcar e Álcool – Unidade Itapira	UFSCar	São Paulo
Virgolino de Oliveira S/A – Açúcar e Álcool – Unidade José Bonifácio	UFSCar	São Paulo
Virgolino de Oliveira S/A – Açúcar e Álcool – Unidade Monções	UFSCar	São Paulo
Viveiro Vista Alegre	UFSCar	São Paulo
Usina Carvão	UFAL	Sergipe
Usina São José do Pinheiro	UFAL	Sergipe
Usina Taquari	UFAL	Sergipe
BP Bunge Bioenergia Pedro Afonso S.A.	UFG	Tocantins
U.S. Sugar	UFAL	Florida/USA
Grupo Coazucar – Corporación Azucarera Ecuatoriana S.A.	UFSCar	Ecuador
Grupo Coazucar – Agroindustria San Jacinto S.A.A.	UFSCar	Peru
Grupo Coazucar – Casa Grande S.A.A.	UFSCar	Peru
Grupo Coazucar – Cartavio S.A.A.	UFSCar	Peru
Grupo Coazucar – Agrolmos S.A.	UFSCar	Peru
Grupo Coazucar – Agroaurora S.A.C.	UFSCar	Peru
Grupo Piasa – Ingenio Adolfo Lopez Mateos S.A. de C.V.	UFSCar	Mexico
Grupo Piasa – Ingenio Tres Valles S.A. de C.V.	UFSCar	Mexico

INTRODUCTION

In 2020, the Federal Universities that belong to RIDESA (Interuniversity Network for the Development of the Sugarcane Sector) had the great pleasure of celebrating the 50th anniversary since the beginning of the breeding program that develops RB varieties, as well as the 30th anniversary of RIDESA, which assumed the program later. On that occasion, a new edition of the "Livro das Variedades RB" was published. This compendium is yet another milestone in the history of these institutions of education, research and extension that have furthered the development of RB varieties with competence and expertise since 1990, when they assumed one of the largest research programs for sugarcane breeding in the world. At that time, RB varieties were planted on only 5% of the sugarcane area of Brazil, but year by year the acreage increased remarkably. In 2020, RB varieties were grown on 60% of the area, representing a significant contribution to the rise in agro-industrial yields and profitability of the Brazilian sugarcane sector.

In the three decades since RIDESA was founded, some events were turning points in the development of research for this important segment of the Brazilian economy. In the beginning, five Federal Universities signed a technical note of the Bureau of Regional Development of the presidency of the Republic of Brazil, in the sense of shifting the responsibility for sugarcane breeding from Planalsucar to RIDESA. Since the Federal Government had made no commitment of funding the activities, the atmosphere was marked by uncertainty. The restraint on the part of some companies of the sugarcane sector was however overcome within a few years, to the extent to which concrete results proved the efficacy of the new institution. Fortunately, a model of public-private partnerships between the RIDESA Universities and companies of the sector was established, which resulted in effective and successful annual advances and consequently in rapid acceptance and constant expansion of the cultivation of RB varieties.

The current consolidation of RIDESA is founded on the active participation of 10 Federal Universities. Already in the first decade, the particular features of RIDESA were shaped, when the first early, sucrose-rich, high-yielding RB varieties were released, suited for a wide range of environments, even for some with restrictions for sugarcane cultivation.

Agrovale

Each member university of RIDESA, working independently within a framework of freedom to create, commitment, imagination and above all excellence quickly established a program of its own for the development of RB varieties. Although the characteristics were unique and particular, the approaches were extremely competitive, even among the different Federal Universities. In this context, the Universities pursued competence, interacted with the community and conveyed security to the sugarcane sector, as evidence of their commitment to the nation.

The exceptional vitality of RIDESA, after three decades of activity, is generally acknowledged. But as only reason for the satisfaction and compliments, it would not be enough to mention that the institution continuously stood up for the interests of the sugarcane sector. Much rather, the ability to analyze and understand the problems of the sugarcane industry, to adapt to shifts in direction in this economic segment and to coordinate the work demand of RIDESA Universities should be emphatically noted. The driving force of renewal, the vision of the challenges to be faced and the decision to respond to them rationally and promptly are salient features of the commitment of this research network in sugarcane breeding.

In a wider sense, the exponential increase in areas under RB varieties did not happen by chance nor was it the outcome of unaccountable factors, but it was actually the product of expert knowledge, intensive work and skill. In the first place, it is the result of the ability to extract effective technological innovation from the millions of sugarcane clones selected in the different phases of the research program. But, above all, this achievement is a symbol that invites us to learn from the past, believe in the present and nourish hopes for the future.

In the context of the jubilee celebration of the foundation of RIDESA, this publication provides the description of 114 RB sugarcane varieties, which have played a decisive role in the development and sustainability of the Brazilian sugarcane sector.

PLANALSUCAR

Undoubtedly, investments in breeding, as well as in other technologies, are the basis of the sugarcane production chain. In the 1970/1971 growing season, Brazil milled 57 million tons of cane, with an average yield of 50 t ha^{-1} and a recovery of 90 kg of sugar per ton of cane, resulting in a final output of 4.5 sugar ha^{-1}. In 1933, the e Institute of Sugar and Alcohol (IAA) had been established, an organ of the former Ministry of Industry and Commerce, with the main objectives of regulating the country's sugar market and promoting alcohol production. In 1971, the IAA created Planalsucar (National Program of Sugarcane breeding), with a view to higher crop yields, both in the field and industry. A forecast of the project outcome estimated that under the most pessimistic conditions, the sugar industry would be benefitted with a 10% increase in profitability in the initial phase of implementing the first RB (Republic of Brazil) varieties. The costs for the program, once fully implemented, would represent 0.15% of the gross revenue. The idea was to create an agro-industrial research apparatus spread across the sugarcane-producing states. It was presumed that the first results of the program would be the most rewarding, while constant annual increases of more than 3% were expected. At that time, this increase would have represented an annual gain of more than 16 million dollars for the country.

In all sugarcane-producing states of Brazil, Planalsucar had five large Regional Coordination Offices, which were supported by regional experimental stations at strategic locations throughout the country. The staff consisted of an exceptional and experienced team of researchers, technicians and assistants, to address the needs of this continuously developing sector. This research body coordinated efforts to equip sugarcane producers with research-based knowledge, products and services, which led to a boost in agro-industrial productivity. The development of the institution was also fostered by Proálcool, a sugarcane-based ethanol fuel program, which could only reach its goals by either expanding the sugarcane acreage into new land suited for cultivation or by increasing yields within the traditional cane-producing areas. The idea was to provide the necessary support for the implementation of Proálcool in all potential producing regions. As a result, responses in terms of alcohol production, according to the regional characteristics, were rapidly obtained. Planalsucar was gradually established based on regional coordination units in the following states: Alagoas (COONE - Rio Largo, AL), São Paulo (COSUL - Araras, SP), Rio de Janeiro (COESTE - Campos, RJ), Pernambuco (CONOR - Carpina, PE) and Minas Gerais (COCEN - Ponte Nova, MG) (Figure 01). Regional outstations in the States of Paraná, Santa Catarina, Bahia, Sergipe, Paraíba, Maranhão, Pará, Goiás, Mato Grosso do Sul, Mato Grosso and Rondônia were also included.

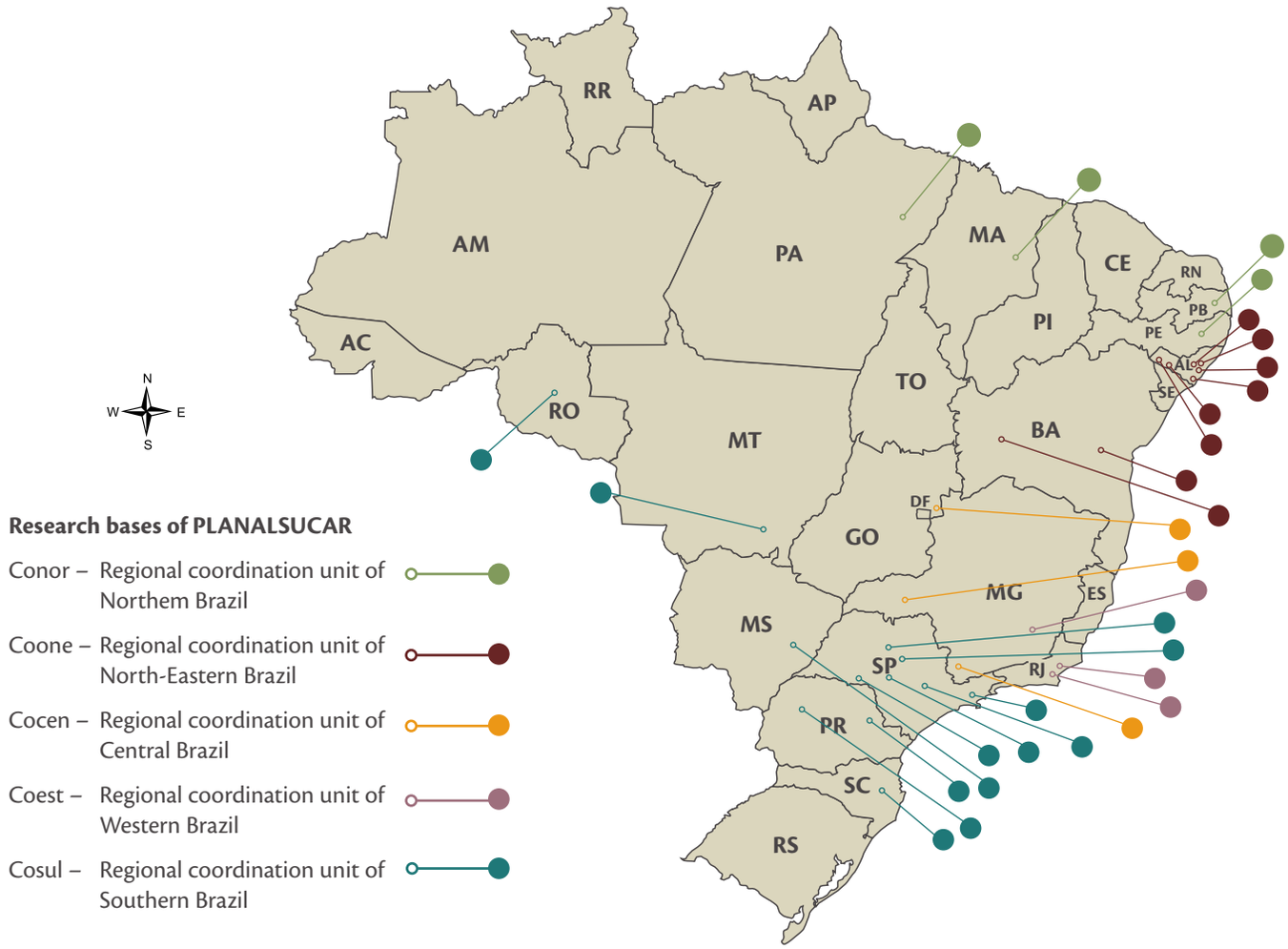


Figure 1. Regional coordination units and research bases of Planalsucar, a sugarcane-based ethanol fuel program of Brazil.

RIDESA

In these cane-producing regions, specific projects were developed in the various agronomic areas to overcome environmental challenges and meet human expectations. In less than five years, Planalsucar had achieved highly significant results for the national sugarcane sector, as for example:

I) Modernization of agricultural and industrial mechanization.

II) Introduction of biological pest control in Brazil, teaching the companies in the sugarcane sector how to produce the wasp *Cotesia flavipes* to control the sugarcane borer *Diatraea* spp. and the fungus *Metarhizium anisopliae* to control the sugarcane root spittlebug *Mahanarva* spp.

III) Recommendations for adjustments of soil macro- and micronutrients and sugarcane liming and fertilization.

IV) Optimization of industrial processes of sugar and alcohol production.

V) Parameter definition for sugarcane pricing according to the sucrose content.

Still, the key contribution to the national interests was undoubtedly that of breeding, and consisted of the development of the RB varieties. The acronym RB was registered by the Germplasm Committee of International Society of Sugarcane Technologists – ISSCT. From the very beginning, the breeding program of RB varieties exploited the sugarcane germplasm bank of the Station of Serra do Ouro for Flowering and Crosses, of the Federal University of Alagoas (UFAL), in Murici, Alagoas, initiated in 1967 by the Experimental Station for Sugarcane in Alagoas (EECAA). This germplasm bank with varieties originating from several breeding programs around the world came to be managed by Planalsucar as of 1971. The genetic crosses were performed in Serra do Ouro by COONE, from where seeds were sent to the other Planalsucar Coordination units (COSUL, COESTE, CONOR and COCEN) to begin the selection processes for the development of RB varieties under the specific environmental conditions of the different sugarcane-producing regions of Brazil.

ORIGIN OF RIDESA

Until 1988, the sugar and ethanol production in Brazil was strongly regulated and subsidized by the Federal Government. With the enactment of the new federal constitution in 1988, a new scenario of economic policy was created, in which the subsidy programs, among them Proálcool, were discontinued. Subsequently, all government incentives for the development of research on sugarcane and sugarcane breeding were cut due to the closedown of the Institute of Sugar and Alcohol (IAA) in 1990 and consequently, the program Planalsucar was suspended. In the same year however, the incorporation of units of the extinct Planalsucar by Federal Universities opened up new perspectives, both for sugarcane researchers and the production sector. The transfer of human resources, physical and technological structures from Planalsucar to the Federal Universities of Alagoas (UFAL), Rural Pernambuco (UFRPE), Viçosa-MG (UFV), São Carlos-SP (UFSCar), Rural Rio de Janeiro (UFRRJ), Paraná (UFPR) and Sergipe (UFS) proved a wise move. The Technical Note of the Bureau of Regional Development of the Presidency of the Republic of Brazil, of August 16, 1990, defined the institutional model for the sugarcane breeding program and transferred the responsibility for research work, previously assumed by the former Regional Coordination units of Planalsucar, to this network of Federal Universities. At this point, the above Universities created the Interuniversity Network for the Development of the Sugar-Energy Sector (RIDESA). Currently, the Federal Universities of Goiás (UFG), Mato Grosso (UFMT) and Piauí (UFPI) are also working with RIDESA, based on a partnership agreement (Figure 2).

However, the benefits of this transfer were restricted by the lack of resources from the Federal Government to maintain research on the development of RB varieties. The researchers involved with sugarcane breeding who stayed at the RIDESA Universities drafted a plan and started to outline the first projects to raise financial resources, especially from sugar and ethanol plants and distilleries in the different regions of Brazil. To this end, the areas of activity had to be separated, so that the financial resources of the private sector could be distributed and invested in the Universities to conduct research and continue the activities, in particular the breeding program for the development of RB varieties. This transition was not very smooth though, since the lack of financial resources of some Universities severely hampered the maintenance of the breeding programs, above all in the states with fewer sugar and ethanol-producing plants.

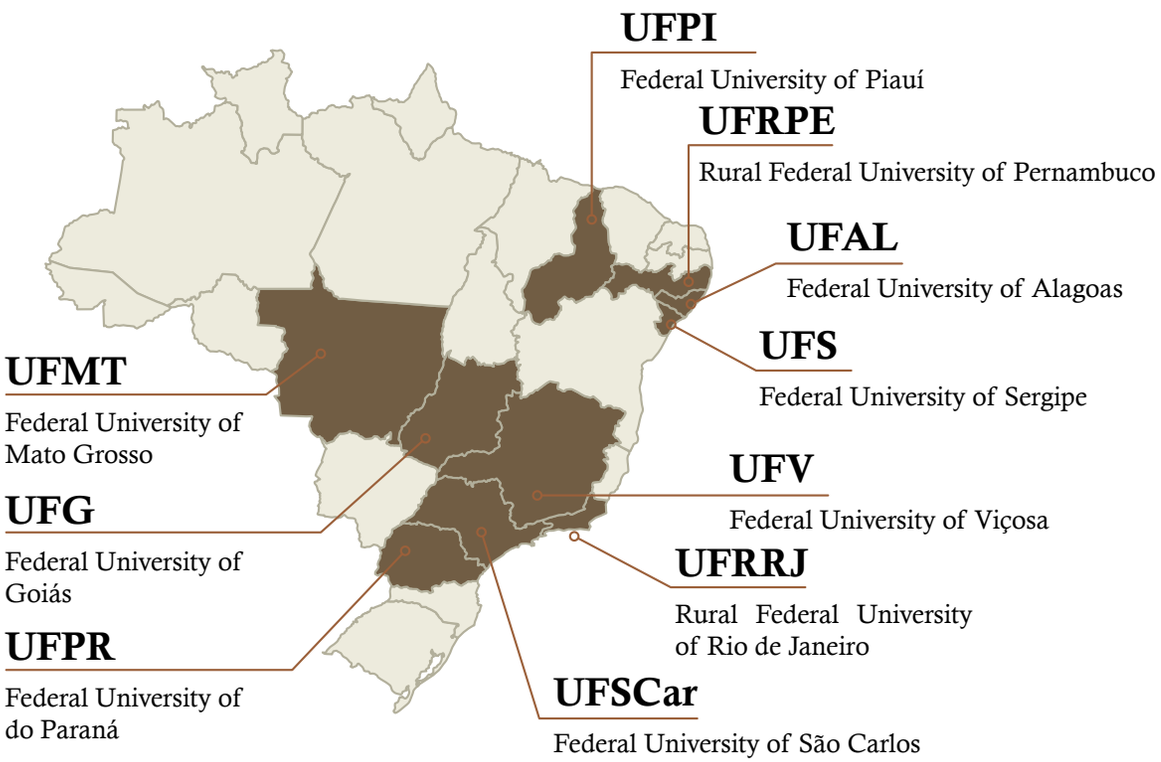


Figure 2. Federal institutions of higher education (IFES), member institutions of RIDESA, 2021.

In this way, the research model of RIDESA was established in a network and has been consolidated in recent years. The following premises for this research network are defined in the technical cooperation agreement signed by the member Universities:

I) The funding must be primarily private, a principle that has guaranteed a continuous, long-term flow of financial resources for the development of the program.

II) Each University must develop its own sugarcane breeding program (PMGCA) in partnership with the sugarcane plants, distilleries and suppliers of the respective state, to attract private resources for this purpose.

RIDESA

III) All Universities must contribute to the maintenance of the sugarcane germplasm bank and the Experimental Stations for Flowering and Crosses. The annual costs are distributed among the Universities, proportionally to the revenue from partnerships with the cane-producing companies.

IV) Newly developed varieties of a University must be registered and protected by the National Plant Variety Protection (SNPC) of the Ministry of Agriculture, Livestock and Food Supply (MAPA), to then be licensed to the other RIDESA member Universities.

V) The partnership model with the mills and distilleries should involve the introduction, evaluation and selection of RB clones based on experiments carried out by the companies. Simultaneously, the Universities must grant, by contract, a non-exclusive license for the use of RB varieties.

VI) Every year, promising RB clones should be exchanged among the RIDESA Universities, so that the RB clones developed in one state are experimentally evaluated at the plants and in distilleries of the others.

Thus, the research activities of RIDESA are developed and shared among all Universities, stimulating the exchange of information, knowledge and findings. This potentiates the network capacity and national coverage of research and innovation results. In legal terms, RIDESA is not an entity, as it was founded based on an agreement of technical cooperation between Universities. The rectors of these colleges, who constitute a coordination committee, are in charge of the senior management and a General Coordinator is chosen among them. The professors and researchers involved in the sugarcane breeding programs of the Universities form a council that elects a General Technical Coordinator for a two-year term.

RIDESA – A PUBLIC-PRIVATE PARTNERSHIP FOR THE DEVELOPMENT OF RB VARIETIES

A public-private partnership had already existed since Planalsucar, but was maintained and enhanced by RIDESA. In the days of Planalsucar, the federal government had funded most of the research. The developed technologies, including varieties, were validated by the companies. This interaction of the Planalsucar researchers with the companies stimulated successive achievements of RIDESA. However, in this second phase, the research costs began to be covered by the sugarcane mills, distilleries and suppliers, while the University's counterpart was the part-time work of professors, researchers, technicians and students dedicated to the development of the breeding program for RB sugarcane varieties. A group of 320 companies have partnership contracts with the RIDESA Universities, 298 of which are sugarcane plants; together they represent approximately 80% of the Brazilian cane, sugar, ethanol and bio-electricity-producing companies. In this way, the validation and adoption of a new variety is far easier. In other words, at the time of release of a new variety, some companies have already cultivated it in large areas. The reason is that all partner companies receive RB clones for experimental evaluation, a few years before their possible release as a variety.

Based on this partnership model of RIDESA with the companies, the management of a new RB variety can be defined and technical recommendations for commercial planting can be given. To this end, hundreds of experiments are carried out in the plants and distilleries. Additionally, the RB clones with highest experimental yields are evaluated in areas between 10 and 100 ha, under different management conditions. Consequently, there is a very positive interaction between the teams of the Universities and companies, resulting in a multiplied number of observations and the co-planning of seedling nurseries, especially for the new genotypes that could eventually be released as new RB varieties.

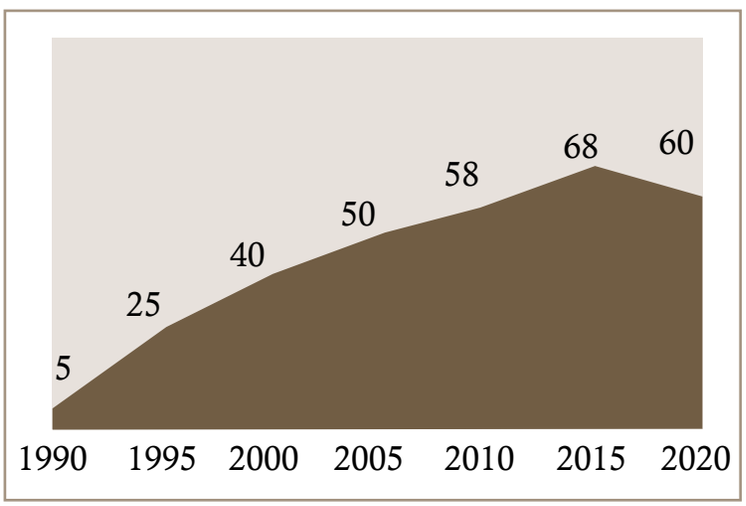


Figure 3. Evolution of the percentage of cultivation area of RB varieties in Brazil.

In the 1990/91 growing season, RB varieties were cultivated on only 5% of the sugarcane acreage in Brazil. The expansion of cultivation of RB varieties by the Brazilian agribusiness companies until the 2019/2020 growing season clearly shows the success of the RIDESA sugarcane breeding program (Figure 3).

RIDESA

Table 1. Absolute and relative area of cultivation of the main cane varieties in Brazil, 2019/2020 growing season.

Ranking	Variety	Total (ha)	(%)
1	RB867515	1,133,512	21.4%
2	RB966928	676,693	12.8%
3	RB92579	487,022	9.2%
4	CTC4	446,538	8.4%
5	RB855156	223,187	4.2%
6	RB855453	178,168	3.4%
7	SP83-2847	128,980	2.4%
8	CTC9001	97,151	1.8%
9	CTC15	91,775	1.7%
10	RB855536	86,099	1.6%
11	SP80-1816	72,753	1.4%
12	IAC955000	72,472	1.4%
13	SP83-5073	72,422	1.4%
14	SP81-3250	69,770	1.3%
15	IAC911099	69,041	1.3%
16	SP80-3280	68,418	1.3%
17	CTC2	65,586	1,2%
18	SP91-1049	62,321	1.2%
19	CTC9003	54,990	1.0%
20	RB835054	50,204	0.9%
21	CTC20	49,462	0.9%
22	CV7870	48,589	0.9%
23	RB975201	44,691	0.8%
24	RB965902	42,942	0.8%
25	SP79-1011	42,238	0.8%
26	SP80-1842	40,076	0.8%
27	RB928064	38,979	0.7%
28	SP78-4764	35,103	0.7%
29	CTC9002	32,594	0.6%
30	CV6654	27,910	0.5%
Other		676,934	12.8%
Overall total		5,286,619	

50 years of breeding RB varieties

In the breeding process of RB sugarcane varieties, the following requirements were fulfilled:

I) Availability of a sugarcane germplasm bank with great genetic diversity among accessions of the species and relatives of the genus *Saccharum*, apart from hybrids from around the world.

II) Annual expansion of the genetic variability by hybridization and seed production.

III) Annual sowing of thousands of plants of an RB series at each RIDESA University, with a view to selecting superior clones in the different breeding stages.

RB VARIETIES DEVELOPED BY PLANALSUCAR

The first varieties released and registered with the acronym RB (República do Brasil) by PLANASUCAR were RB7096, RB70141, RB70194, RB705007, RB705051, RB705146 and RB705440, derived from crosses made in Serra do Ouro at the Experimental Station for Sugarcane of Alagoas (EECAA), in 1970. Of these, varieties RB70141 and RB70194 performed particularly well in the early 1980s in northeastern Brazil. Over the course of time, Planalsucar developed and released 12 other varieties (RB72454, RB721012, RB725147, RB725828, RB732577, RB735220, RB735275, RB739735, RB754665, RB765418, RB785148 and RB785750). Among all Planalsucar sugarcane varieties, RB72454 is clearly the one that contributed most to cultivation area, while RB735275, RB765418 and RB785148 also became relevant in this regard in the South-Central region of Brazil.

Variety RB72454

for all sugarcane regions of Brazil

The first major accomplishment of the RB breeding program was variety RB72454, derived from a botanical seed resulting from a cross made in Serra do Ouro, in 1972. The caryopsis that originated RB72454 was sown in 1972 by

the Planalsucar team COONE, in Rio Largo, Alagoas. After six years with three successive selection stages, RB72454 was distributed to the regional Experimental Stations of Planalsucar for testing and release as new variety for the Brazilian sugarcane sector. The experimental testing of RB72454 was expanded to all research bases of Planalsucar, where the variety performed exceedingly well, with good agronomic qualities and wide adaptability to the different soil and climatic conditions of Brazil. Another advantage of the variety is the high brown rust resistance. In December 1982, it was released for cultivation in Pernambuco and in 1984 in Sergipe. In November 1987, Planalsucar launched it at the national level, confident that this step would effectively contribute to increase sugarcane yields in Brazil.

Of all varieties developed by Planalsucar, var. RB72454 had the highest yield potential; therefore, for the breeding of new RB varieties, from then on, a strategy was applied of developing clones with at least the same levels of sucrose richness and agricultural yields. Along these lines, 26 first generation descendants of RB72454 have been commercially released so far.

Genealogy

Variety RB72454 was the result of a multiple cross of variety CP53-76 fertilized with random pollen from several other varieties at the Station for Flowering and Crosses Serra do Ouro, in Murici, Alagoas; it would therefore be impossible to identify the pollen donor (Figure 4).

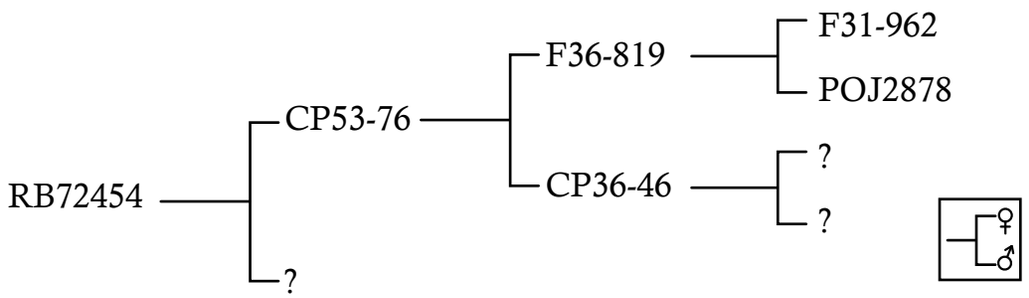


Figure 4. Genealogy of variety RB72454.

The seedling grown from the seed of this cross, which gave rise to variety RB72454, initiated the competition in the first selection phase for breeding in August 1972, at an outstation of COONE, on the premises of the sugar refining mill Sinimbu (Jequiá da Praia, Alagoas). In the fifth year of evaluation (1977), the clone was included in an experimental network on several fields of this outstation and on others of COONE, in Alagoas. In the following year (1978), it was distributed among to the various Experimental Stations of Planalsucar for regional evaluations and release as variety for the Brazilian sugarcane/ethanol sector.

Morphological characteristics

Variety RB72454 has a good general appearance, heavy stalks with medium diameter and height, no cracks and erect or semi-erect growth under normal conditions. The clumps have no late tillers, which is why the stalk height is fairly regular. The leaf sheath is medium-sized, wellshaped and forms a medium-dense canopy in a spiral arrangement. The medium-width leaf blade is long, erect when young and curved with advancing age, bright green and has serrated, not very sharp leaf margins. The sheath is long and adherent, with medium waxiness, green, but purplish on the parts exposed to the sun and has few hairs. The one-sided auricle is lanceolate and medium-sized. The stalks have cylindrical internodes with medium length and diameter, a slight zigzag alignment, no cracks and are greenish yellow with purplish tones, according to sun exposure. The bud depression is almost imperceptible with peculiarly strong and dark waxiness. The growth ring is narrow and prominent, naturally light green and dark yellow when exposed to the sun. The bud is ovate, not very prominent, medium-sized, clearly below the growth ring and has a small bud cushion.

RIDESA

Source: *Revista Brasil Açucareiro*, v. 105, n. 4, 1987.

Agro-industrial characteristics

The agricultural productivity of RB72454 is good on any type of soil, but the yield advantage is greatest on light-textured, less fertile soils. The germination capacity is good, but in the South-Central region of the country, planting is not recommended during cold spells or at sites with typically lower base temperatures. Flowering at high levels is not easily induced, but occurs only in years or at locations with climatically highly conducive conditions. The variety is medium-maturing, has a high sucrose content, adequate characteristics of harvest suitability are preserved over a long period of time, and even after flowering, there are few pithy stalks.

Expansion of the cultivation area

For several years, due to its remarkable agro-industrial productivity and wide adaptability, RB72454 was the most commonly planted cane variety in Brazil (Figure 5). As of 1995, it ranked first in cultivation area (planted on 22.1% of the sugarcane area) and was leading until 2005. However, in 2010, the acreage of variety RB72454 dropped to 4.7%, owing to a productivity loss when harvested mechanically and mainly due to its susceptibility to orange rust (*Puccinia kuehnii*), a fungal disease first registered in Brazil in December 2009.

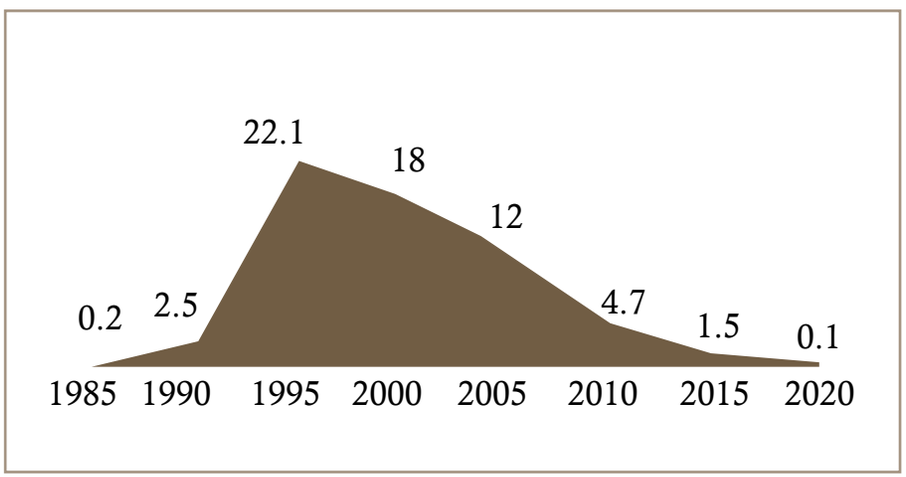


Figure 5. Expansion of the cultivation area of RB72454 in Brazil, in %. 2020.

RB VARIETIES DEVELOPED BY PLANALSUCAR/RIDESA

As a result of the transfer of human resources, infrastructure and initially selected RB clones by the Planalsucar team to the RIDESA Universities in 1990, the research on breeding for the development and release of these RB varieties could be continued. With this community endeavor of the University teams together with the production sector, the following 35 varieties were developed and released by RIDESA Universities in the first years of research of the network:

I) UFSCar: released 15 varieties - five in 1992 (RB785750, RB806043, RB825336, RB835089 and RB835486), four in 1995 (RB835019, RB855156, RB855453 and RB855563) and six in 1998 (RB835054, RB8455, R55855, R55855 and R55855 RB855035).

II) UFSCar together with UFPR: released four varieties in 2001 (RB845197, RB845210, RB865230 and RB855036).

III) UFAL: nine varieties - five in 1993 (RB75126, RB83102, RB83160, RB83252 and RB83594) and four in 2000 (RB8495, RB842021, RB855463 and RB855511).

IV) UFRPE: four varieties - two in 1996 (RB763710 and RB813804) and two in 2005 (RB863129 and RB872552).

V) UFRRJ: two varieties - one in 1999 (RB758540) and one in 2002 (RB858927).

VI) UFV: released one variety in 1997 (RB867515).

It should be noted that all these RB varieties resulted from crosses made before 1990 in Serra do Ouro. The clones had been selected in various breeding stages by Planalsucar, and the RIDESA Universities continued this work of experimentation, disease assessment and multiplication until the varieties were released.

These varieties are identified by two digits of a number below 90 after the RB code. For example, seed of variety RB**83**5486 was produced in Serra do Ouro in 1983, by Planalsucar, and later assumed by UFSCar, which concluded the experiments at the foundation of RIDESA. The subsequent digits represent the selection code assigned to the said clone, i.e., 5486.

RB855156

an early-maturing variety

Optimizing the industrial productivity by enhancing the raw material quality is one of the most important goals of sugarcane breeding programs. With the expansion of the crop in São Paulo State, the higher feedstock volumes in the production units led to an anticipation of the beginning of the harvest in the field. For this reason, early maturation has become a highly sought-after characteristic, since at the beginning of the harvest, high sucrose levels of the raw material are rarely reached.

The search for early-maturing varieties is a constant concern in breeding programs. The first project to develop super-early varieties started in 1989, when 40 RB clones from the series 82, 83 and 85 were distributed among five production units in the State of São Paulo, which began to evaluate these genotypes. Later, when the Federal Universities took over the breeding program of the former Planalsucar and once the partnership system with private companies was established, the same clones were also taken to other units.

From this group, the Federal University of São Carlos (UFSCar) released seven early and super-early varieties, including RB855156. To date, this is still one of the main varieties planted for early harvesting, due to its sucrose richness and early maturity.

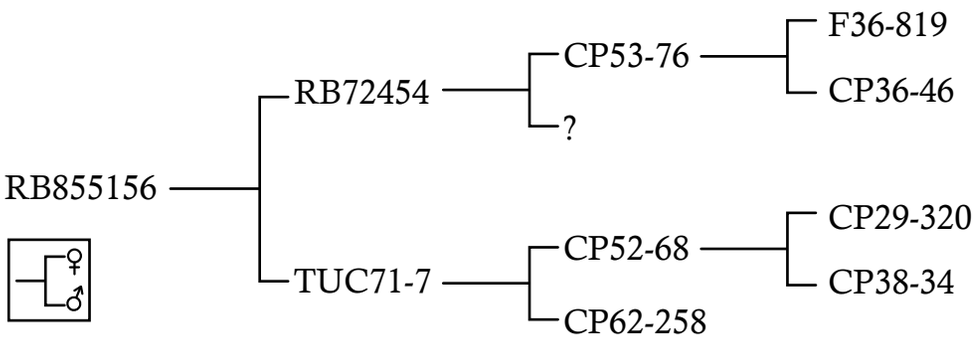


Figure 6. Genealogy of variety RB855156.

Variety RB855156 was the result of a biparental cross of parent variety RB72454 fertilized with pollen of variety TUC71-7 (Figure 06).

The cross was carried out in Serra do Ouro, Murici - AL, in 1985. On March 23, 1995, RB855156 was released together with the varieties RB835019, RB855453 and RB855563. Since the first experimental phases, the plants were found to be sucrose-rich and super-early, to have strong ratoon sprouting and long harvest duration and to be moderately demanding in terms of growth conditions.

Morphological characteristics

Variety RB855156 has a medium-sized leaf sheath and a dense canopy. The medium-width leaves are long, curved in the upper third and opaque green. The sheath is green, has a narrow and brown margin, a dark dewlap and many fine hairs, which are however not pointed. It has lanceolate, straw-colored, long and very evident auricles. The stalk growth is erect, but prostrate growth occurs in the adult phase. Stalk diameter is medium and the cylindrical, medium-sized and light green internodes are arranged in a slight zigzag alignment, with cracks and weak waxiness. The growth ring is cream-colored and not very prominent. The bud is rhomboid and rounded, medium-sized and has no cushion or groove. The upper part of the bud is clearly below the growth ring.

Agroindustrial characteristics

RIDESA

Variety RB855156 has an excellent tillering capacity, especially in ratoon crops, which prolongs the lifetime of sugarcane plantations. Early growth is erect and prostrate growth occurs in the adult phase, and the leaves are easily removable from the stalks. When planted by hand, sprouting can be irregular, which is why planting is only recommended under ideal tillage, moisture and temperature conditions. On the other hand, when mechanically planted, RB855156 is one of the best-performing varieties. Due to its propensity to flowering, it must always be cut at the beginning of the harvest, i.e., the period of industrial suitability is short. With regard to plant health, the variety is resistant to the main cane diseases and has an intermediate susceptibility reaction to orange rust, which does however not reach significant levels of disease incidence.

Expansion of the cultivation area

In the State of São Paulo, where more than 50% of the sugarcane of Brazil is grown, the acreage percentage of RB855156 has remained stable in recent years, in the range of 5 to 5.5%. In 1997, two years after its release, RB855156 was planted on 0.3% of the sugarcane acreage and reached 3.5% in 2005. With the wider implementation of mechanized planting, the participation of RB855156 increased up to a percentage of 5.2% in 2015 and 5.3% in 2020 (Figure 7), as similarly observed in the other states of the South-Central region.

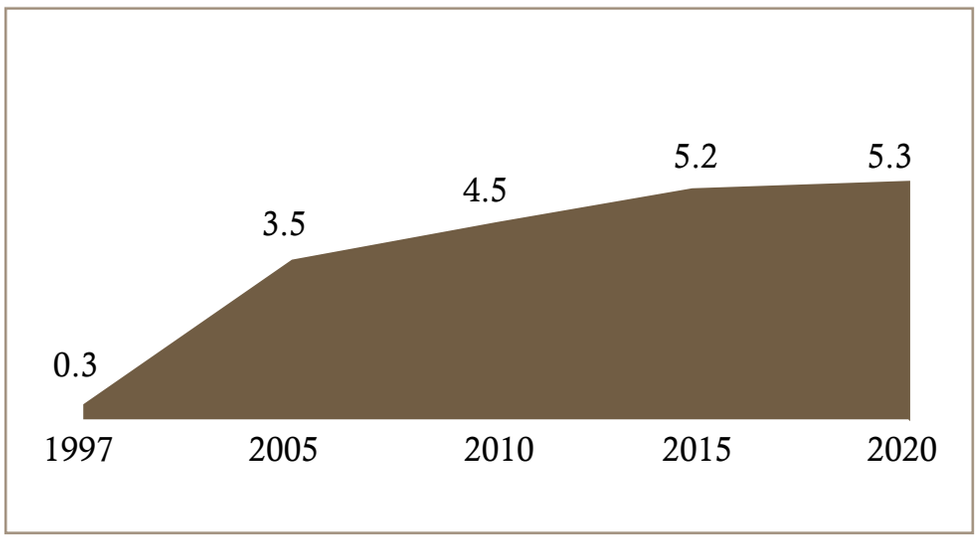


Figure 7. Expansion of the cultivation area of RB855156, in %, in the state of São Paulo.

RB867515

an odds-defying variety

RB867515 is one of the most widely cultivated varieties in Brazil and certainly at the global level. Its history is interwoven with that of Planalsucar. In 1985, the Regional Station Zona da Mata in Minas Gerais (ERZON), which currently belongs to the Federal University of Viçosa, was linked to COEST (Regional coordination unit of Western Brazil), headquartered in Campos-RJ. At that time, ERZON was transformed into COCEN (Regional coordination unit of Central Brazil), based in Ponte Nova-MG, covering the states of Minas Gerais and Goiás.

Due to this re-organization, seedling production had to be initiated with a specific view to intensifying breeding work for Minas and Goiás. Until then, ERZON did not have a seedling production of its own for phase T1 of the breeding program, but all testing was initiated with phase T2 clones provided by COEST. However, the challenges were huge, given the lack of financial resources to expand the research work. At that time, RB867515 was challenged by a first obstacle, as the Institute of Sugar and Alcohol (IAA) was starting to be dismantled.

In 1986, COCEN received a first batch of seeds (sugarcane caryopses) of labeled crosses from Serra do Ouro - AL. Sowing had to be done without any greenhouse structure since there were no resources for such a construction. Time was passing and a decision had to be made to initiate the first planting in June 1986. This was a historic moment, because in fact, this planting was the first of many that would still be carried out at the experimental sugarcane station in Ponte Nova-MG. A solution was found, which consisted of digging three trenches in the ground, each 1.5 m long x 1 m wide x 0.80 m deep. These were filled with pressed industrial sugarcane residues (filter cake) from the Sugar and Ethanol Plant of Jatiboca. A wooden frame covered with plastic served as lid. In this way, the combination of heat given off by the decomposing filter cake together with temperature control by irrigation and opening of the lid resulted in success with the production of the first seedlings, one of which was RB867515. In spite of the difficulties, thousands of seedlings were produced and the members of the team were thrilled with the outcome. The next steps consisted of the re-planting or individual seedling planting in August 1986, ending in September 1986 and finally the field planting in December 1986. This was a complete success again, when a total of 20,000 seedlings were established on the first T1 field of the series RB86 in the blocks 7, 8 and 9 of COCEN.

In July 1987, in the dry and cold season, the crop was cut so that the selection could be carried out in the ratoon crop, in May 1988. From the population of 20 thousand plants, 160 clones were selected. At that time, clone number 15 (currently RB867515), from block 8, already stood out among the others with greater vigor, development, leaf health and other agronomic characteristics. Since the clone also had a superior performance in the following test phase (T3), it was decided to start multiplying it alongside the first experiments that were being conducted at the Sugar and Ethanol Plant of Jatiboca, in an area with rugged topography and low natural soil fertility, for three growth periods. In the three harvest cuts, the most outstanding clone was number 15 again, now named RB867515.

At the exact moment when a final breakthrough was expected, the deathblow came instead, when the IAA as well as Planalsucar were closed down. This shutdown occurred on December 12, 1990, when the entire team was released from work for nine months, without knowing what would happen. At that time,

the fate of the program and the staff was completely uncertain. Finally, the Federal University of Viçosa assumed COCEN.

The transition from Planalsucar to some of the Federal Universities was very difficult, since no financial resources were available, which led to a standstill of the field work. Fortunately, the Sugar and Ethanol Plant of Jatiboca and the distilleries Agropéu and Atenas provided funding to carry out some more experiments with RB867515. In that period of transition, in the early 1990s, while RIDESA was struggling to get established with the support of the sugar and ethanol plants, RB867515 was first taken to other regions of Brazil to assess the production potential.

Variety RB867515 was officially launched in December 1997, by the Federal University of Viçosa. The cultivation area of RB867515 increased as of 2000, and in 2020, it accounted for about 22% of the total sugarcane area in Brazil (Figure 08). This is in fact a great accomplishment, particularly because it allowed the expansion of sugarcane cultivation into low fertility, sandy soils with water deficiency, where other varieties would not perform as well.

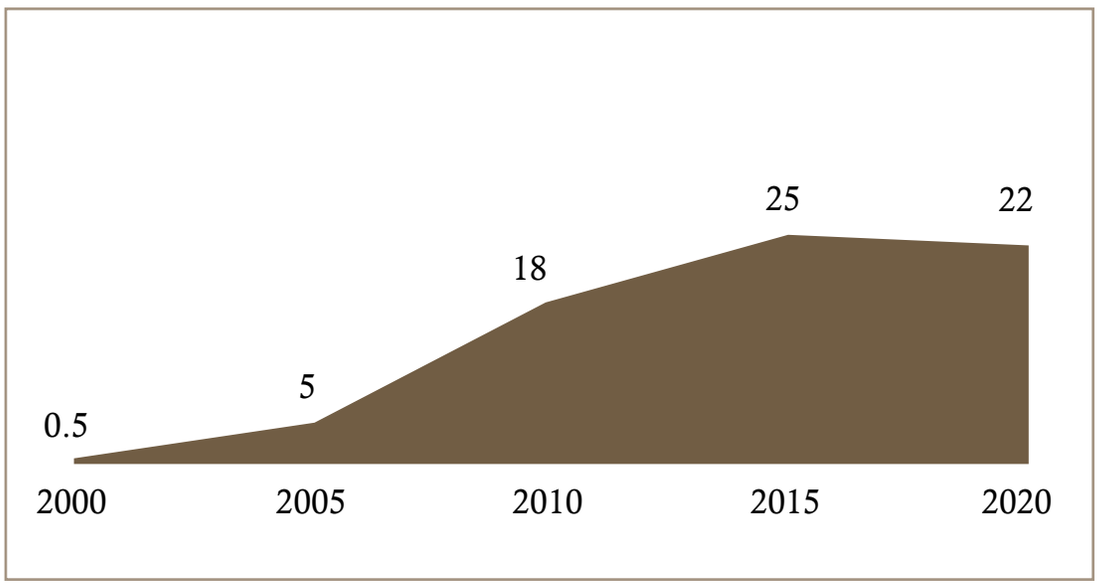


Figure 8. Expansion of the cultivation area of RB867515 in Brazil, in %. 2020.

RB867515 – Genealogy

Variety RB867515 was the result of polycrosses. Variety RB72454 was used as female parent, fertilized randomly with the pollen of several other varieties, so that the "father" variety cannot be specified (Figure 9).

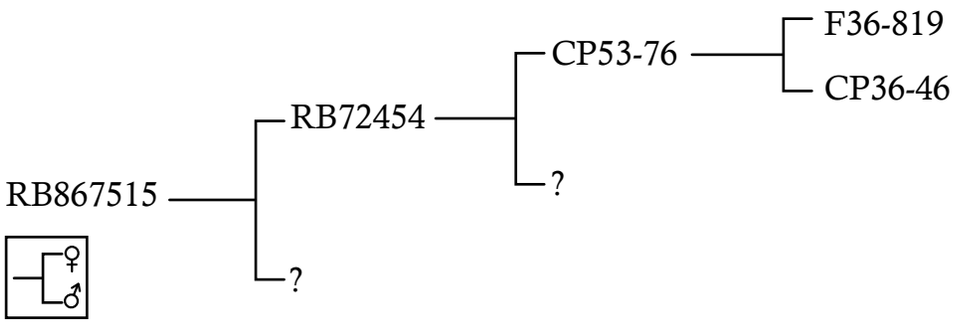


Figure 9. Genealogy of variety RB867515.

Morphological characteristics

RB867515 has an erect growth habit and easy leaf removal. Tillering is moderate and the stalks have a medium diameter and highly uniform stalk height. The stalks have cylindrical internodes, are greenish-purple under the leaf cover and intense purple when exposed to the sun, have few cracks and a slight zigzag alignment. The appearance is smooth, with weak waxiness. The medium-width growth ring is yellowish-green under the leaves on the stalk and purple-green when exposed to the sun. The root zone has medium width and no aerial roots.

The medium-sized buds are pentagonal, protruding a little beyond the growth ring, and have an apical germ pore. The cushion is narrow and depressed.

The medium-width leaves are curved, with bent tips and not very sharply serrated edges. The sheath is long, has medium waxiness and few or even no fine hairs. It has two auricles – one is medium-sized and lanceolate and the other short and transitional. The ligule is crescentshaped and the dewlap triangular. The leaf sheath is medium-sized, purple-green and has weak waxiness.

Agroindustrial characteristics

The test results of the sugar mills and distilleries indicated a superior performance of this variety over the others in sandy texture soils with low natural fertility. According to the experimental and commercial field results, sucrose productivity is high and the fiber content medium.

The variety has a good tillering capacity, even when planted late in the year, at cool temperatures. It is highly drought-tolerant in all stages of the growth cycle, from sprouting to the adult phase.

Flowering can occur in certain regions and, in this case, the use of an inhibitor is recommended to minimize losses due to pithy stalks. Considering the experimental results, cutting is recommended from the middle to the end of the harvest period. However, on low natural fertility soils, cutting can also be advanced to the beginning of the harvest period by crop ripeners.

The plant health of the variety is excellent and it is resistant to the main crop diseases, except to red streak. In this case, an appropriate disease-specific management is required.

OTHER IMPORTANT VARIETIES

Apart from the varieties RB855156 and RB867515, which were selected and developed by the breeders at PLANALSUCAR, but with participation of those of RIDESA staff in the experimentation and multiplication phases, the commercial success of the following varieties was also remarkable in Brazil:

- In the South-Central region: variety RB835486 was grown mainly in central Brazil, i.e., in western São Paulo State, Minas Gerais, Goiás and Mato Grosso, on around 20% of the sugarcane area of some sugar refining mills in the Cerrado region of Brazil. In relation to the total sugarcane acreage, it was planted on about 8% in 2005. The variety is early-maturing, suited for mechanical harvesting and moderately tolerant to the sugarcane rust fungus *Puccinia melanocephala*. Variety RB855536, planted on 5.5% of the sugarcane area in 2005, was used mainly in the Central South, on soils with medium natural fertility and higher moisture retention. In the same year, the varieties RB855453, RB855156 and RB835054 were also introduced, which are early maturing and appropriate for cutting at the beginning of the harvest in the South-Central region of Brazil.
- In the North-Northeast: variety RB83102, with high agricultural yield, high sugar content and late maturation was widely cultivated in the region, mainly in Alagoas, on about 8% of the total sugarcane area in 2000. It was however abandoned thereafter, due to its high susceptibility to brown rust. Between 1999 and 2005, the varieties RB75126 and RB863129 were also planted on significant percentages of the sugarcane acreage of this region.

RB VARIETIES DEVELOPED BY RIDESA

Sixty RB varieties were developed and released by RIDESA, from hybridizations carried out after 1990, i.e., these RB clones were developed from scratch by the Universities, within the logistic framework of the federal public service, but supported by private companies in terms of financial resources and research structures (land, equipment, input and labor), as follows:

I) UFSCar: released 15 varieties - four in 2006 (RB925211, RB925268, RB925345 and RB935744), two in 2010 (RB965902 and RB965917), four in 2015 (RB975201, RB975242, RB975952 and RB985476) and five in 2021 (RB975033, RB975375, RB005014, RB015177 and RB015935);

II) UFAL: 16 varieties - three in 2003 (RB92579, RB93509 and RB931530), five in 2010 (RB931003, RB931011, RB951541, RB98710 and RB99395), two in 2015 (RB961552 and RB991536) and five in 2021 (RB961003, RB01494, RB011549, RB0442, RB07818 and RB08791);

III) UFRPE: 10 varieties - three in 2005 (RB932520, RB943365 and RB943538), two in 2010 (RB962962 and RB002504), two in 2015 (RB992506 and RB002754) and three in 2021 (RB943047, RB021754 and RB041443);

IV) UFPR: 10 varieties - three in 2010 (RB946903, RB956911 and RB966928), three in 2015 (RB036066, RB036088 and RB036091) and four in 2021 (RB056351, RB056380, RB036152 and RB006970);

V) UFV: five varieties - one in 2001 (RB928064), one in 2010 (RB937570), two in 2015 (RB987935 and RB988082) and one in 2021 (RB987917);

VI) UFRRJ: two varieties - one in 2015 (RB969017) and another in 2021 (RB108519), and

VII) UFG: released two varieties - one in 2015 (RB034045) and another in 2021 (RB064292).

RB92579

a driver of sugarcane productivity in northeastern Brazil

In the Northeast of Brazil, sugarcane is planted on nearly one million hectares, distributed between the coastal region, the forest zone "Zona da Mata" (i.e., a narrow coastal plain between the Atlantic Ocean and the drier inland regions of northeastern Brazil) and part of the so-called "Agreste", a large sub-humid woodland region. Sugarcane is grown on less than 10% of the national crop area, but is socioeconomically the most important. Rainfall in this region is concentrated in the period between March and August, when light incidence is low, temperatures are cool and nights long. Between September and February, in the harvest period, when sunlight incidence is

higher, temperatures are warmer and the days longer, water stress occurs. These factors diminish plant photosynthesis and tend to reduce agricultural productivity (to less than 60 tons of cane ha^{-1} - TCH) in comparison with the South-Central region. Since the major obstacle for sugarcane cultivation in the northeast of Brazil is the climatic irregularity, complementary irrigation has been commonly adopted to enhance the agricultural production.

However, it is worth emphasizing that the improved sugarcane varieties are the driving factor behind the higher and cheaper production, which have made the sugar-energy agribusiness in Brazil economically viable and free from external technological dependence. With this in mind, breeders at the RIDESA Universities have been tireless in the search for new, more productive varieties, in partnership with companies of the sugar-energy sector. In 2003, under the responsibility of the sugarcane breeding program of the Federal University of Alagoas (PMGCA/CECA/UFAL), variety RB92579 was selected and released for commercial production.

Genealogy

Variety RB92579 is the result of the cross of variety RB75126 fertilized with pollen of variety RB72199, at the Flowering and Crossing Station Serra do Ouro, in Murici, Alagoas, (Figure 10). The seedling germinated from the seed of this cross that gave rise to variety RB92579 was analyzed in competitive evaluations, in a first selection phase in August 1992, at an outstation of the sugarcane mill Coruripe (Coruripe, Alagoas), together with 19,920 other plantlets. In the fifth year of evaluation (1997), the clone was included in an experimental network of several fields of this outstation and of the mills Caeté (São Miguel dos Campos, Alagoas) and Santo Antônio (São Luiz do Quitunde, Alagoas), and by other companies of the region in 2000, resulting in a high multiplication frequency. After 11 years of successive testing in different environments, the analysis of the results and monitoring over a number of crop cycles substantiated the release of RB92579 for commercial cultivation in 2003.

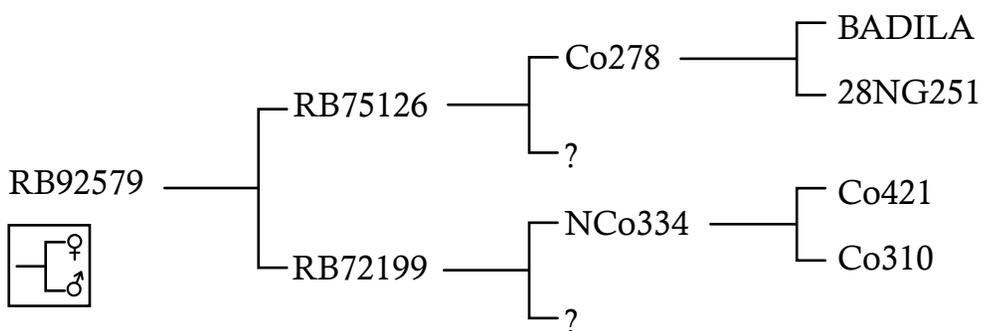


Figure 10. Genealogy of variety RB92579.

Morphological characteristics

Variety RB92579 has an erect growth habit, leaf architecture with curved tips, medium-dense canopy with intermediate colors, wide leaf blades with slightly serrated edges, strong leaf adherence, a short green-purple leaf sheath with a circular cross section and weak waxiness, stalks with medium-long, cylindrical internodes of medium length and diameter, with a stained appearance and weak waxiness, which are purple in the sunlight, yellow-green under the leaves and have triangular buds.

Agro-industrial characteristics

Variety RB92579 has optimal plant tillering and strong ratooning capacity after manual green harvesting (practice of cane burning and cutting when still green) and medium tillering and ratooning after manual cane harvest without previous burning. Canopy closure in-between the rows is excellent, due to the strong tillering in plant-cane and ratoon crops. It is long-living in the cane fields, flowering is rare and growth slow. Agricultural productivity is high in the first four harvest cycles. It is highly responsive to irrigation and has a high water-use efficiency. It is also highly efficient in the use of the main nutrients and recovers well from drought periods. The total recoverable sugar (TRS) content is high, maturation medium, the period of industrial suitability long and fiber content is medium. The planting period is extensive (from July to January in the Northeast and February to July in the Central South). Leaf adherence is strong during the growing phase and weak during harvest. It is resistant to brown rust and moderately resistant to orange rust and sugarcane smut, has intermediate resistance to leaf scald and red root rot and no leaf yellowing.

Evolution of the cultivation area

Since its release, the areas where variety RB92579 is planted by northeastern companies has significantly increased, due to the advantageous agro-industrial productivity, with 30% to 40% higher yields than of the other most commonly cultivated varieties and 60% higher than two decades ago. On fields in the Northeast, a high agricultural productivity under rainfed conditions (in the mean above 80 TCH) and extremely high productivity under full irrigation (in the mean above 140 TCH) have been observed. These results have been a decisive factor for the competitiveness of many companies in this region. Among other examples, at the sugarcane mill

Agrovale in Bahia, on a 60-ha area of RB92579 under full irrigation, 13 months of cane-plant cultivation yielded 260 TCH, which is a maximum commercial record on a global scale (Figure 11). Among the varieties developed exclusively by RIDESA, the first to be widely used was RB92579, which was planted on 40% of the cane fields in the Northeast of Brazil in 2020 (Figure 11), also representing a significant fraction of the entire sugarcane area of Brazil (about 10%).

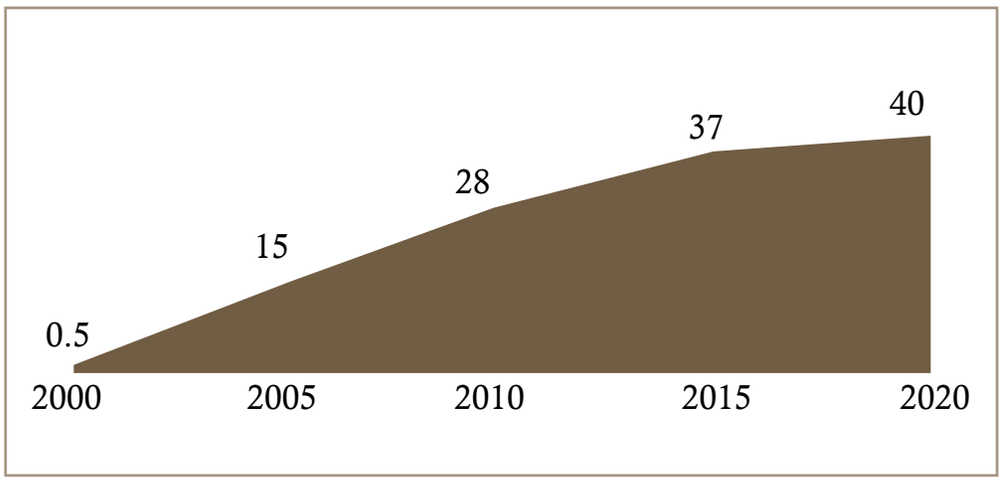


Figure 11. Expansion of the cultivation area of RB92579 in the Northeast of Brazil, in %. 2020.

RB966928

A sugarcane variety for mechanical planting and harvesting

Mechanical harvesting in Brazil has been implemented on more than 95% of the cultivated sugarcane area, along with an increasing use of mechanical planting on the fields, particularly in the South-Central region. This development has caused decisively impacted on the productivity of the cane fields, shortening the mean harvest period and supplanting the cultivation of varieties poorly adapted to machine harvesting.

However, it is important to mention that sugarcane breeding is a technology that contributed decisively to raise the production potential, and in cases of disadvantageous management techniques entail a disadvantage, the improved varieties have contributed to the maintenance of the agro-industrial yield. In 2010, under the responsibility of the Sugarcane Breeding Program PMGCA of the Agrarian Science Sector, the Federal University of Paraná released variety RB966928 for commercial production. Once released, the variety proved highly successful under mechanical harvesting, and can therefore be indicated for this new management form. Due to the excellent ratoon tillering, the variety can be considered an ideotype for mechanical sugarcane harvesting.

Genealogy

The seeds were obtained in 1996 from a cross of variety RB855156 with pollen of RB815690 (Figure 12).

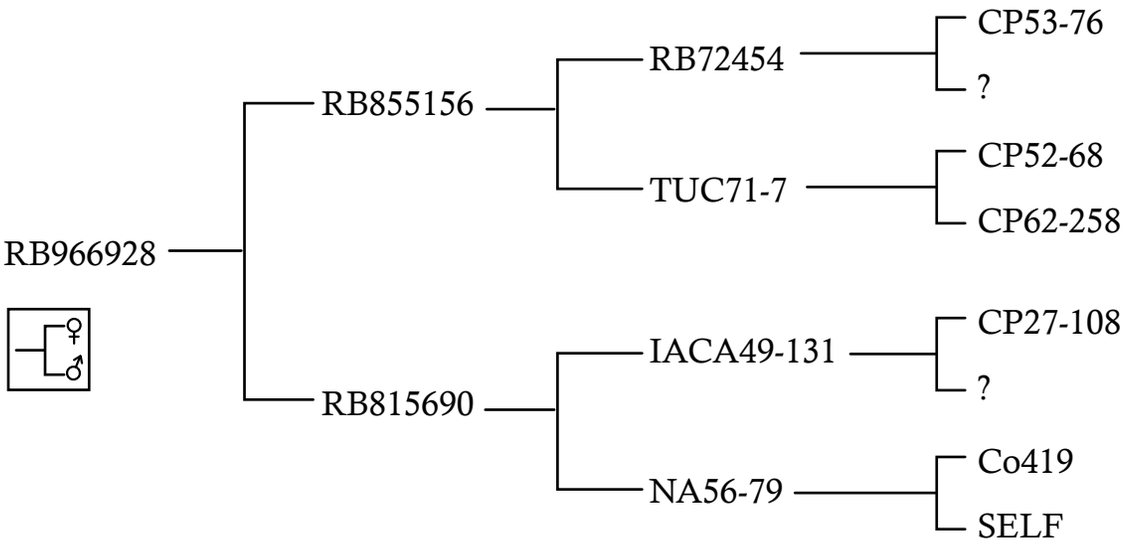


Figure 12. Genealogy of variety RB966928.

The cross was performed at the Flowering and Crossing Station Serra do Ouro, UFAL (9°13'S, 35°50'W, 450 m asl), in Murici, Alagoas. The seeds were germinated at the Experimental Station of Araras, São Paulo (22°18'S, 47°23' W; 620 m asl) in 1996 and the seedlings planted in the field at the Experimental Station of Paranavaí, in Paranavaí, Paraná (23°05' S, 52°27' W; 503 m asl). In 1996, successive mass selection was initiated and T1 was selected in 1998, in a ratoon-cane crop. In 1998, early clone selection was carried out in April, under high selection pressure, equal to or stronger than that applied for the selection of RB855156. Consequently, the selection resulted in few clones, so that the selected early clones from the stations of Araras, Paranavaí and Valaparaiso had to be brought to the Experimental Station Valparaiso for competition with each

other, standard testing and subsequent returning in phase T3. Two 5-m rows were planted, using variety RB855156 as experimental control, aside from hundreds of clones selected for this phase called T2. In 2000, selection was applied and a clone with excellent performance, superior to the others, was named "RB966928" in this phase. In the next stage (T3), in 2003, evaluations and selection were carried out based on data from two growing seasons at three locations in the State of Paraná (Mandaguaçú, Bandeirantes and Paranavaí). In 2004, the multiplication phase was installed and the experimental phase in 2005, at 15 locations in the State of Paraná. This phase was monitored over four growing seasons. Prior to release, data of 45 growing seasons were compiled, which attested the advantageous qualities of the said variety, in particular high productivity in ratoon crops and high sucrose richness, as well as good adaptability and yield stability.

Morphological characteristics

Variety RB966928 has a slightly prostrate growth habit and yellowish-green, short green leaf sheaths with medium adherence and a dense canopy. The internodes are conoidal with a circular cross section and are arranged in a slight zigzag alignment, yellowish green and yellow green when exposed to the sun, with shallow cracks and a low waxiness. The leaves are light green, medium long, narrow and curved near the tip. The auricle is small, unilateral and falcate and the dewlap purple-green. The greenish sheaths are short, arranged in a straight line, with weak to medium waxiness and fine or no dorsal hair.

Agro-industrial characteristics

The maturation of RB966928 is early to medium, whereas the period of industrial suitability (PIS) is long and the variety is indicated for harvesting in South-Central Brazil from mid-April to October. It is an excellent option for cultivation for the Central South, in view of the high stalk productivity and sucrose content between April and July, due to the long PIS. Apart from these characteristics, variety RB966928 has a particularly good plant health, is tolerant to brown rust, orange rust, sugarcane mosaic virus, leaf yellowing and leaf scald and moderately smut tolerant. However, smut occurrence is apparently related to cultivation in restrictive environments, where planting is not recommended for RB966928.

Expansion of cultivation area

After the release of RB966928 in 2010, cultivation increased mainly in the South and South-Central regions, mainly due to the earliness and yield stability under mechanical planting and harvesting, with a stable yield advantage of 15% over the other varieties grown in the same production period and environment.

One year after its release, RB966928 was already planted on almost 20,000 ha in the State of Paraná, corresponding to 3% of the sugarcane acreage, and ranked among the 15 most cultivated in Brazil. In the following year, in 2012, it appeared among the eight most commonly used in Brazil, with the largest cultivation areas in São Paulo and Paraná. In the Central South, the increase in acreage between 2012 and 2014 exceeded 70%, and it became the second most planted variety. At the beginning of 2015, the variety was already among the three most cultivated in Brazil. In 2017, in the South-Central region, RB966928 was the variety most companies or producers declared to have an intention of planting in a survey and the second most cultivated variety. In 2018, it was the second most cultivated variety of all Brazil and the cultivation areas in the states of Mato Grosso do Sul, Goiás and Minas Gerais increased. For 2020, it has been estimated that RB966928 was planted on more than 16% of the sugarcane acreage in the South-Central region and more than 13% of the entire cane area of Brazil.

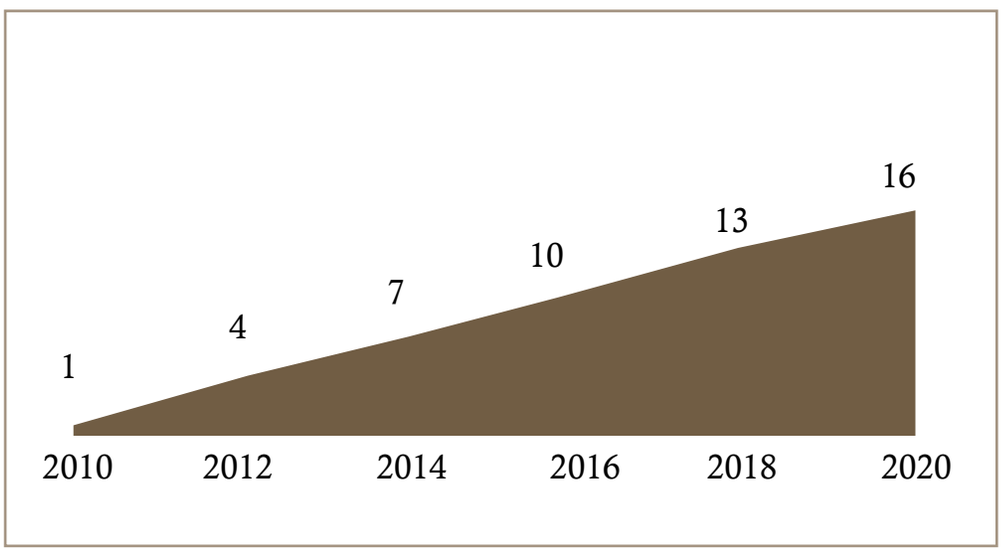


Figure 13. Expansion of the cultivation area of RB966928 in the Center South of Brazil, in %. 2020.

RIDESA RESEARCH BASES

The research work of RIDESA is done at 101 bases, consisting of university laboratories, breeding stations, experimental stations, outstations and bases for selection, of which the latter two are public-private partnership projects with companies of the sugarcane agroindustry (Figure 14).

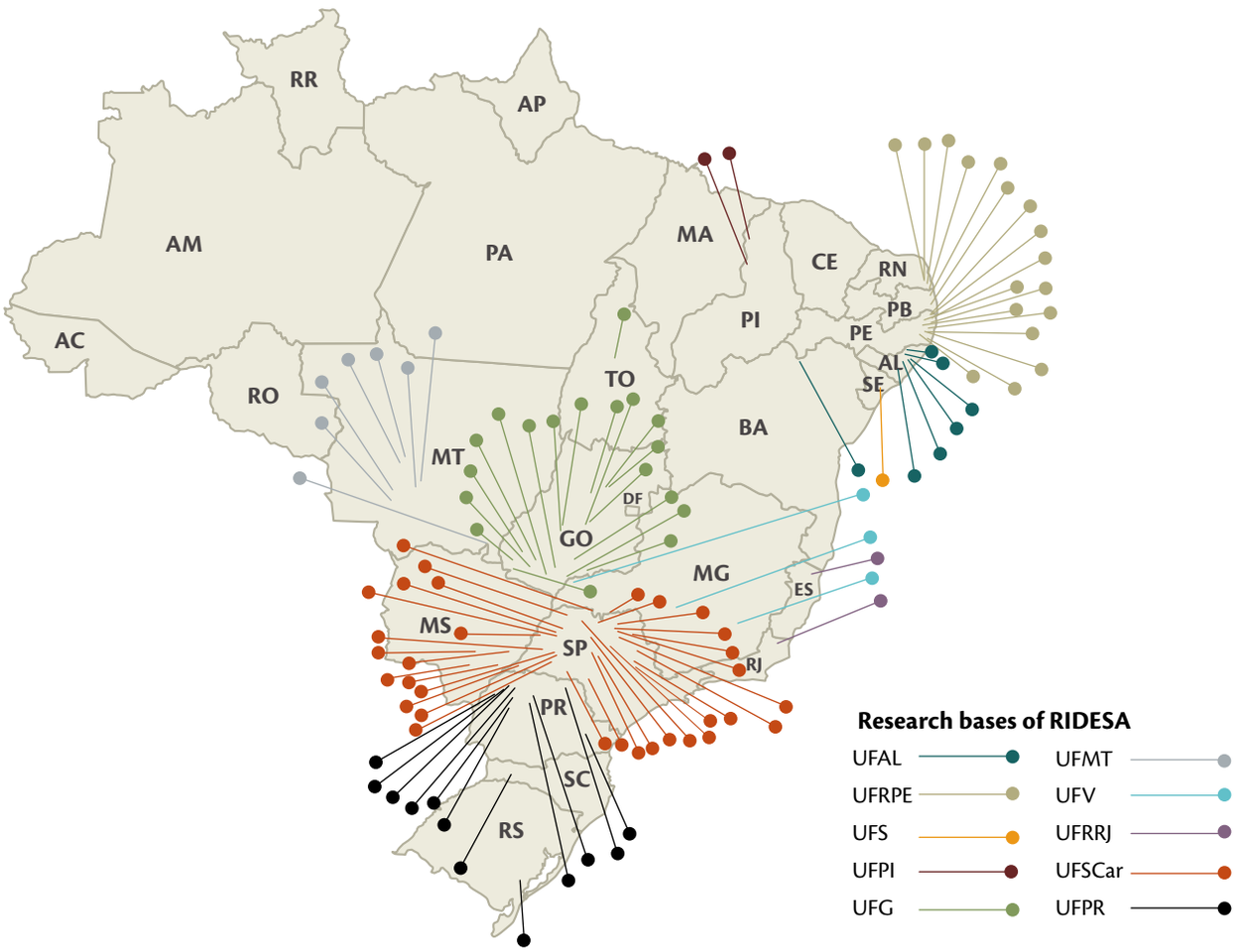


Figure 14. Experimental stations and research bases of PMGCA/RIDESA in Brazil, 2020.

RIDESA germplasm banks and sugarcane breeding stations

In 2020, RIDESA had two germplasm banks in the Northeast of Brazil, where the climatic conditions are favorable for abundant sugarcane flowering and fertile pollen production the Flowering and Crossing Station Serra do Ouro, in Murici/Alagoas (09º 13' S, 35º 50' W; 515m asl) and the Flowering and Crossing Station Devaneio, in Amaraji/Pernambuco (08° 19.8' S, 35° 24.89' W; 514m asl).

Every year, the RIDESA universities send potential RB clones to these bases for new crosses. With a view to promoting the exchange of plant material (cultivars, clones and species), agreements have also been established with several national and international sugarcane breeding programs; the introduced clones are identified with the acronyms CTC, IAC, Vertix, Q (Australia), NA (Argentina), CC (Colombia), R (Reunion) and others. The purpose of this initiative is the introgression of new sources of variability for different traits of agro-industrial interest and of resistance to biotic and abiotic stresses to meet the new demands of the sugar-energy sector.

Serra do Ouro – Alagoas

The station Serra do Ouro (Figure 15) was founded in 1967, lies 34 km from the coast and covers a total area of 32 hectares, where the respective annual means are annual rainfall 2,363 mm, minimum temperature of 18.2 ºC and maximum of 27.9 ºC. Due to the particularly appropriate location and climate, sugarcane flowering occurs naturally and abundantly, as required for the hybridizations (between March and June) planned previously by RIDESA researchers. From 1970 to 1989, these activities were carried out by Planalsucar and 19 RB varieties were developed and released for the national production sector in this period. As of 1990, UFAL took over the station Serra do Ouro, to ensure the alignment with the RB cultivar breeding programs of RIDESA, under the administration of the sugarcane breeding program of the university (PMGCA/CECA/UFAL). From the seeds produced in Serra do Ouro, 114 RB cultivars were generated, of which RIDESA released 95. In 2020, the Germplasm Bank Serra do Ouro had a collection of 3,065 accessions, comprising species of the *Saccharum* complex and sugarcane hybrids from national and international breeding programs (Table 2).

Figure 15. Overview of sugarcane crosses performed at the Flowering and Crossing Station Serra do Ouro, Murici-AL, 2020.

Table 2. Species and number of accessions of the germplasm bank of the Flowering and Crossing Station Serra do Ouro, Murici-AL in 2020.

Species/Hybrids	Accessions
Saccharum officinarum	44
Saccharum sinense	5
Saccharum robustum	9
Saccharum spontaneum	39
Saccharum barberi	6
Saccharum edule	1
Erianthus arundinaceus	6
Miscanthus	2
Unknown species	159
Hybrids: B, BJ, CL, CR, CP, Co, CB, CTC, DB, F, H, IAC, IANE, L, LAICA, MEX, N, NA, POJ, PR, Q, R, RB, ROC, SP, TUC, TCP, US and others	2,794
Total	3,065

Devaneio – Pernambuco

The Flowering and Crossing station Devaneio - EFCD, located in a mesoregion of the state of Pernambuco called Mata, microregion Mata Sul (i.e. southern forest), district of Amaraji (08º19' S; 35º24' W; 514m asl), covers an area of 15 ha and lies 25 km from the coast and 110 km from Recife. It is managed by the RIDESA Sugarcane Breeding Program of the Experimental Sugar Cane Station of Carpina of the Federal Rural University of Pernambuco (RIDESA/EECAC/UFRPE). Currently, the EFCD germplasm bank contains 1,801 genotypes (Table 3) with abundant flowering and fertile pollen release under natural climatic conditions.

Table 3. Species and number of genotypes of the germplasm bank of the Flowering and Crossing station Devaneio EFCD, Amaraji-PE, in 2020.

Species/Hybrids	Accessions
Arundo donax	2
Erianthus arundinaceus	18
Erianthus kanashiroi	1
Erianthus kue	3
Echinochloa pyramidalis	1
Saccharum barberi	14
Saccharum edule	1
Saccharum officinarum	74
Saccharum robustum	8
Saccharum sinense	4
Saccharum spontaneum	30
Saccharum sagittatum	1
Saccharum spp.	6
Miscanthus spp.	1
Unknown species	190
Hybrids: B, C, CP, Co, CB, F, H, IAC, MEX, N, NA, POJ, Q, RB, SP, TUC and others.	1,447
Total	1,801

The innovative techniques and methodologies of hybridization and selection that were adopted under the historically exceptional conditions now allow simple and concise crosses that produce enough seed to meet the demand of the breeding programs of the Federal Universities that belong to RIDESA.

Different from the other sugarcane breeding stations in Brazil, the EFCD not only makes crosses to produce caryopses (sexed seed), but also initiates the first steps of the breeding program. To this end, an innovative method is used called Simplified Selection System - SSS. The method consists of seed germination in boxes and after 45 days, planting of the seedlings in a furrow in the field, in a no-tillage system in a furrow, forming a green mat (the so-called "tapetinho") as the plantlets grow. After six months, the clones that stand out from this carpet with greater vigor, plant height, better disease resistance and higher sucrose content are selected. Subsequently, progeny tests with selection between and within families and transgressive plants can identify elite genotypes for the germplasm bank within a short time. This is followed by new recurrent selection cycles and finally the development of new varieties. Figure 16 shows an overview of the structure of the germplasm bank (a), plants crossed in a diallel mating system (b), the crosses under bell-shaped hoods (c) and caryopsis germination, resulting in a "tapetinho" (d).

These hybridizations at the Flowering and Crossing Stations Devaneio, Pernambuco and Serra do Ouro, Alagoas, under the management of the Federal Universities of Pernambuco and Alagoas, respectively, represent the backbone of the progress of commercial sugarcane cultivation.

Figure 16. Flowering and Crossing Station Devaneio, Amaraji-PE, 2020, overview of the planting of the germplasm bank, crosses under bell-shaped hoods and germination of the caryopses in the "tapetinho".

BREEDING GAINS

The rate of adoption and use of new cultivars is the best parameter to quantify the research results and return of the public and private investment. The varieties bred by RIDESA have contributed to sugarcane production in Brazil, as they were planted on about 60% of the total sugarcane area in 2020 (Figure 17).

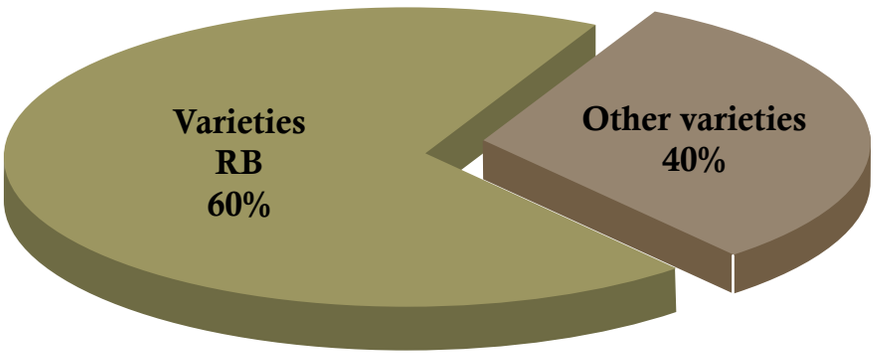


Figure 17. Percentage of RB and other varieties grown in Brazil, according to the Varietal Census RIDESA, 2019/2020. Brazil, 2020.

To develop a sugarcane cultivar, an estimated expense in the order of US $ 50 million is required. However, in the case of RIDESA, where the combined action of 10 Federal Universities and the partnership with companies of the production sector benefit the network with land, input, labor and laboratory analysis for the selection, experimentation and multiplication stages of RB clones, this estimation is reduced to a 10-million-dollar investment. The cost of a cultivar of this species, in percentage of the production cost, is much lower than that of other crops. In this comparison, the value of between 1 to 6 dollars per hectare, i.e., less than 0.3% of the production cost, is very low. Therefore, to ensure the competitiveness of Brazil in the sugar-energy sector based on sugarcane cultivation, more public and private investments in classical and advanced genetics are needed, as well as in basic research and technological innovation of the entire production chain.

Sugarcane breeding has enabled constant yield increases in Brazil. In the 1970/1971 growing season, when Planalsucar was implemented, the crop was planted on around 1.7 million hectares in Brazil, with a productivity of 46.2 tons of cane per hectare (TCH) and a recovery rate of 90 kg sugar per ton of cane, in other words, a sugar yield of 4.2 t ha^{-1}. Within a period of 50 years, the cultivation area expanded enormously and the productivity of the sector rose to staggering levels. In the 2019/2020 growing season, 643 million tons of raw material were harvested from 8.4 million hectares; in other words, a mean TCH yield of 76.5 t ha^{-1} was harvested, with a mean of 139.3 kg of total recoverable sugar (TRS) per ton

Agrovale

of cane and a mean yield of of 10.7 t of TRS ha^{-1}. The mean of sugar yield in Brazil has increased at an annual rate of 155.7 kg/ha over the last four decades (gain of 4% per year between the growing seasons of 1970/1971 and 2010/2011). Obviously, these gains are the result of the implementation of technology, both in the agricultural and industrial areas. In this scenario, the relevance of the new cultivars is unquestionable, although the separate contribution of each production factor to the overall increase of the sector would be difficult to define. A rough guess of the breeding merit estimates that 50% of the productivity gain was due to the continuous substitution of cultivars by more productive ones, as reported in several countries. Thus, taking half the advance in sugar production in Brazil and assuming a cultivation area of 8.4 million hectares in the 2019/2020 growing season would mean an increase of 654 million kg of sugar since the growing season of 1970/1971, corresponding to a gain (specifically due to the continuous replacement of cultivars) of approximately U$ 108 million.

In the light of these considerations, it is also worth remembering that in 2020, sugarcane participated with a share of 18% in the country's energy matrix (ethanol fuel and bioelectricity) and RB varieties were planted on around 60% of the Brazilian sugarcane fields. Altogether, these facts clearly show the major and decisive contribution of RIDESA Universities, of about 11%, to the energy matrix of Brazil.

A LOOK INTO THE FUTURE: ENERGY CANE

Evidently, the adoption of modern genotypes over the last four decades has led to a remarkable gain in sugar yield and increase in profitability for the companies of the Brazilian sugar sector. However, since the entire cane plant can be harvested (stalk, tip and dry leaves) for the exploitation of sugars (sucrose, glucose and fructose) as well as of fibers (cellulose, hemicellulose and lignin), this crop has become a major focus of interest. It is potentially exploitable for a wide range of products in integrated and interdependent processes. In this context, today's sugar and ethanol plants are gradually crossing over to an extended configuration as they are being transformed into so-called biorefineries, which are expected to produce more than only the traditional sugarcane-derived products. Forecasts show possibilities of production of advanced biofuels from sugarcane, such as cellulosic ethanol, cane biodiesel, aviation biokerosene, aside from biodegradable plastic, biochemicals, drugs and polymers for cosmetics and fragrances.

Brazilian mills of the sugar/alcohol sector are self-sufficient in electricity thanks to the steam from boilers where the sugarcane bagasse is burnt. However, only few companies sell the surplus electricity on the market, by sending electricity to the distribution network through cogeneration plants.

On the other hand, two companies, one in São Miguel dos Campos/AL and the other in Piracicaba/SP, have already initiated production with chemical or enzymatic fiber hydrolysis (cellulose and hemicellulose) to produce fermentable sugar and liquid fuel for second-generation (2G) ethanol in Brazil.

At this point, it is important to outline the huge potential of sugarcane as energy crop. Quite certainly, the breeding strategies for future sugarcane clones will have to be adapted in order to meet the new demands of new markets. In the same sense, the demand for sugarcane as multiple raw material for the fabrication of sugar, ethanol, electricity, biofuels, biopolymers and biopharmaceuticals will increase greatly and necessarily require a change of paradigms in the research approach to the different areas. The objectives of breeding research will be reformulated to:

I) maintenance of the development of clones of the traditional "sugarcane" type, in search for higher stalk biomass yield and sugar content, to continue serving the current companies of the sugar/alcohol sector that use conventional industrial processes.

II) development of "type I energy cane" clones with higher biomass yield (stalk, tip and dry leaves), medium sugar content and higher fiber content, in order to meet the demands of new ventures of biorefineries for a more effective manufacturing of the conventional as well as new products that require more advanced technologies.

III) development of "type II energy cane" clones with high biomass yield and low sugar and high fiber content, to supply the biorefineries for the production of cellulosic ethanol and to refuel other industries that will have to replace fossil energy with cleaner and renewable sources, based on sugarcane biomass.

For these purposes, the modern hybrids, derived from the Saccharum gene pool and related species, will meet these expectations. In 2011, RIDESA universities started a program to develop RB energy cane clones from crosses of current hybrids with wild S. spontaneum accessions. The preliminary outcome were plants with superior traits in terms of: total biomass yield, number of stalks per clump and plant vigor (Figure 16). With these results, the release of RB sugarcane cultivars that will meet the growing demand of companies for the production of cellulosic ethanol, bioelectricity and biochemicals is expected in the next few years.

Figure 18. Energy cane of RIDESA in the testing phase. 2020.

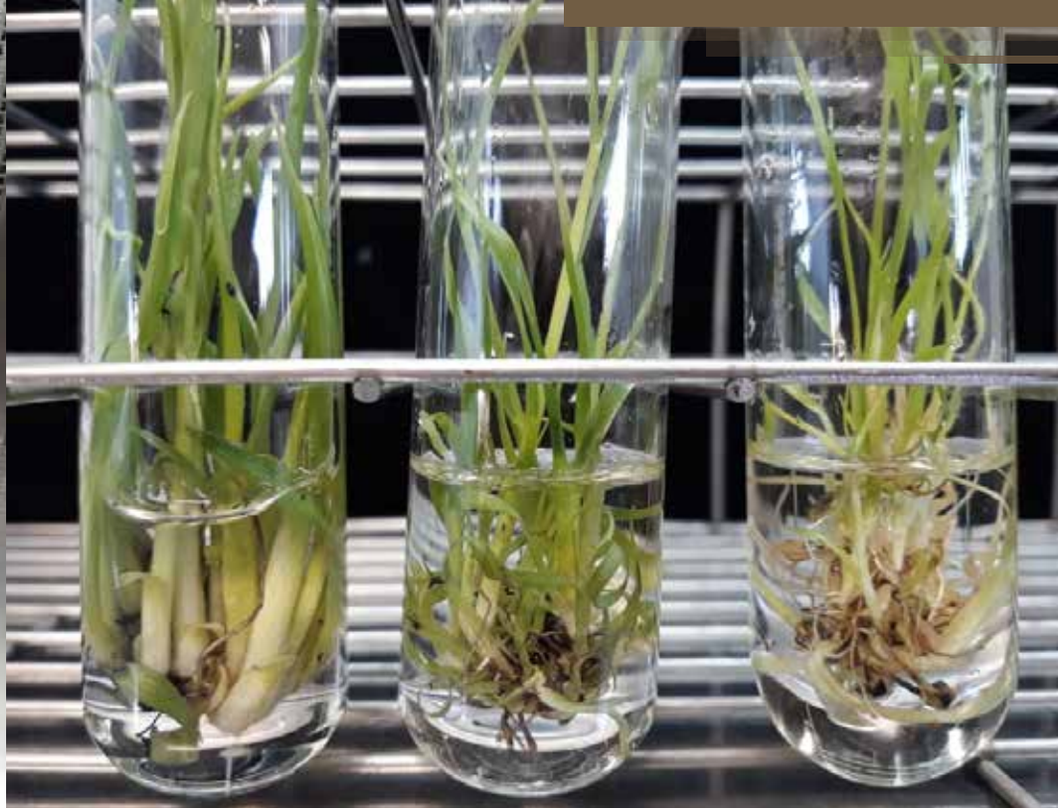
However, there are three major obstacles to the selection of energy cane clones: the high incidence of smut disease (*Sporisorium scitamineum*), high level of flowering and low stalk mass. Thus, the great challenge of breeding for the development and consolidation of commercial energy cane cultivars is to find more effective strategies to tackle these three issues.

For the adjustment of the production sector to energy cane cultivars, a series of technological hurdles still needs to be overcome, for example:

I) development of harvesters for mechanical harvesting of high-yielding, high-fiber cultivars;

II) enhanced efficiency of sugar mills for juice extraction during industrial processing. Moreover, sugarcane cultivars with low sucrose and high reducing sugar contents (glucose and fructose) hamper sugar crystallization.

Complementary, the criteria and strategies in future breeding programs for the selection of different cane types should be coupled with models of economic indices weighted by the economic value of the final sugar and fiber products.



BIOTECHNOLOGY AT RIDESA

Aside from conventional breeding, the professors and researchers at the different Federal Universities engaged in RIDESA have been exploring biotechnological methods, with the main objective of supporting sugarcane breeding efforts and training human resources to explore this key area.

Some of the activities in this area of operations are plant tissue culture, genetic transformation (transgenics), molecular biology (search for genes of biotechnological interest and genome and transcriptome sequencing) and molecular marker technologies.

To ensure the coordinated work of professors, researchers and students in this area, a CNPq research group called Sugarcane Biotechnology RIDESA was created by the Brazilian Council for Scientific and Technological Development (CNPq) in 2010 (dgp.cnpq.br/dgp/espelhogrupo/1478024296719594). Basic and applied research is developed in the following sectors:

1. Characterization and conservation of the RIDESA germplasm bank;
2. Genomic selection and genotyping platform;
3. Identification of advantageous sugarcane gene loci;

4. Structuring technology - vectors/promoters;

5. Tissue culture and transgenics.

In the area of molecular markers, the projects carried out at UFSCar and UFG are worth mentioning. The development and large-scale genotyping of SSR and SNP markers have been overall research objectives at both universities. A purpose of these studies is to include genomic selection in the routine of the conventional breeding program. With regard to the more specific goals, UFSCar is interested in the identification of advantageous gene loci associated with abiotic stresses, with an emphasis on aluminum and drought tolerance. At UFSCar and UFPR, molecular diagnosis markers have been used to predict the genetic resistance of sugarcane clones and varieties to diseases such as brown and orange rust. In addition, molecular fingerprinting protocols were established at UFSCar, by which the germplasm bank of RIDESA could be evaluated.

Plant tissue culture consists of plant cells, tissues or organs cultured *in vitro* in a nutrient medium, under aseptic and controlled light and temperature conditions. In the case of sugarcane, the main application of tissue culture is in micropropagation, in order to produce healthier seedlings more quickly. In this area, remarkable research has been done at UFRRJ, in Campos-RJ, and UFPR, focused on the micropropagation of different varieties and RB clones by meristem culture. Another field of study is somatic embryogenesis, a process used in the genetic transformation for transgenic sugarcane. Scientists at some other universities, e.g., UFS, UFG and UFV have also been working in this area.

The development of transgenic sugarcane varieties is also a focus of the field of biotechnology. For this purpose, UFPR has the necessary infrastructure and licenses to develop and evaluate transgenic sugarcane plants. This university has been developing studies of genetic transformation in sugarcane, mainly with a view to understanding the expression of different genes to increase the tolerance to abiotic stresses, in particular to drought. Similarly, the *in vitro* performance of the new RB varieties is being studied at UFSCar, for the development of transgenic sugarcane.

In March 2014, the Laboratory of Plant Biotechnology at UFSCar was inaugurated, expanding the infrastructure of RIDESA for studies on sugarcane biotechnology in the different areas.

The following institutions have supported RIDESA with funding of biotechnological studies: State of São Paulo Research Foundation (Fapesp), Brazilian Council for Scientific and Technological Development (CNPq), Brazilian Federal Agency for Support and Evaluation of Graduate Education (CAPES), Brazilian Innovation Agency for research and Projects Financing (Finep), Banco do Nordeste and Petrobras, in the framework of projects supported by the National Institute of Science and Technology of Bioethanol (INCT-Bioetanol), Bioenergy Research Program (BIOEN Fapesp) and Integrated Multiannual Program for Research, Development and Innovation in Sugarcane -Pluricana - Finep.

Among the partners of the RIDESA universities in this area are the Agronomic Institute of Paraná (Iapar), State University of Campinas (Unicamp), Chemistry Institute of the University of São Paulo (USP-IQ), Faculty of Agriculture "Luiz de Queiroz"/University of São Paulo (USP-ESALQ), Embrapa Agroenergy, Embrapa Temperate climate and Federal University of Grande Dourados (UFGD).

HUMAN RESOURCES TRAINING

The staff team of the 10 universities of RIDESA, dedicated to the development of genetically improved RB cultivars, consists of 275 professionals, namely: 46 professors, 46 graduate researchers (39 agronomists, 4 biologists, 1 chemist, 1 biotechnologist and 1 zootechnician), 57 vocational technicians and 19 administrative and 107 operational staff.

Apart from the notable success in the development of RB sugarcane cultivars for Brazil, the network invests in human resources training. The infrastructure of the universities has been the basis for the training of undergraduate and graduate students with a specific focus on this crop. Hundreds of trained professionals are currently working in the private sector and in public institutions.

Every year, internships and/or scholarships are awarded to around 100 students in the undergraduate courses of the universities linked to RIDESA, particulalry scientific initiation scholarships for research on sugarcane. In the postgraduate programs of specialization, master, doctoral and post-doctoral courses of the RIDESA universities, the students are also trained in research related to sugarcane breeding. Several scientific training programs have been proposed that are contributing to the continuous evolution of knowledge on the improvement of the crop. A noteworthy example is an internship in agronomy with specialization in sugarcane, coordinated by the partner universities UFRRJ and UFPR, by which more than one hundred junior graduate agricultural engineers have already been trained at sugar refining mills, under the supervision of professors of the coordinating universities.

HIGHER EDUCATIONAL INSTITUTIONS OF THE RIDESA NETWORK

FEDERAL UNIVERSITY OF ALAGOAS

The Federal University of Alagoas (UFAL), founded in 1961, is the main institution of higher education and scientific development in Alagoas. It is built on the campus A.C. Simões, in Maceió, and on three others, namely Arapiraca, Delmiro Gouveia and Rio Largo, in the interior of the State. In 2018, 27,568 undergraduate students were enrolled in 89 face-to-face and 11 online courses and 2,336 graduate students in 61 postgraduate (masters doctoral and post-doctoral) courses. The staff consists of 1,766 technical-administrative employees and 1,640 teachers. Since 1990, UFAL has been developing the Sugarcane Breeding Program (PMGCA) at the Sugarcane Research and Breeding Center (CECA) in Rio Largo, based on a public-private partnership model, involving companies of the sugar-energy sector, inter-coordinated by the Foundation for the Development of Extension and Research (Fundepes). The transfer of the responsibility for sugarcane research to CECA ensured the continuous operation of the activities to develop RB sugarcane varieties, which were assumed by the university's teachers, researchers, technical-administrative staff and undergraduate students (Agronomy, Agroecology,

Energy Engineering, Electrical Engineering, Forestry Engineering, Surveying Engineering, Veterinary Medicine and Animal Science) and graduate students (Academic Master and Doctorate in Plant Production and Plant Protection, Academic Master in Animal Science and Professional Master in Biomass Energy). The PMGCA/CECA/UFAL oversees the Sugarcane Germplasm Bank Serra do Ouro, in Murici-Alagoas, where sugarcane hybridizations are performed and caryopsis are produced to meet the demand of research to breed RB varieties (Republic of Brazil) at the federal universities of RIDESA.

FEDERAL UNIVERSITY OF GOIÁS

The Federal University of Goiás (UFG) was founded in 1960 with the mission to generate, systematize and transmit knowledge and expertise by qualifying students as professionals and citizens committed to the development and welfare of society. Currently, UFG runs 102 undergraduate courses, 98 of which are taught on-site and 4 on-line, plus 66 graduate programs, 43 of which lead to a doctoral degree, with 22,288 undergraduate students, 2,112 teachers and 2,288 administrative/technical staff. The disciplines are based in the regional units of Goiânia (Campi: Colemar Natal e Silva, Samambaia and Aparecida de Goiânia) and the regional unit of Goiás, in the city of Goiás. The activities of the Sugarcane Breeding Program UFG (PMGCA/UFG), subordinate to the Plant Breeding Sector of the School of Agronomy and seated at the Center of Excellence in Sugarcane Breeding for the Cerrado, were taken up in 2004. Currently, the program runs an experimental station in Goiânia and 17 outstations scattered throughout Goiás and Tocantins. The PMGCA/UFG is associated with the UFG Graduate Program in Genetics and Plant Breeding with a view to contributing to human resource training and cutting-edge research. The PMGCA/UFG is managed by a multidisciplinary team of UFG lecturers, university employees and scholarship holders of undergraduate and graduate courses of the institution. Companies affiliated with PMGCA/UFG provide financial support and assistance with the field experiments..

FEDERAL UNIVERSITY OF MATO GROSSO

The Federal University of Mato Grosso (UFMT) was created by Law 5.647, on December 10, 1970. The peculiar location in the rich and exuberant settings of the geographic micro-regions of the Pantanal, Amazon, Araguaia and Cerrado represents an inexhaustible field of research for the advancement of knowledge in terms of biodiversity on the doorstep of the institution. Ever since its foundation, UFMT has sought adaptation to the reality of the surrounding environment and has extended its influence into all regions of the State in order to promote teaching, research and extension in different branches of knowledge. Currently, the university has four campuses (Cuiabá, Sinop, Várzea Grande and Araguaia, of which the latter consists of two units, one in Pontal do Araguaia and the other in Barra do Garças. A research base in the Pantanal and an experimental farm in Santo Antônio do Leverger also belong to UFMT. The university is subdivided in 29 institutes and colleges with more than 34,000 students enrolled in 106 undergraduate and 62 postgraduate courses (master's and doctoral). An administrative/technical staff of 1,576 and 1,904 lecturers are in charge of the teaching, research and extension activities. The PMGCA is linked to the Department of Crop Science and Plant Health of the Faculty of Agronomy and Zootechnics - FAAZ, and has been working with sugarcane research, teaching and extension since it was affiliated with RIDESA in 2010.

FEDERAL UNIVERSITY OF PARANÁ

Sucom/UFPR

The Federal University of Paraná (UFPR) was founded in 1912 and is the oldest in Brazil. At the State and national level, UFPR is a well-known model institution of higher education, marked by an impressive sequence of achievements. The University represents a major symbol of the culture of the State, expressed by the size and scope of the undergraduate, specialization, master's and doctoral courses, aside from the research and extension areas, maintained by a staff of 3,814 technical-administrative employees and 2,454 lecturers. The 25,014 undergraduate students are majoring in 130 different courses. The graduate specialization courses offer 90 options for currently 3,841 students and the graduate program has 76 master courses, with 3,218 enrolled students and the doctoral program 49 courses for 2,327 students. As a public institution, the university also has a social responsibility towards the population of Paraná, which is assumed in the form of practical services. As only one related example, (since UFPR is very large and benefits society in multiple ways) one could cite the "Research Program on Sugarcane Breeding", which is extremely important for the sugar-energy sector of the state of Paraná, as currently 76% of the varieties grown in the state are RB cultivars. The Sector of Agricultural Sciences is organized in five undergraduate courses and five master's and doctoral graduate programs. The first Agronomy course began in 1915 and expanded to currently 109 teachers for 675 students, in which the Department of Crop Science and Plant Health (DFF) is integrated. The Sugarcane Breeding Program of UFPR (PMGCA/UFPR/RIDESA), together with the DFF, have been developing activities of sugarcane research, teaching and extension since 1992, resulting in the release of already 10 varieties.

FEDERAL UNIVERSITY OF PIAUÍ

The Federal University of Piauí (UFPI), established by Law No. 5,528, on November 12, 1968, is an institution of higher education based in Teresina - PI and has three other campuses in the cities of Picos, Floriano and Bom Jesus. Currently, it employs 1,570 full professors and 1,035 administrative technicians, and offers a range of 95 on-campus undergraduate courses and 67 graduate programs, 45 of which lead to master's (35 academic and 10 professional) and 22 to doctoral degrees (21 academic and 01 professional), with a total of 2,431 students in graduate programs. As part of the Department of Crop Science of the Agricultural Sciences Center, the UFPI Sugarcane Breeding Program (PMGCA-UFPI) uses an area of approximately 2.5 hectares. The buildings on over 360 m^2 are used for administration and for three laboratories equipped for research on sugarcane cultivation, covering the areas of molecular genetics, physiology, mineral nutrition, crop science, plant health, soil microbiology and others. This space also includes two greenhouses for seedling production from caryopses (initial phase of the breeding program) or from pre-sprouted sugarcane seedlings from separate buds ("minirrebolos") for the multiplication of promising clones in the RIDESA interchange phase. Apart from contributing to the socioeconomic development of the State, the institution PMGCA-UFPI fosters the training of qualified human resources by means of scientific initiation projects, as well as by stimulating and promoting advances in scientific and technological research in sugarcane breeding and by providing direct support for dissertations and theses related to the UFPI Graduate Program in Agronomy.

FEDERAL RURAL UNIVERSITY OF PERNAMBUCO

The Federal Rural University of Pernambuco (UFRPE) is a Brazilian institution of public higher education, specialized in courses in the field of agrarian sciences and other disciplines that contribute to the development of the rural environment. In recent years, UFRPE has expanded the range of courses, including some with no relation to the rural environment. The headquarters of the 108-year-old university are in Recife, where UFRPE offers 57 undergraduate and 62 graduate courses for around 17,000 students. The Sugarcane Experimental Station Carpina (EECAC) covers an area of 261 hectares, where the activities of the sugarcane breeding program PMGCA are carried out. In turn, EECAC runs the Flowering and Crossing Station Devaneio, in Amaraji - PE, where crosses that meet part of the caryopsis demand of the RIDESA network are performed. Other focuses of the PMGCA are supervised internships and research for dissertations and theses. The UFRPE Breeding Program, part of the RIDESA network, is fundamental for the sugar-energy sector, for coming forward not only with varieties, but with advances in the different segments of this agribusiness. Over the last decades, this has resulted in an increase in agricultural productivity from 40 to approximately 65 TCH and in a more than 30% higher sucrose content. Aside from the contribution of the RB varieties developed in the region, those resulting from the interchange among domestic and foreign institutions established by RIDESA are also worth highlighting. The development of the PMGCA was supported by companies of the production sector through partnership agreements with Fadurpe, in the States of Pernambuco, Paraiba and Rio Grande do Norte.

FEDERAL RURAL UNIVERSITY OF RIO DE JANEIRO

The Federal Rural University of Rio de Janeiro (UFRRJ), based in the State of Rio de Janeiro, developed from the former Higher School of Agriculture and Veterinary Medicine (ESAMV), was created in 1910. The institution is a member of the federal system of higher education, directed by the secretariat of higher education of the Ministry of Education (Sesu-MEC). The university offers vacancies in 56 face-to-face undergraduate courses, 2 online undergraduate courses and 34 postgraduate programs, including master's and doctoral courses. The university maintains 1,161 higher education professors and 1,209 administrative technicians, and teaches 24,000 undergraduate and 2,011 graduate students on four campuses - Seropédica, Nova Iguaçu (Multidisciplinary Institute/IM), Campos dos Goytacazes (CCG) and Três Rios (Três Rios Institute/ITR). A key objective is to meet the growing demand for public higher education in the country and, more specifically, in the state's regions furthest away from the large urban centers, such as the western metropolitan region of the city of Rio de Janeiro, and regions of the lowland, mid-Paraíba and Costa Verde Sul of Rio de Janeiro state. Historically, UFRRJ promoted primarily disciplines in the fields of agrarian, natural and biological sciences, but in recent years the activities were diversified and nowadays, courses in all areas of knowledge are available. The institution, where tradition is combined with contemporary teaching and research techniques, is an example and model of excellence in governmental university education, which is not only expressed by the teaching quality indicators of the Ministry of Education, but also by the results of the National Student Performance Exam (Enade) and the General Course Index (IGC).

FEDERAL UNIVERSITY OF SÃO CARLOS

The Federal University of São Carlos (UFSCar) was founded in 1968 and was the first federal institution of higher education in the interior of São Paulo State. The university stands out for the high level of qualification of the faculty lecturers: 99.8% have a doctoral or masters' degree, and 95.8% work full-time at UFSCar. The university offers 64 courses and 2,897 on-campus undergraduate courses, plus 52 graduate programs, 12 professional master's courses, 44 academic master's degrees, 31 doctoral degrees and 96 post-graduation/ specialization courses. Within the scope of the extension activities, UFSCar maintains 1,242 services in 319 programs in the most diverse areas, such as education, health, environment and culture. Another 92 extra-curricular activities for the integration of teaching, research and extension (Aciepes) are offered. A total of 26,935 students are enrolled, of which 15,518 are face-to-face undergraduate, 334 online, 452 professional master's, 2,177 academic master's, 2,080 doctoral and 6,374 post-doctoral students. The institution is maintained by 2,354 university employees, of which 1,324 are academic lecturers and 1,030 technical-administrative staff. The university has four campuses: São Carlos, Araras, Sorocaba and Lagoa do Sino, all in the State of São Paulo. The Sugarcane Breeding Program (PMGCA) is based at the Center for Agricultural Sciences – CCA on the campus of Araras, and at the Experimental Station Valparaíso, in the western region of the State. The PMGCA is integrated in the Department of Biotechnology and Plant and Animal Production, one of the five departments into which the CCA is divided (Sources: https://www2.ufscar.br/a-ufscar/apresentacao; https://www.cca.ufscar.br/pt-br/o-centro).

FEDERAL UNIVERSITY OF SERGIPE

The State of Sergipe has six active industrial units for sugarcane processing, namely the sugar refining mill Pinheiro, in Laranjeiras; the distillery Taquari, UTE - Iolando Leite (former distillery Carvão) and sugar mill Junco Novo, both in Capela; the Brazilian Sugar and Alcohol Company CBAA - Japoatã, in Japoatã; and Campo Lindo, in Nossa Senhora das Dores (Novacana, 2019). These industrial units processed more than 2 million tons of sugarcane in the 2018/19 growing season, representing an increase of approximately 35% in relation to the previous decade (Asplana-SE, personal communication, 2019). This increase was mainly due to the expansion in planted area and the use of new, more productive varieties adapted to the soils of the state, generating a further 16.3% yield increase, which is however still very small in view of the overall production potential of the crop. Currently, the Federal University of Sergipe (UFS) has six campuses in the State: the Campus São Cristóvão with the rectorate, and the campuses of Aracaju, Itabaiana, Laranjeira, Lagarto and Nossa Senhora de Glória, as well as a rural campus, i.e., an experimental farm in São Cristóvão. In the early 90s, UFS was affiliated with RIDESA and became responsible for the network in the State of Sergipe and its activities linked to the Department of Agronomic Engineering, under the coordination of the UFS rectorate, on the Campus São Cristóvão. The PMGCA-UFS was formed in 1991 and discontinued in 2002, and the activities were only resumed in 2010, reconstructed on the basis of technical cooperation agreements with industrial units in the State of Sergipe (Porto, personal communication, 2019). The ongoing breeding program is run by researchers, doctors, masters and agricultural engineers, with experience in scientific development and generation of new technologies, at the regional, national and international levels. In addition, undergraduate (agronomy) and postgraduate (master in agroecosystems) students also participate in the research for and development of final assignments, internship reports, master's and doctoral dissertations, as well as in the training of professionals for research and/or activities directly linked to the sugar and alcohol sector. The results are expected to raise the productivity, quality and competitiveness of the regional sugar-alcohol sector, by providing recommendations of adequate cultivation and technological management of RB varieties with better agro-industrial characteristics than the currently planted, with improved tolerance to water stress and the low-fertility environments in the Northeast of Brazil, aside from being more resistant to the main pests and diseases.

FEDERAL UNIVERSITY OF VIÇOSA

The Federal University of Viçosa (UFV), originally the Higher School of Agriculture and Veterinary Science (ESAV), was created by the President of Brazil Arthur da Silva Bernardes. In 1948, ESAV was transformed into the Rural University of the State of Minas Gerais (UREMG), and nationalized to become a federal university in 1969. Traditionally, the key disciplines of knowledge at the UFV are Agricultural Sciences, for which the university is well-known and respected in Brazil and abroad. But despite the longstanding priority for agriculture, the institution has assumed a more eclectic character, expanding into other fields of study, such as biological and health, natural, technological and human sciences, languages/literature and arts. Since 2006, aside from the campus in the town of Viçosa, the campuses UFV - Florestal and UFV - Rio Paranaíba, in Florestal (MG) and Rio Paranaíba (MG), respectively, also became part of the University. On the three campuses, UFV offers secondary and technical education and undergraduate and graduate programs, in which more than 20,000 students are enrolled. Overall, more than 60,000 alumni have graduated from UFV and the defense of more than 12,000 master's and 4,000 doctoral theses has been overseen. In 1990, UFV inherited the technical and patrimonial collection of the former Regional Coordination Center-COCEN from Planalsucar. In 1993, the Department of Agronomy took over the coordination of the Sugarcane Breeding Program-PMGCA and today houses the Center for Sugarcane Research and Breeding-CECA, Oratórios, MG. The PMGCA is also supported by the CEPET – Center of Experimentation, Research and Extension of the Triangulo Mineiro (western part of the State), in Capinópolis-Minas Gerais.

RB (REPUBLIC OF BRAZIL) SUGARCANE VARIETIES

RB108519

RB758540 x ?

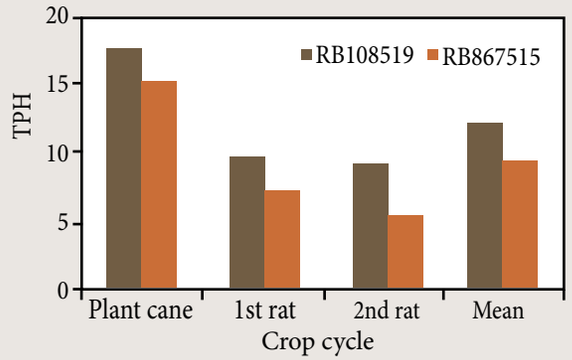
RELEASE 2021

Characteristics		RB108519
Agricultural productivity		High
Harvest		Jun - Oct
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green-harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Low
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Tolerant
Orange rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Tolerant

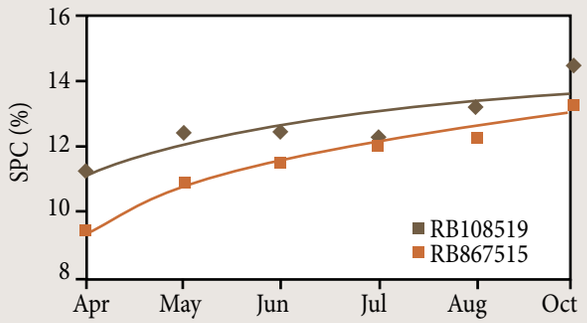
General aspects

Fast development, medium sprouting under straw, medium tillering, erect growth habit; medium/thick stalk, yellow-purplish and purple when exposed to the sun, with medium waxiness; leaf sheath with few hairs and weak adherence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Adapted to medium- to low-fertility soils; medium to late maturation, cutting as of June.

Particular features

High sucrose content and agricultural productivity; very strong plant health and strong sprouting in cane plant and ratoon crops, fast initial development, long PIS and excellent harvestability; medium performance under water stress.

- Developed by: UFRRJ
- Release in 2021; recommended for the Central-South of Brazil

RB08791

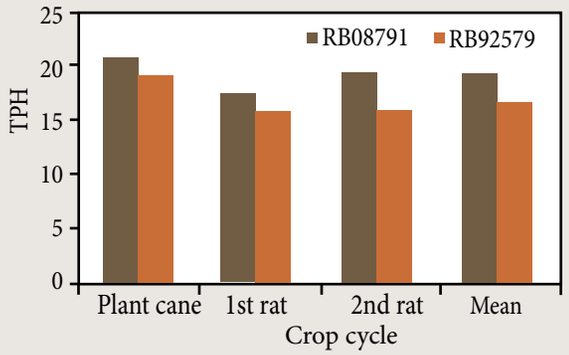
RELEASE 2021

RB951019 x ?

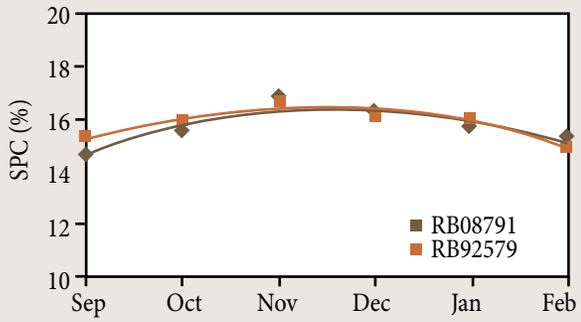
General aspects

Erect growth habit; long leaves, curved at base; bobbin-shaped internodes, weak zigzag alignment; medium length and diameter of the stalk, yellow and green under the leaves; round bud with weak prominence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting without environmental restrictions; cutting in the middle and at the end of the crop cycle.

Particular features

Robustness, strong ratoon tillering, high agricultural productivity, wide adaptability, very strong plant health.

Characteristics		RB08791
Agricultural productivity		High
Harvest	Upland	Nov – Feb
	Irrigated	Dec - Feb
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	from burnt cane	Strong
	after green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		Low
Sucrose content		High
Fiber content		Low
Smut		Intermediate
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Tolerant
Mosaic virus		No occurrence in the region

- Developed by: UFAL
- Release in 2021; recommended for Northeastern Brazil

RB07818

RB92579 x RB9629

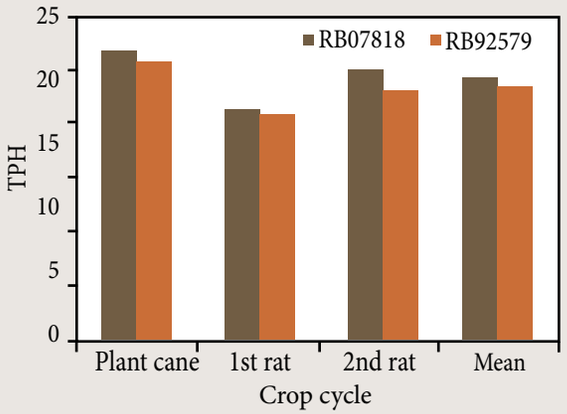
RELEASE 2021

Characteristics		RB07818
Agricultural productivity		High
Harvest	Upland	Sep - Nov
	Irrigated	Nov - Feb
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		Low
Sucrose content		High
Fiber content		Low
Smut		Intermediate
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Tolerant
Mosaic virus		No occurrence in the region

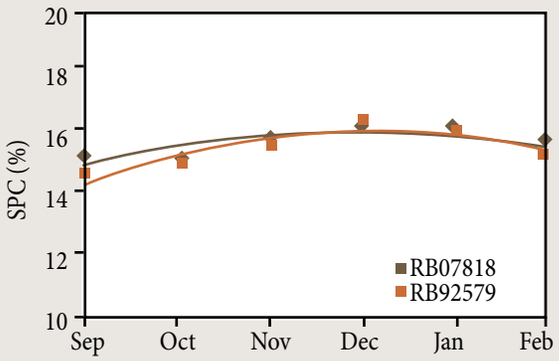
General aspects

Semi-erect growth habit, arched and narrow leaves; internodes in a weak zigzag alignment, with medium length and thin diameter; stalk green in the sun and yellow under the leaves; round bud with weak prominence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting without environmental restrictions, except in waterlogged areas; possibility of early cutting (at the beginning or in the middle of the crop cycle).

Particular features

Earliness, high sugar content, long PIS, light juice color, low incidence of sugarcane borer; yield stability.

- Developed by: UFAL
- Release in 2021; recommended for Northeastern Brazil

RELEASE 2021

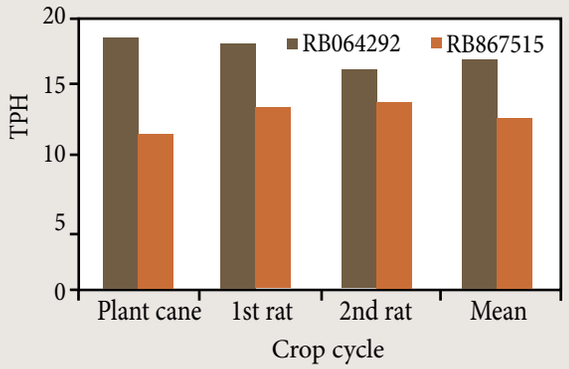
H64-1881 x ?

RB064292

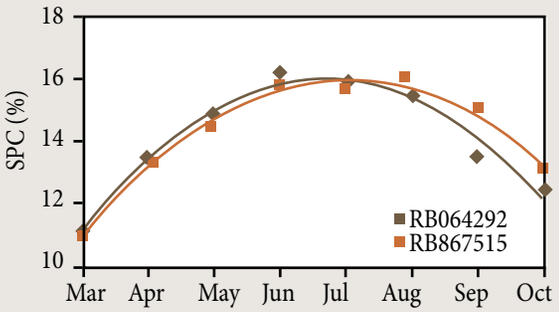
General aspects

Fast initial development, erect growth habit, strong tillering ability; medium-thick stalk, light green yellowish and brown-reddish when exposed to the sun, weak waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in intermediate to favorable environments; cutting from June to August; flowering inhibitor required.

Particular features

High agricultural productivity and plant health, very strong tillering, medium harvestability, strong sprouting in cane plant and ratoon crops.

Characteristics		RB064292
Agricultural productivity		High
Harvest		Jun - Aug
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	-
	After green harvesting	Strong
Plant canopy		Dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Frequent
Pithy stalks		Medium
Maturation		Medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		High
Sucrose content		Medium
Fiber content		Medium
Smut		Tolerant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFG
- Release in 2021; recommended for the Midwest of Brazil

RB056380

RB855206 x ?

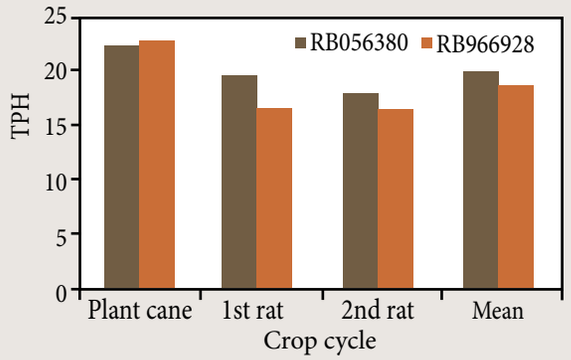
RELEASE 2021

Characteristics		RB056380
Agricultural productivity		High
Harvest		Mar - May
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Rare
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Moderately resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

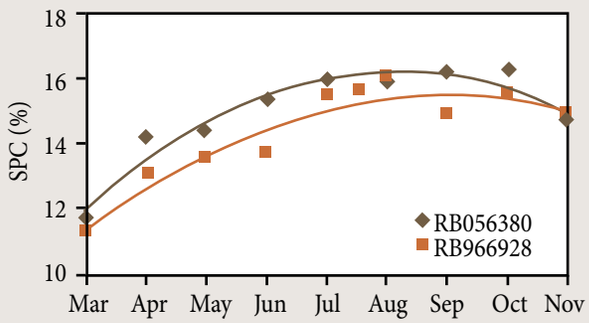
General aspects

Fast initial development, strong tillering of plant and ratoon cane; erect growth habit and tall plant height; weak adherence of leaf sheath; high stability of agricultural productivity.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting under medium to good environmental conditions; cutting from March to May.

Particular features

High sucrose content in the beginning of the crop cycle, high sugar yield, erect growth habit; rare lodging and few pithy stalks.

- Developed by: UFPR
- Release in 2021; recommended for the Central-South of Brazil

RELEASE 2021

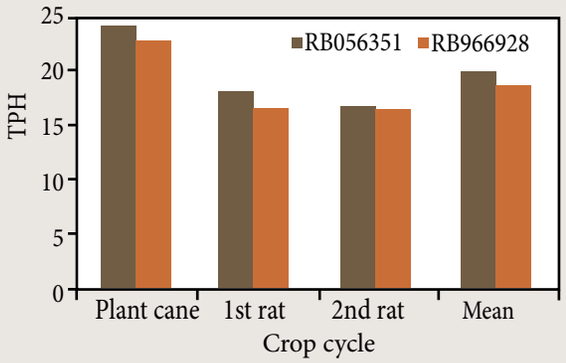
RB855206 x ?

RB056351

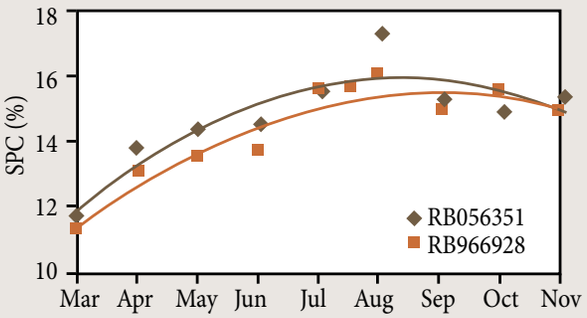
General aspects

Fast initial development and medium-dense plant canopy; strong ratoon sprouting; tall plant height, medium stalk diameter; wide adaptability and high stability of agricultural productivity.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Long PIS; cutting is possible from March to August.

Particular features

High sucrose content, rare flowering and few pithy stalks, tolerant to the main sugarcane diseases.

Characteristics		RB056351
Agricultural productivity		High
Harvest		Mar - Aug
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Semi-erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Few
Maturation		Early/medium
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Low
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFPR
- Release in 2021; recommended for the Central-South of Brazil

RB0442

RB72910 x RB931013

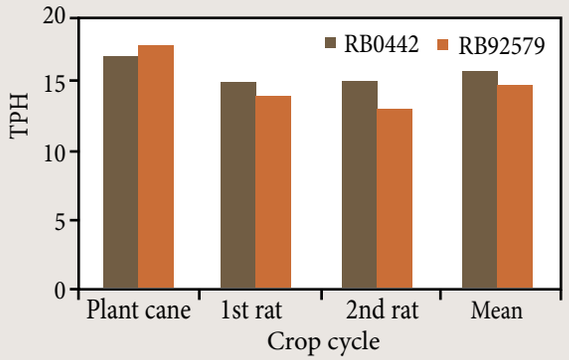
RELEASE 2021

Characteristics		RB0442
Agricultural productivity		High
Harvest	Upland	Nov - Feb
	Irrigated	–
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Absent
Maturation		Late
Adherence of leaf sheath		Weak
PIS		Short
Environmental demands		Low
Sucrose content		Medium
Fiber content		Medium
Smut		Intermediate
Brown rust		Intermediate
Orange rust		Resistant
Leaf scald		Tolerant
Mosaic virus		No occurrence in the region

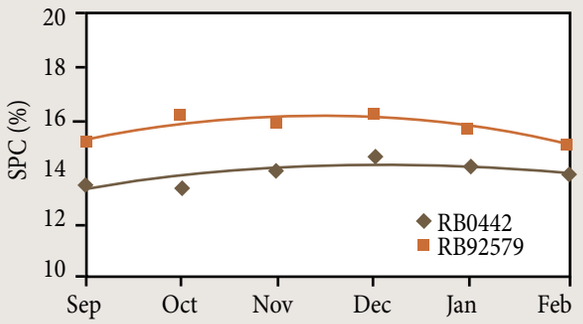
General aspects

Semi-erect growth habit; stalk purple-green when exposed to the sun; medium-thick, cylindrical internodes with weak zigzag alignment and weak waxiness; round buds with weak prominence; medium-wide leaves with curved tips.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in upland regions, can thrive in restrictive environments no history of smut; cutting in the middle or at the end of the crop cycle.

Particular features

Robustness, longevity and high agricultural productivity.

- Developed by: UFAL
- Release in 2021; recommended for Northeastern Brazil

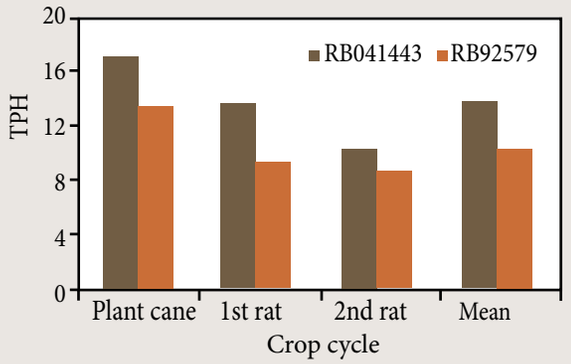
RELEASE 2021

RB805203 x ? RB041443

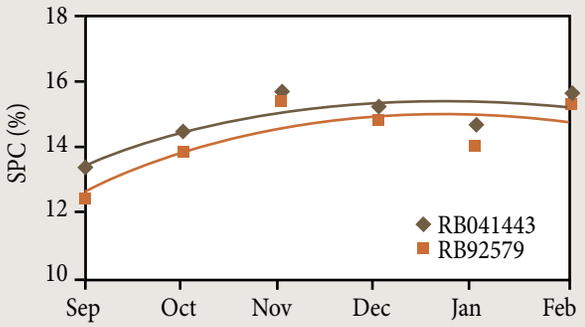
General aspects

Fast-growing variety with erect growth habit, medium tillering ability and medium adherence of leaf sheath; medium-thick stalk, purple under the leaves and where exposed to sunlight; internodes with strong waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Upland (cutting from October to January); under irrigation (cutting from December to February).

Particular features

High adaptability, rare flowering, high agricultural productivity; medium ratoon tillering and medium-dense canopy; resistant to brown and orange rust.

Characteristics		RB041443
Agricultural productivity		High
Harvest	Upland	Sep - Nov
	Irrigated	Dec - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		Moderate
Sucrose content		High
Fiber content		Low
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant
Meloidogyne incognita		Resistant

- Developed by: UFRPE
- Release in 2021; recommended for Northeastern Brazil

RB036152 SP83-5073 x RB867515

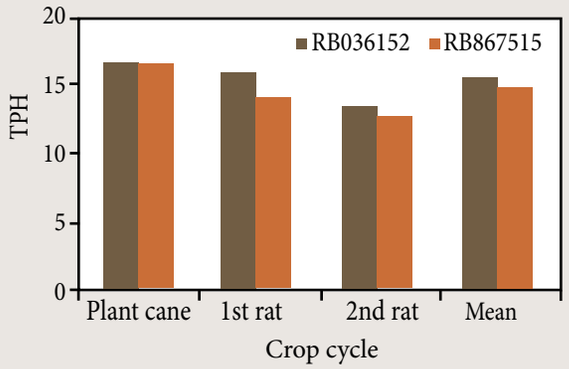
RELEASE 2021

Characteristics		RB036152
Agricultural productivity		High
Harvest		May - Aug
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Medium
Maturation		Medium
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Low
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

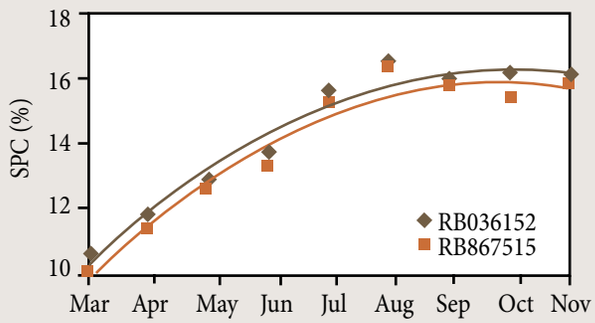
General aspects

Fast initial growth, medium-dense canopy and tall plant height; high yield potential, high adaptability and stability of agricultural productivity; tolerant to the main sugarcane diseases.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Eighteen-month (plant cane) cycle with cutting from May to August; flowering inhibitor required.

Particular features

Excellent performance with high productivity in restrictive environments and resistant to the main diseases.

- Developed by: UFPR
- Release in 2021; recommended for the Central-South of Brazil

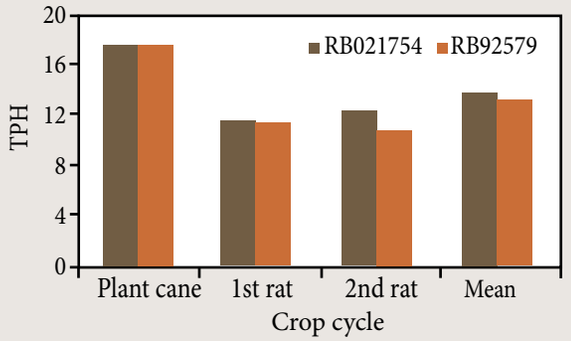
RELEASE 2021

RB92606 x RB72199 RB021754

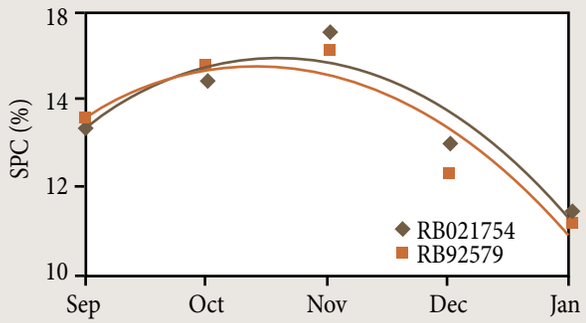
General aspects

Medium sugar content at the end of the harvest period; intermediate growth habit, medium tillering capacity, medium adherence of leaf sheath, stalk with medium diameter, yellow-green under the leaves and purple when exposed to the sun; internode with strong waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

In upland areas: cutting from October to December; under irrigation: cutting from December to February.

Particular features

High adaptability, low flowering occurrence, high agricultural productivity, strong ratoon tillering and dense canopy, resistant to brown and orange rust.

Characteristics		RB021754
Agricultural productivity		High
Harvest	Upland	Oct - Dec
	Irrigated	Dec - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Dense
Growth speed		Medium
Plant height		Medium
Growth habit		Intermediate
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFRPE
- Release in 2021; recommended for Northeastern Brazil

RB015935

RB855156 x SP80-1816

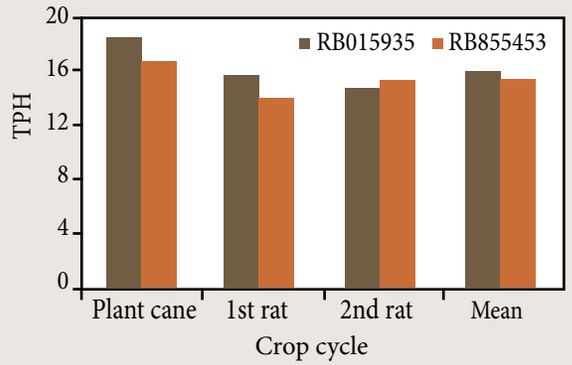
RELEASE 2021

Characteristics		RB015935
Agricultural productivity		High
Harvest		May - Aug
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		High
Plant height		Tall
Growth habit		Intermediate
Lodging		Occasional
Flowering		Rare
Pithy stalks		Few
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		Moderate/high
Sucrose content		High
Fiber content		Low
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

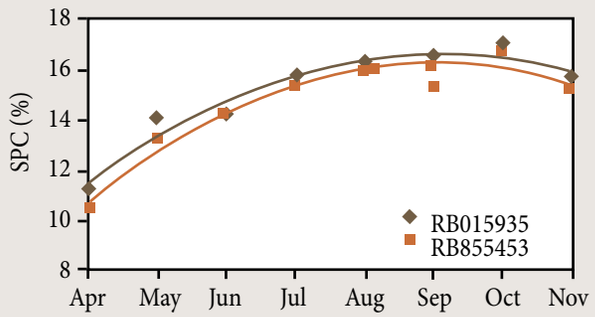
General aspects

Tall plant height, intermediate growth habit and medium adherence of leaf sheath; medium to thick stalks, yellow-greenish under the leaves and purple when exposed to the sun; high waxiness and very many hairs on leaf sheath.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting under moderate to good environmental conditions; cutting of plant cane not after May, to avoid lodging.

Particular features

High sucrose content and sugar yield, very strong plant health; rare flowering and rare pithy stalks.

- Developed by: UFSCar
- Release in 2021; recommended for the Central-South of Brazil

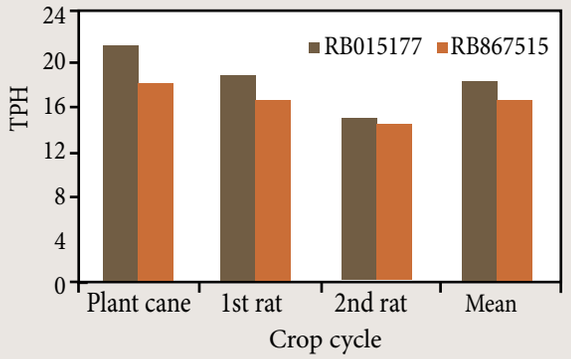
RELEASE 2021

SP70-1284 x SP80-3280 RB015177

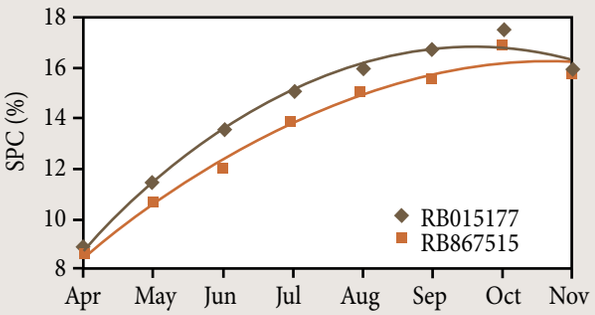
General aspects

Medium plant height, erect growth habit and medium adherence of leaf sheath; medium to thick stalk, purple under the leaves and deep purple when exposed to the sun, medium waxiness; few hairs on leaf sheath.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with good production potential, cutting from June to September. In regions with high water deficit, cutting until July.

Particular features

High sucrose content and sugar yield, very strong plant health; rare flowering and rare pithy stalks.

Characteristics		RB015177
Agricultural productivity		High
Harvest		Jun - Sep
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Few
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 2021; recommended for the Central-South of Brazil

RB011549

RB91539 x RB9367

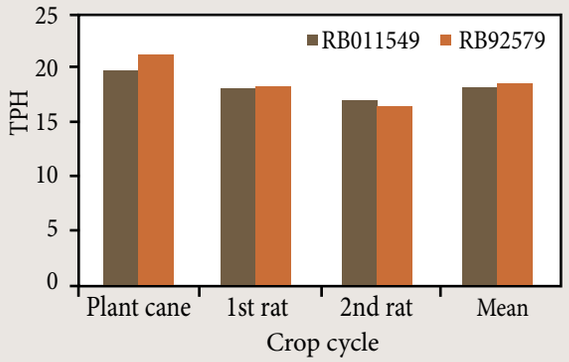
RELEASE 2021

Characteristics		RB011549
Agricultural productivity		High
Harvest	Upland	Nov - Jan
	Irrigated	Dec - Feb
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Low
Sucrose content		Medium
Fiber content		Low
Smut		Intermediate
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Tolerant
Mosaic virus		No occurrence in the region

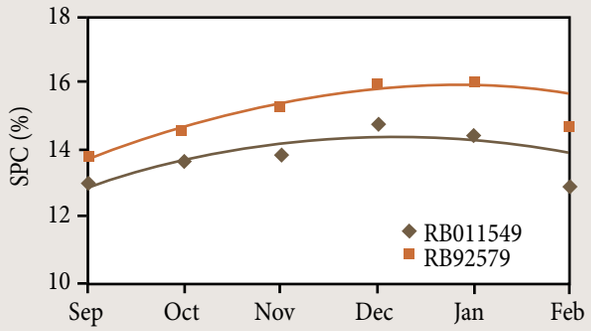
General aspects

Semi-erect growth habit, narrow leaves with curved tips; cylindrical internodes, absent zigzag alignment; stalks with medium length and diameter, green-yellow under the leaves, strong waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

No environmental restrictions for planting; cutting in the middle or at the end of the crop cycle.

Particular features

High agricultural productivity, good yield stability and harvestability.

- Developed by: UFAL
- Release in 2021; recommended for Northeastern Brazil

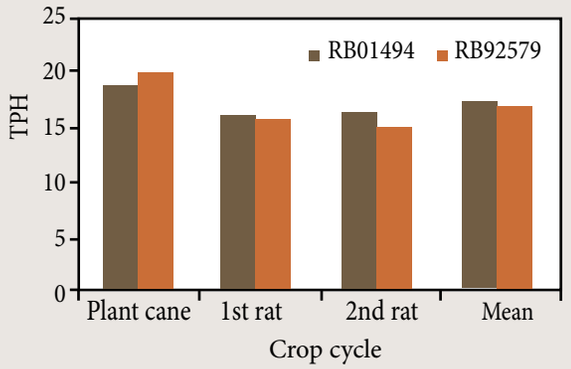
RELEASE 2021

RB931530 x RB845210 RB01494

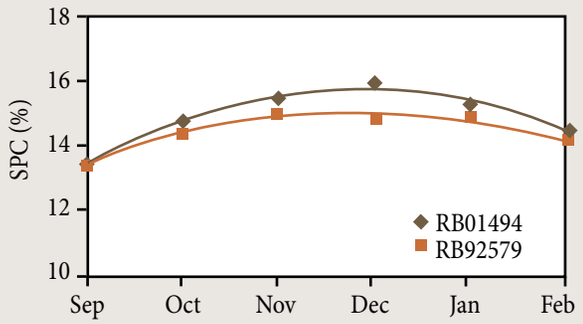
General aspects

Erect growth habit; medium-broad leaves with curved tips, weak adherence of leaf sheath; conoidal internodes with medium diameter and weak zigzag alignment; stalks purple-green when exposed to the sun.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in irrigated or water-saturated soil; cutting recommended in the middle and at the end of the crop cycle.

Particular features

High sugar content, very strong plant health, fast growth speed and good harvestability.

Characteristics		RB01494
Agricultural productivity		High
Harvest	Upland	–
	Irrigated	Nov - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Moderate
Sucrose content		High
Fiber content		Low
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Tolerant
Mosaic virus		No occurrence in the region

- Developed by: UFAL
- Release in 2021; recommended for Northeastern Brazil

RB006970 RB855536 x SP80-1816

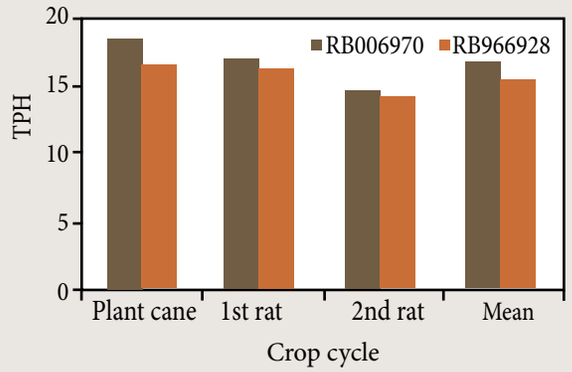
RELEASE 2021

Characteristics		RB006970
Agricultural productivity		High
Harvest		Apr - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium/tall
Growth habit		Semi-erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Absent
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Medium/Long
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

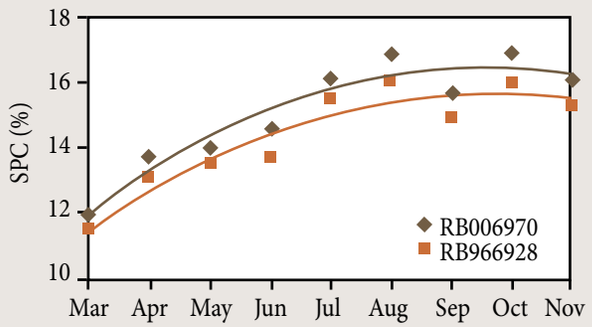
General aspects

High and stable agricultural productivity, strong tillering capacity and medium-dense canopy; medium stalk diameter and medium/tall plant height; high yield potential.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in medium to highly fertile soils; cutting from April to September.

Particular features

High sucrose content, medium/long PIS; rare flowering and rare lodging.

- Developed by: UFPR
- Release in 2021; recommended for Southern Brazil

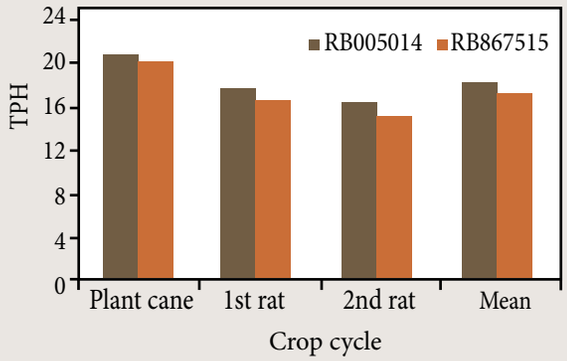
RELEASE 2021

SP80-1816 x RB855536 RB005014

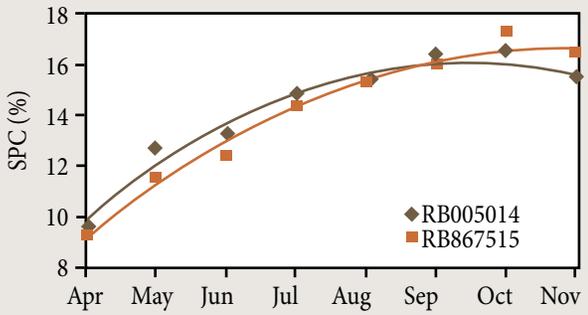
General aspects

Tall plant height, erect growth habit and medium adherence of leaf sheath; medium-thick stalk, green-yellow under the leaves and purple under the sun; strong waxiness; few hairs on leaf sheath.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with good production potential, cutting from July to October.

Particular features

High sugar yield, strong tillering, very strong plant health; erect growth habit, rare flowering and strong ratoon sprouting.

Characteristics		RB005014
Agricultural productivity		High
Harvest		Jul - Oct
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Dense
Growth speed		Medium
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		High
Sucrose content		High
Fiber content		High
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 2021; recommended for the Central-South of Brazil

RB987917

RB72454 x ?

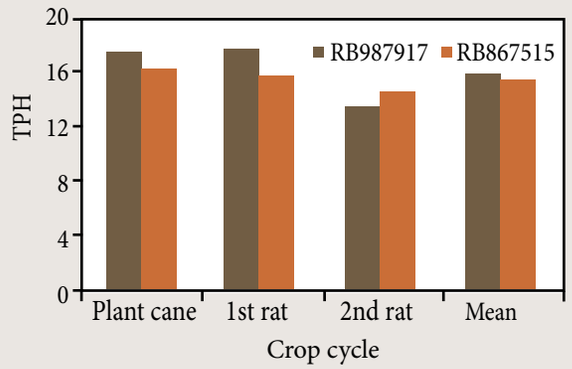
RELEASE 2021

Characteristics		RB987917
Agricultural productivity		Medium/high
Harvest		Jul - Nov
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Tolerant
Orange rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Tolerant

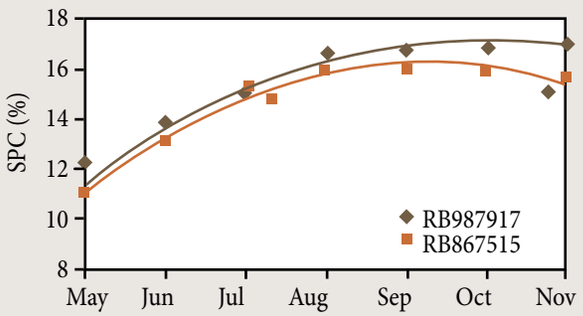
General aspects

Fast development, erect growth habit, weak adherence of leaf sheath; medium-thick, green-yellow stalk, green/slightly purplish under the sun, weak waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with good production potential; cutting from July to November.

Particular features

High sucrose content and high agricultural productivity in the recommended environments, strong plant health and very strong sprouting in plant and ratoon crops.

- Developed by: UFV
- Release in 2021; recommended for the Midwest and Central-South of Brazil

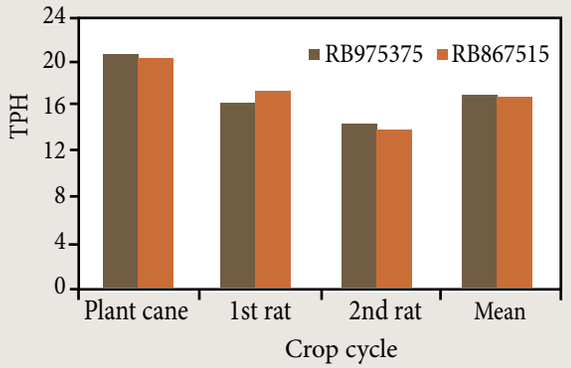
RELEASE 2021

RB855035 x RB855536 RB975375

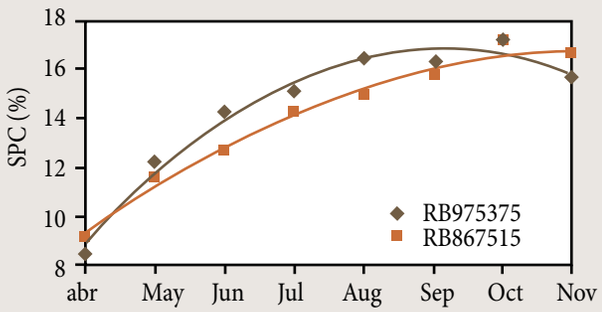
General aspects

Medium plant height, erect growth habit, arched leaves and weak adherence of leaf sheath; strong tillering, thin to medium-diameter stalks, yellow-greenish under the leaves and purple when exposed to the sun, medium waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to low production potential; cutting from May to August; areas conducive to red streak should be avoided.

Particular features

High sucrose content; strong tillering, very dense canopy and very strong sprouting in cane plant and ratoon crops.

Characteristics		RB975375
Agricultural productivity		High
Harvest		May - Aug
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Few
Flowering		Occasional
Pithy stalks		Few
Maturation		Early/medium
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate to low
Sucrose content		High
Fiber content		Low
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 2021; recommended for the Central-South of Brazil

RB975033 RB855206 x SP80-185

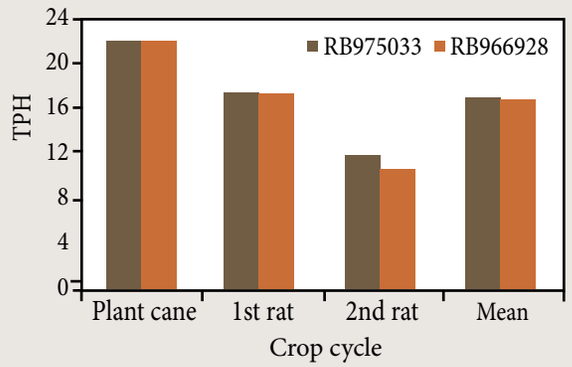
RELEASE 2021

Characteristics		RB975033
Agricultural productivity		High
Harvest		Apr - Jul
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		High
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Medium
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate to low
Sucrose content		High
Fiber content		Medium
Smut		Moderately resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

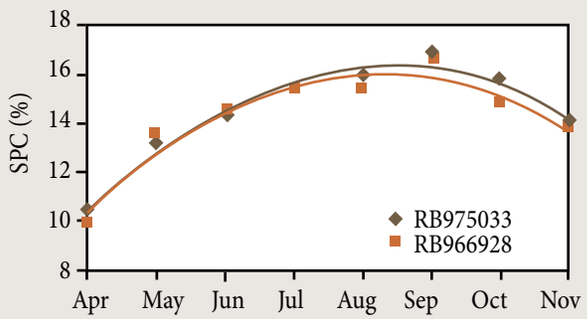
General aspects

Fast development, erect growth habit, weak adherence of leaf sheath; medium-thick stalk, purple-yellowish and purple when exposed to the sun, weak waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting under medium to good environmental conditions; in environments with low production potential, cutting is recommended between April and May.

Particular features

High sucrose content and high productivity, strong plant health, very strong ratoon sprouting and drought tolerance.

- Developed by: UFSCar
- Release in 2021; recommended for the Central-South of Brazil

RB961003

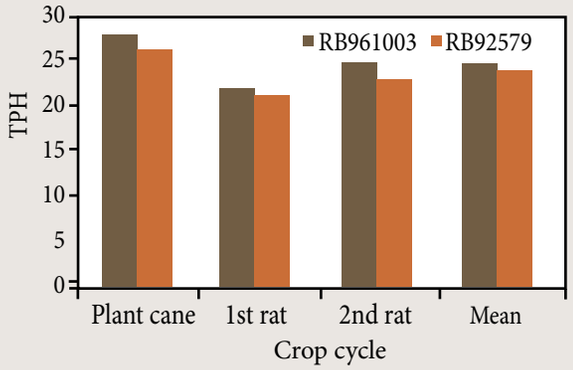
RELEASE 2021

Co62175 x ?

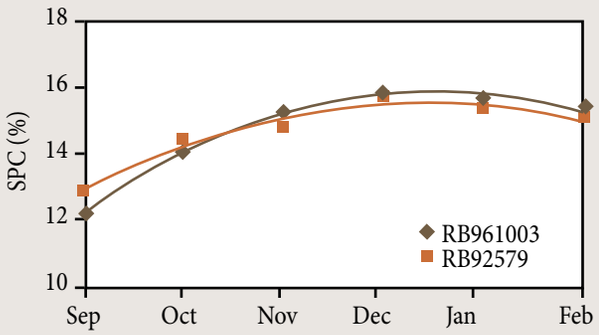
General aspects

Semi-erect growth habit, broad and erect leaves; many hairs on leaf sheath; long, conoidal internodes without zigzag alignment, thick diameter; stalk green and purple when exposed to the sun.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting under full irrigation; cutting in the middle or at the end of the crop cycle.

Particular features

High agricultural productivity in fertigated environments and very strong plant health.

* Recommended for Juazeiro, Bahia.

Characteristics		RB961003
Agricultural productivity		High
Harvest	Upland	Not recommended
	Irrigated	Aug - Nov*
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Slow
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		High
Sucrose content		High
Fiber content		Low
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Tolerant
Mosaic virus		No occurrence in the region

- Developed by: UFAL
- Release in 2021; recommended for Northeastern Brazil

RB943047

RB855106 x ?

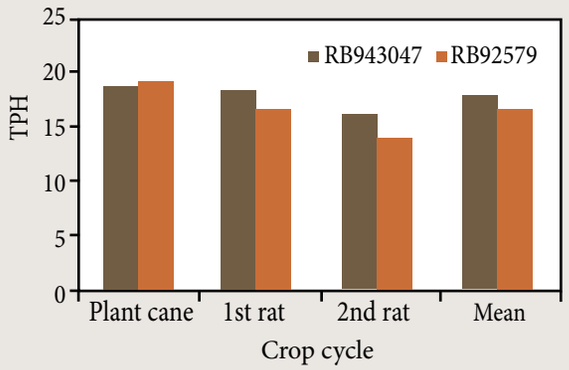
RELEASE 2021

Characteristics		RB943047
Agricultural productivity		High
Harvest	Upland	Sep - Nov
	Irrigated	Dec - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium/High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Intermediate
Leaf scald		Resistant
Mosaic virus		Resistant

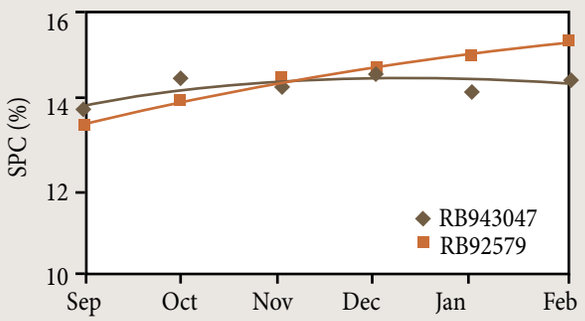
General aspects

Early development, erect growth habit, medium tillering ability, weak adherence of leaf sheath; medium-thick stalk, yellow-green under the leaves and in the sunlight, with strong waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Upland (cutting from September to November); under irrigation (cutting from December to February); environments conducive to orange rust should be avoided.

Particular features

Sucrose-rich variety with high agricultural productivity on plains and hillsides; very strong plant health and sprouting in cane plant and ratoon crops.

- Developed by: UFRPE
- Release in 2021; recommended for Northeastern Brazil

RELEASE 2015

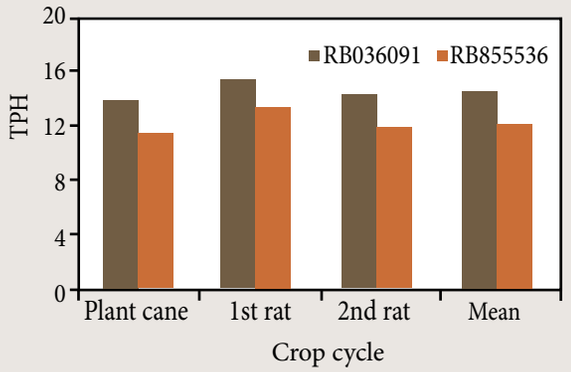
RB855589 x ?

RB036091

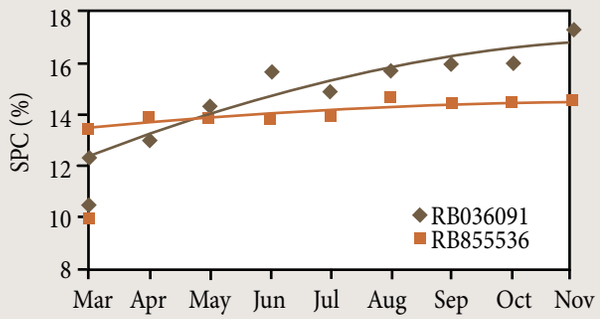
General aspects

Strong sprouting, strong tillering in plant cane and ratoon crops; very dense canopy; high resistance to the main crop diseases and high stability of agricultural productivity.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in medium to highly fertile environments; cutting in the middle of the crop cycle.

Particular features

Fast initial growth, strong tillering and yield potential; responsive to environmental improvement.

Characteristics		RB036091
Agricultural productivity		High
Harvest		Jun - Jul
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Dense
Growth speed		Fast
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium/High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFPR
- Release in 2015; recommended for the Central-South of Brazil

RB036088

RB855595 x ?

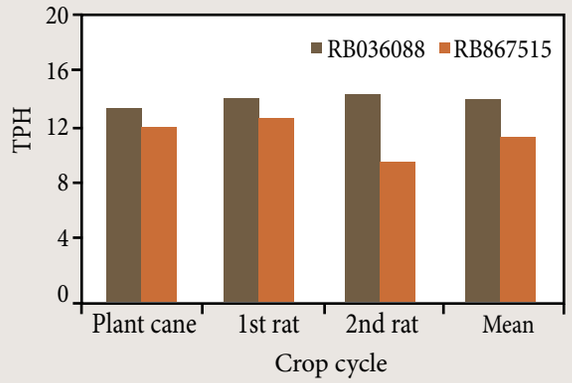
RELEASE 2015

Characteristics		RB036088
Agricultural productivity		High
Harvest		Sep - Oct
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

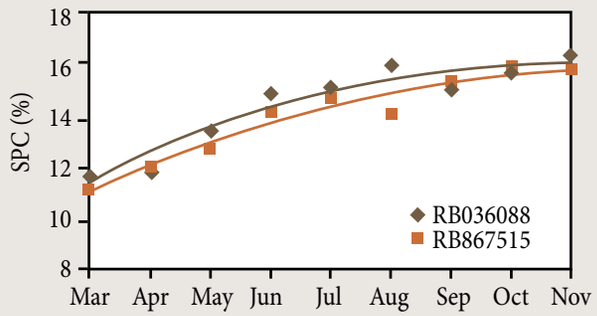
General aspects

Fast initial development, strong sprouting, strong tillering in plant cane and ratoon crops, dense canopy; high production potential; erect growth habit and rare lodging.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in medium to highly fertile environments; cutting at the end of the crop cycle.

Particular features

High resistance to the main sugarcane diseases, high stability of agricultural production and excellent harvestability.

- Developed by: UFPR
- Release in 2015; recommended for the Central-South of Brazil

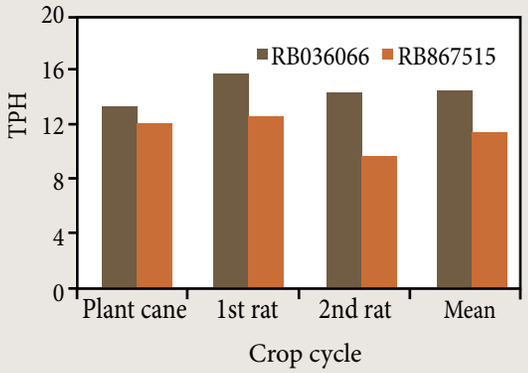
RELEASE 2015

SP70-1143 x SP77-5181 RB036066

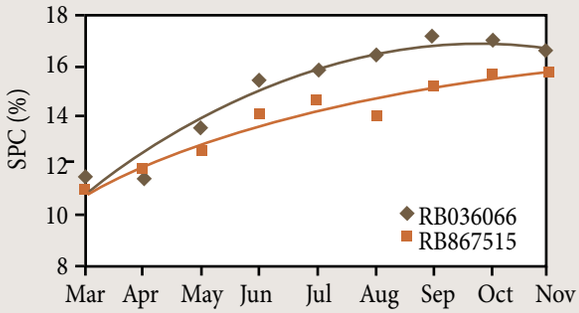
General aspects

Strong sprouting, strong tillering in plant cane and ratoon crops and dense canopy; high agricultural productivity, medium-early maturation and long PIS.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in medium to highly fertile environments; cutting from June to September.

Particular features

Fast initial growth and strong tillering; high yield potential and high adaptability and stability of agricultural production.

Characteristics		RB036066
Agricultural productivity		High
Harvest		Jun - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Absent
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Low
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFPR
- Release in 2015; recommended for Southern Brazil

RB034045 SP71-5181 x SP80-1816

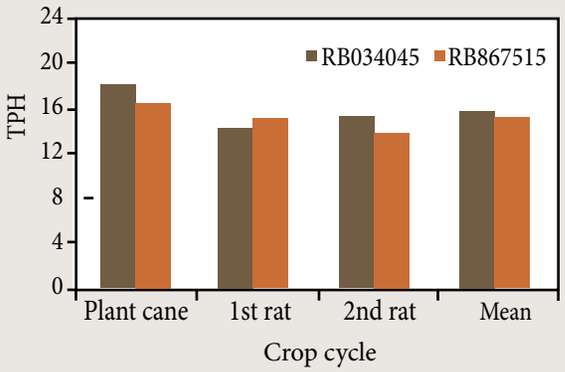
RELEASE 2015

Characteristics		RB034045
Agricultural productivity		High
Harvest		Jun - Aug
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		High
Smut		Tolerant
Brown rust		Intermediate
Orange rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Tolerant

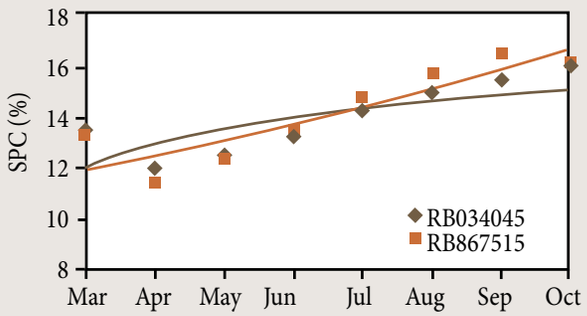
General aspects

Fast development, erect growth habit, weak adherence of leaf sheath; medium-thick stalk, green-yellow and purple-yellowish when exposed to the sun, weak waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to good production potential; cutting from May to August.

Particular features

High sucrose content and high agricultural productivity, long PIS; medium plant health and very strong sprouting in cane plant and ratoon crops.

- Developed by: UFG
- Release in 2015; recommended for the Midwest of Brazil

RELEASE 2015

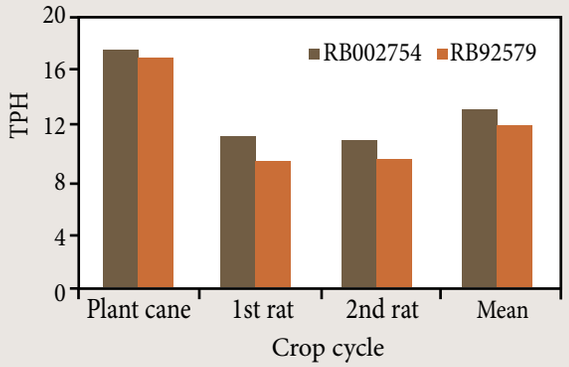
RB835205 x ?

RB002754

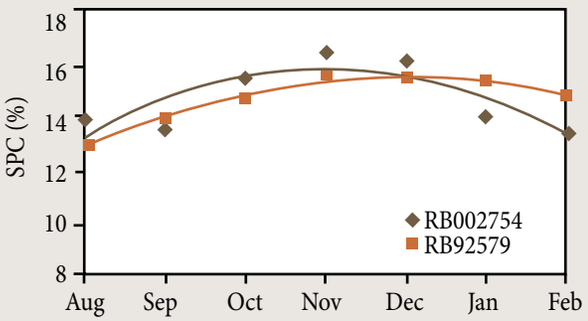
General aspects

Fast development, erect growth habit, weak adherence of leaf sheath; thick, yellow-greenish stalk, purple-yellowish when exposed to the sun, strong waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Moderately demanding in soil fertility; recommended for environments with medium to high production potential; cutting in the beginning and middle of the crop cycle.

Particular features

High agricultural production; high sucrose content, medium fiber content, possibility of harvesting in the beginning of the crop cycle.

Characteristics		RB002754
Agricultural productivity		High
Harvest		Sep - Dec
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Occasional
Maturation		Early/medium
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Low
Sucrose content		High
Fiber content		Medium
Smut		Intermediate
Brown rust		Resistant
Orange rust		Intermediate
Leaf scald		Intermediate
Mosaic virus		Resistant

- Developed by: UFRPE
- Release in 2015; recommended for Northeastern Brazil

RB992506

Co421 x ?

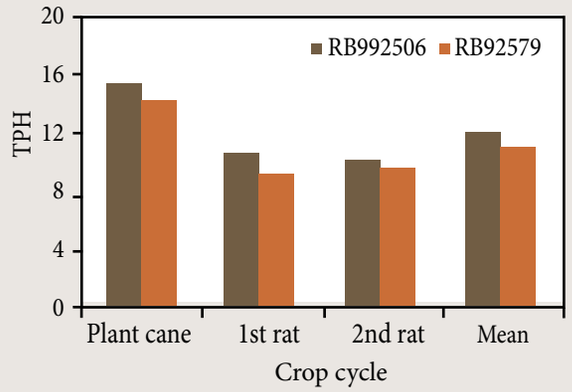
RELEASE 2015

Characteristics		RB992506
Agricultural productivity		High
Harvest		Oct - Dec
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Few
Maturation		Early/ Medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Intermediate
Brown rust		Resistant
Orange rust		Intermediate
Leaf scald		Intermediate
Mosaic virus		Resistant

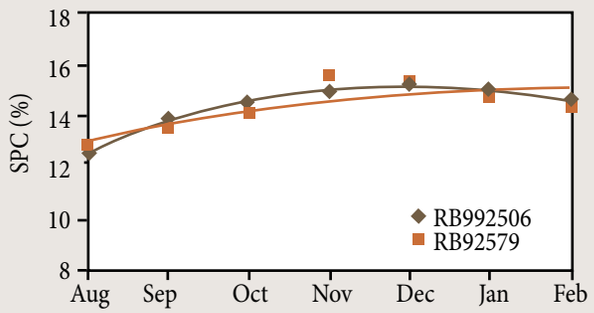
General aspects

Fast development, semi-erect growth habit, medium adherence of leaf sheath; medium stalk diameter, green-yellowish stalk, white-greenish when exposed to the sun, strong waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the beginning and middle of the crop cycle; moderately demanding in soil fertility; recommended for environments with medium to high production potential.

Particular features

High yield potential, high adaptability and stability of agricultural production; excellent performance in restrictive environments.

- Developed by: UFRPE
- Release in 2015; recommended for Northeastern Brazil

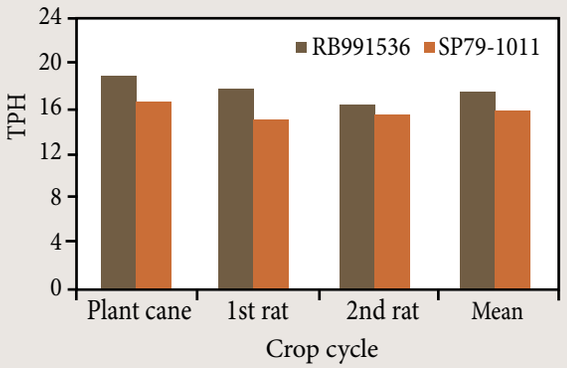
RELEASE 2015

RB739359 x ? RB991536

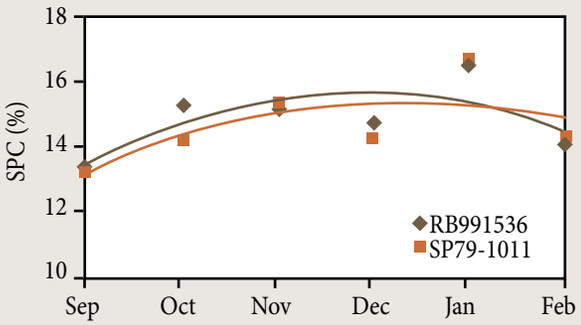
General aspects

Slow initial development; erect growth habit; weak adherence of leaf sheath; medium stalk diameter, internodes with weak zigzag alignment and strong waxiness; small bud with weak prominence, medium-wide leaf blades with curved tips; green, medium-sized leaf sheath.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle of the crop cycle.

Particular features

High agricultural productivity; high sucrose content in the middle of the crop cycle; rare flowering.

Characteristics		RB991536
Agricultural productivity		High
Harvest	Upland	Oct - Dec
	Irrigated	Oct - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Slow
Plant height		Medium
Growth habit		Erect
Lodging		Absent
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Moderately suscetible
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		-

- Developed by: UFAL
- Release in 2015; recommended for Northeastern Brazil

RB988082

RB83102 x RB72454

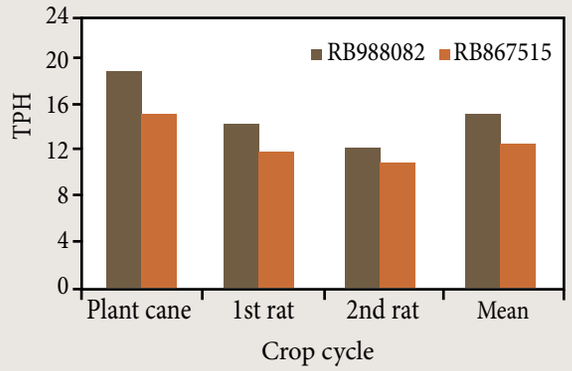
RELEASE 2015

Characteristics		RB988082
Agricultural productivity		High
Harvest		Jul - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Very strong
	After green harvesting	Very strong
Plant canopy		Dense
Growth speed		Medium
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Tolerant
Brown rust		Tolerant
Orange rust		Tolerant
Mosaic virus		Tolerant

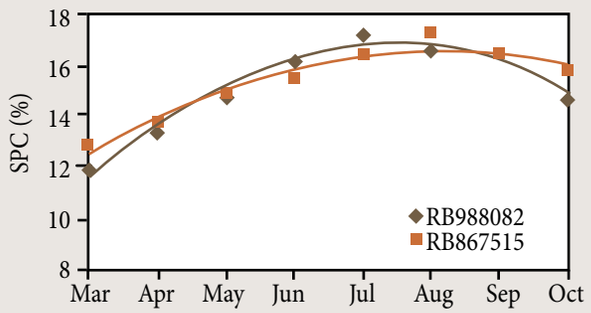
General aspects

Very dense canopy; high agricultural productivity; fast growth speed, longevity of sugarcane field; erect growth habit, responsive to irrigation and ripeners; medium sucrose content, indicated for cutting in the middle of the harvest period.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in highly to moderately fertile environments; cutting as of mid-July or even at the beginning of the crop cycle, by means of ripener application.

Particular features

Medium sucrose content and high agricultural productivity, very strong plant health; ripener-responsive; high adaptability and stability

- Developed by: UFV
- Release in 2015; recommended for the Midwest and Central South of Brazil

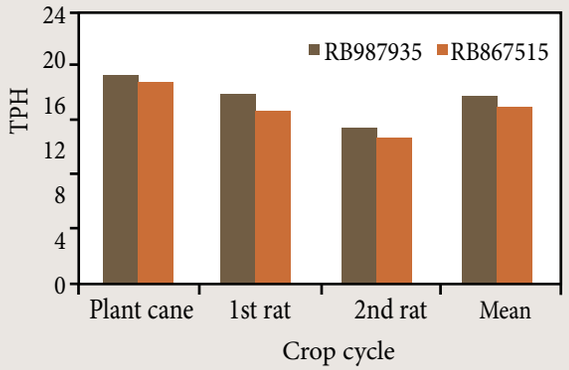
RELEASE 2015

RB72454 x RB83102 RB987935

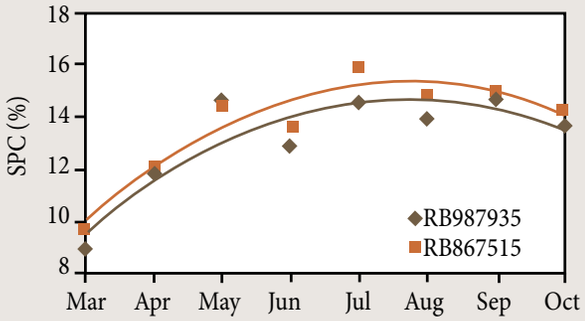
General aspects

Very strong sprouting and tillering; high agricultural productivity, medium-long PIS and medium to late maturation; high resistance to the main sugarcane diseases; high production stability and very strong sprouting after mechanical harvesting.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in medium to highly fertile soils; cutting from July to September.

Particular features

Medium sucrose content, high agricultural productivity; very strong plant health, very strong sprouting and tillering; dense canopy and high adaptability and stability.

Characteristics		RB987935
Agricultural productivity		High
Harvest		Jul - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Very strong
	After green harvesting	Very strong
Plant canopy		Dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Tolerant
Brown rust		Tolerant
Orange rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Tolerant

- Developed by: UFV
- Release in 2015; recommended for the Midwest and Central South of Brazil

RB985476 H53-3989 x RB855206

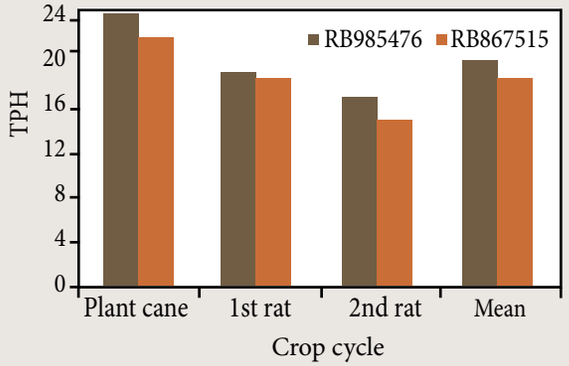
RELEASE 2015

Characteristics		RB985476
Agricultural productivity		High
Harvest		Jul - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Very dense
Growth speed		Medium
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

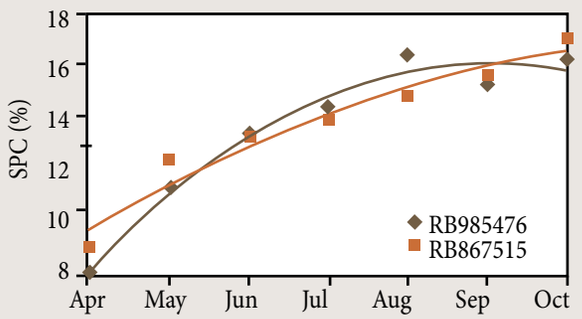
General aspects

Medium development and semi-erect growth habit; weak adherence of leaf sheath; medium-diameter stalks, green yellowish under the leaves and yellow pinkish when exposed to the sun; green, slightly purplish sheath with weak waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to high production potential; cutting from July to September.

Particular features

High productivity, high sucrose content in the middle of the crop cycle and strong plant health.

- Developed by: UFSCar
- Release in 2015; recommended for the Central South of Brazil

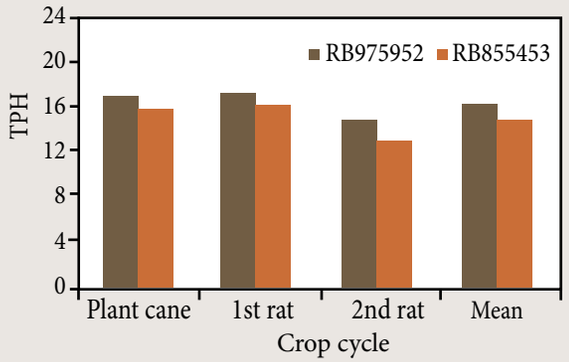
RELEASE 2015

RB835486 x RB825548 RB975952

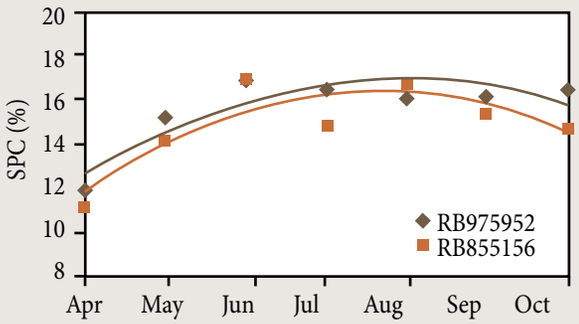
General aspects

Medium development and semi-erect growth habit; weak adherence of leaf sheath; medium stalk diameter, purple under the leaves, with high waxiness, dark purple when exposed to the sun; leaf sheath green/slightly purplish with medium waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with high production potential; cutting from April to July.

Particular features

Early maturation, high sucrose content in the beginning of the crop cycle; rare flowering.

Characteristics		RB975952
Agricultural productivity		High
Harvest		Apr - Jul
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Few
Maturation		Early
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 2015; recommended for the Central South of Brazil

RB975242

F147 x ?

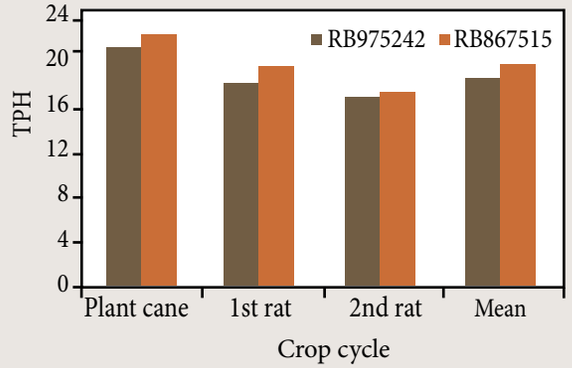
RELEASE 2015

Characteristics		RB975242
Agricultural productivity		High
Harvest		Aug - Nov
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Dense
Growth speed		Medium
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Absent
Maturation		Late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate/low
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

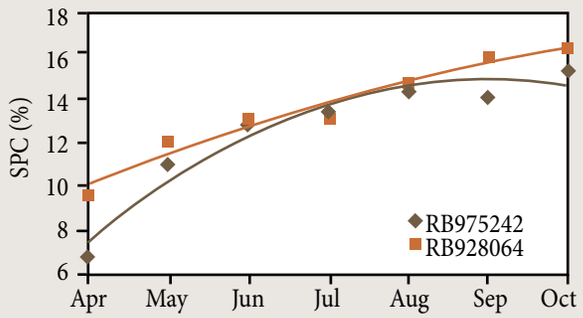
General aspects

Medium development and erect growth habit; weak adherence of leaf sheath, medium-thick stalk, green-purplish under the leaves and purple when exposed to the sun, medium waxiness; leaf sheath light green, with medium waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in medium to restrictive environments; cutting as of the second fortnight of August.

Particular features

High agricultural productivity, robustness; no flowering or pithy stalks.

- Developed by: UFSCar
- Release in 2015; recommended for the Central South of Brazil

RELEASE 2015

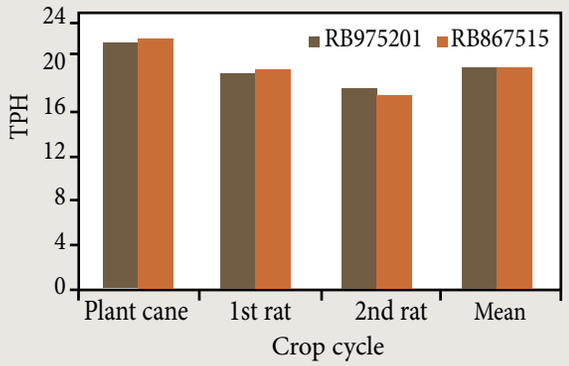
RB855113 x ?

RB975201

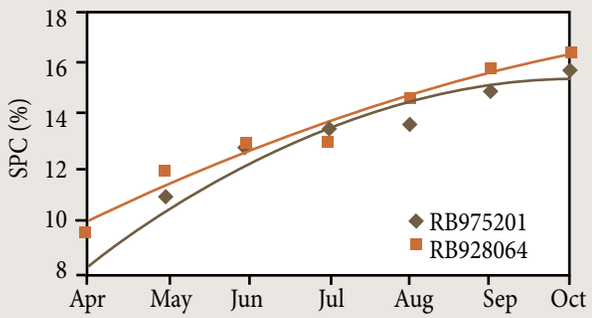
General aspects

Fast development and erect to semi-erect growth habit; weak adherence of leaf sheath; medium-thick stalk, green-yellowish under the leaves and purple when exposed to the sun; leaf sheath green, low waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with high production potential; cutting as of August.

Particular features

High agricultural productivity, very strong plant health, fast growth speed and no flowering or pithy stalks.

Characteristics		RB975201
Agricultural productivity		High
Harvest		Aug - Nov
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Dense
Growth speed		Fast
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Absent
Maturation		Late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		High
Sucrose content		Medium/High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 2015; recommended for the Central South of Brazil

RB969017

F36-819 x ?

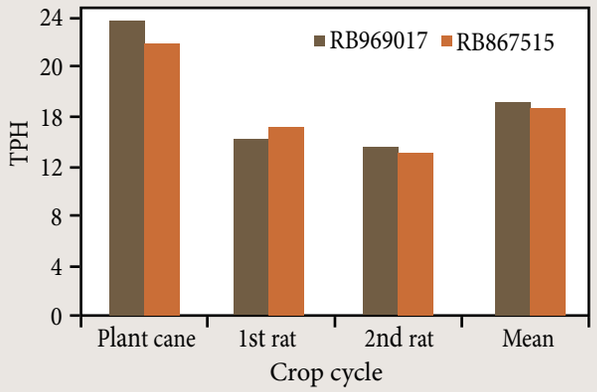
RELEASE 2015

Characteristics		RB969017
Agricultural productivity		High
Harvest		Jun - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Dense
Growth speed		Fast
Plant height		Tall
Growth habit		Semi-erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Absent
Maturation		Early/mean
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Low
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Tolerant
Orange rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Intermediate

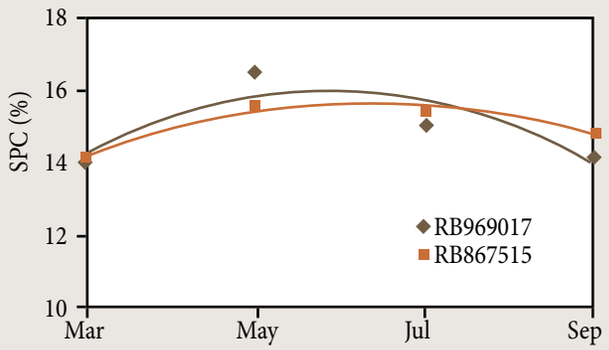
General aspects

Fast development, semi-erect growth habit, weak adherence of leaf sheath; medium-thick, green-yellowish stalks, purple-yellowish when exposed to the sun, low waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to low production potential; cutting from June to September.

Particular features

Fast sprouting, high sucrose content and agricultural productivity and very strong tillering in cane plant and ratoon crops.

- Developed by: UFRRJ
- Release in 2015; recommended for the Central South of Brazil

RELEASE 2015

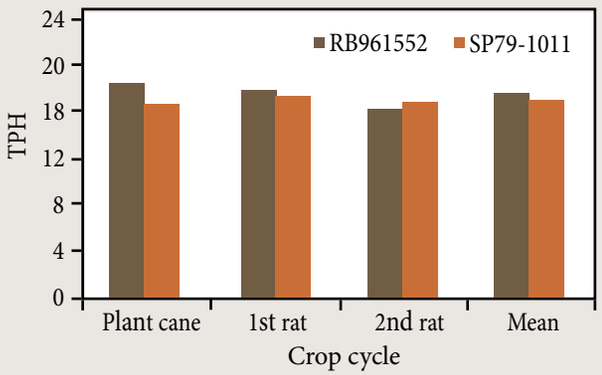
B4362 x IAC68/12

RB961552

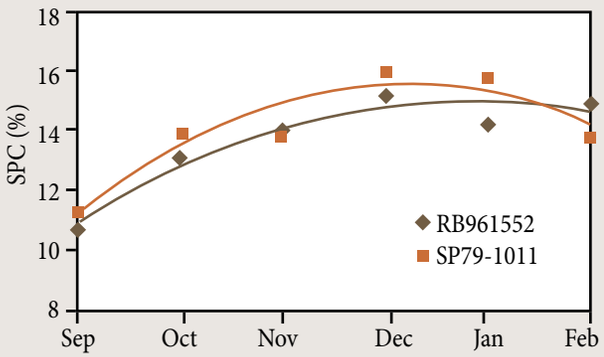
General aspects

Medium development; semi-erect growth habit; weak adherence of leaf sheath; high leaf mass; medium-thick stalk with stains and high waxiness; small buds with low prominence; green medium-sized leaf sheath; arched, broad leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting preferentially in irrigated areas; cutting in the middle and at the end of the crop cycle.

Particular features

High agricultural productivity, very dense canopy, responsive to irrigation and fertigation; rare flowering.

Characteristics		RB961552
Agricultural productivity		High
Harvest	Upland	Nov - Dec
	Irrigated	Nov - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Very dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Absent
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		High
Sucrose content		Medium
Fiber content		Medium
Smut		Intermediate
Brown rust		Resistant
Orange rust		Resistant
Leaf scald		Intermediate
Mosaic virus		–

- Developed by: UFAL
- Release in 2015; recommended for Northeastern Brazil

RB002504

SP80-1816 x ?

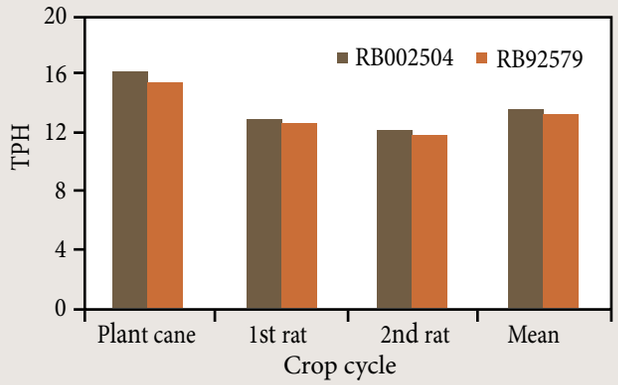
RELEASE 2010

Characteristics		RB002504
Agricultural productivity		High
Harvest		Early/ intermediate
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Absent
Maturation		Early/medium
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		–
Leaf scald		–
Mosaic virus		–

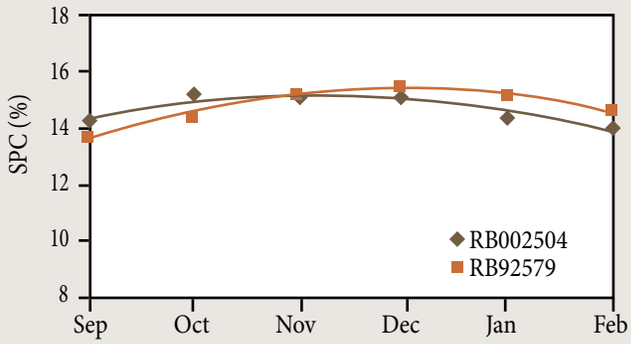
General aspects

Erect growth habit, fast development, dense canopy and tillering; sheath green and green-purplish under the sun, weak adherence of leaf sheath; arched leaves with medium length and width.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to low production potential; cutting in the beginning and middle of the crop cycle.

Particular features

High sucrose content and agricultural productivity, excellent plant health and sprouting in cane plant and ratoon crops.

- Developed by: UFRPE
- Release in 2010; recommended for Northeastern Brazil

RELEASE 2010

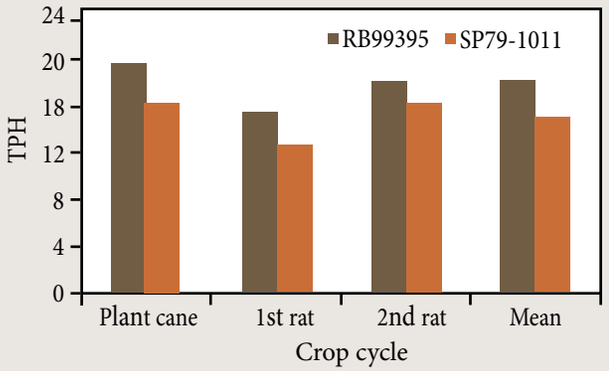
RB867515 x ?

RB99395

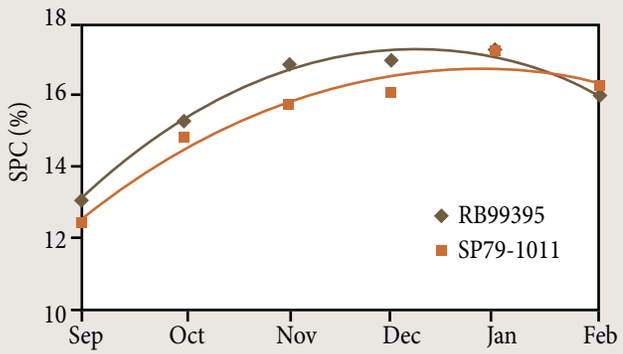
General aspects

Medium development; smooth stalks with low waxiness, yellow-purple under the leaves and yellow-green under the sun; internodes with medium length and diameter; small buds with low prominence; arched, medium-wide leaves with medium pubescence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the beginning of the crop cycle.

Particular features

High agricultural productivity, high sugar content and early maturation.

Characteristics		RB99395
Agricultural productivity		High
Harvest		Sep - Jan
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Intermediate
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Moderate
Sucrose content		High
Fiber content		Low
Smut		Moderately susceptible
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		–

- Developed by: UFAL
- Release in 2010; recommended for Northeastern Brazil

RB98710

SP81-3250 x RB93509

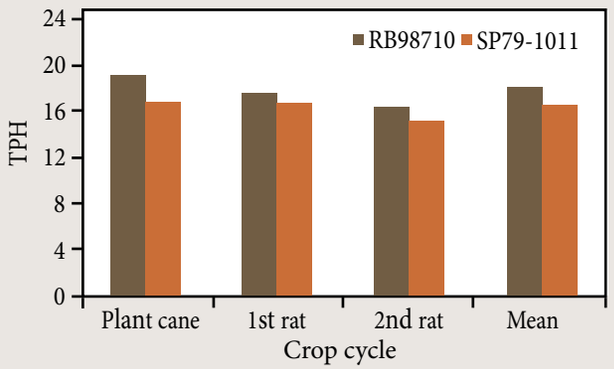
RELEASE 2010

Characteristics		RB98710
Agricultural productivity		High
Harvest		Sep - Dec
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Slow
Plant height		Medium
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		High
Sucrose content		High
Fiber content		Low
Smut		Moderately susceptible
Brown rust		Resistant
Leaf scald		Moderately susceptible
Mosaic virus		Resistant

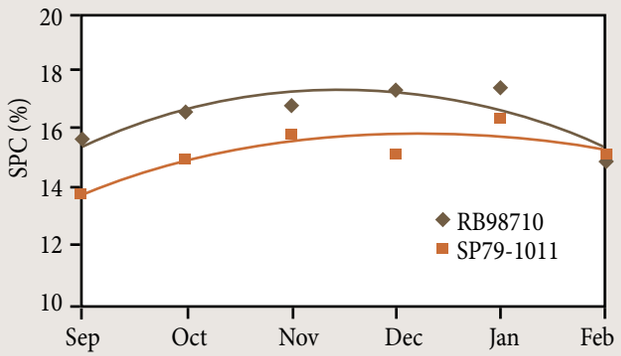
General aspects

Slow development; stalk stained, without waxiness, purple-yellow under the sun and yellow-purple under the leaves; short internodes with medium diameter; small buds with low prominence; narrow and arched leaves with medium pubescence on margin.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the beginning of the crop cycle.

Particular features

High agricultural productivity, high sugar content, early maturation and very strong tillering.

- Developed by: UFAL
- Release in 2010; recommended for Northeastern Brazil

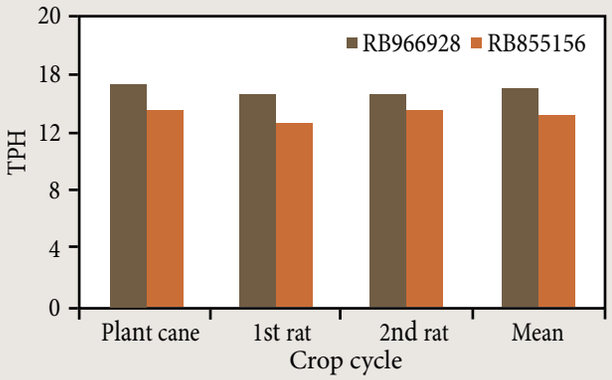
RELEASE 2010

RB855156 x RB815690 RB966928

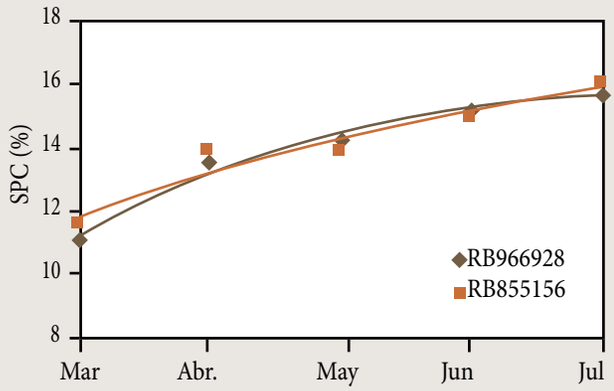
General aspects

Very strong sprouting in cane plant and ratoon crops, strong tillering in cane plant and ratoon crops; very dense canopy; high agricultural productivity, medium PIS; early to medium maturation.

Sugar yield – TPH



Maturation/sugar content



Characteristics		RB966928
Agricultural productivity		High
Harvest		Apr - May
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Tolerant
Brown rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Tolerant

Management recommendations

Planting in environments with medium to high production potential; cutting in the beginning and middle of the crop cycle.

Particular features

Medium sucrose content and high agricultural productivity; very strong sprouting in cane plant and ratoon crops; high resistance to the main diseases.

- Developed by: UFPR
- Release in 2010; recommended for the South and Southeast of Brazil

RB965917 RB855453 x RB855536

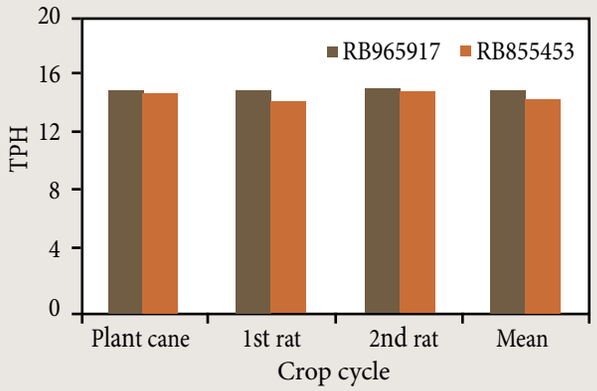
RELEASE 2010

Characteristics		RB965917
Agricultural productivity		High
Harvest		Jul - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Very dense
Growth speed		Medium
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Few
Maturation		Medium
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Intermediate
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

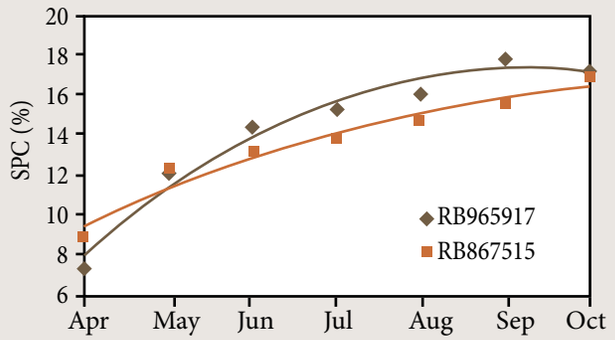
General aspects

Clumps with erect growth habit and strong tillering ability; stalk green-yellowish under the leaves and yellow-greenish when exposed to sun; weak adherence of leaf sheath; short, green leaf sheath with low waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with high production potential; cutting from June to September.

Particular features

High agricultural productivity and high sucrose content in the middle of the crop cycle.

- Developed by: UFSCar
- Release in 2010; recommended for the Central South of Brazil

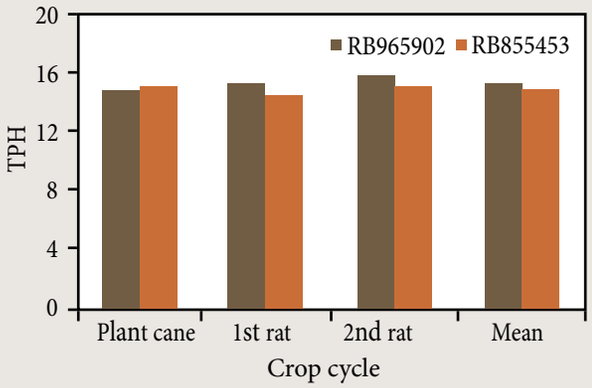
RELEASE 2010

RB855536 x RB855453 RB965902

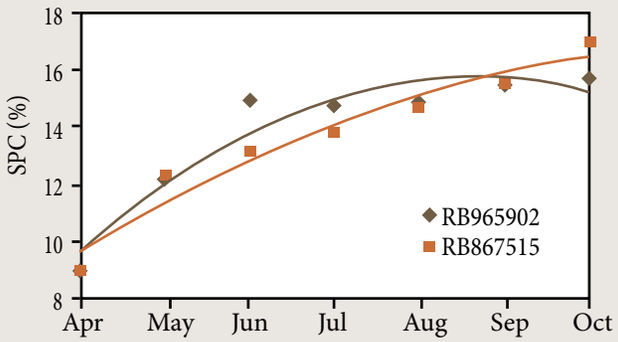
General aspects

Clumps with semi-erect growth habit and high tillering ability; stalk green under the leaves and purple-yellowish when exposed to sun; leaf sheath short, with medium adherence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to high production potential; cutting from June to September.

Particular features

Resistance to the main diseases; no flowering and high sucrose content in the middle of the crop cycle.

Characteristics		RB965902
Agricultural productivity		High
Harvest		Jun - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Very dense
Growth speed		Fast
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Few
Maturation		Medium
Adherence of leaf sheath		Medium
PIS		Medium/Long
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 2010; recommended for the Central South of Brazil

RB962962

R397 x ?

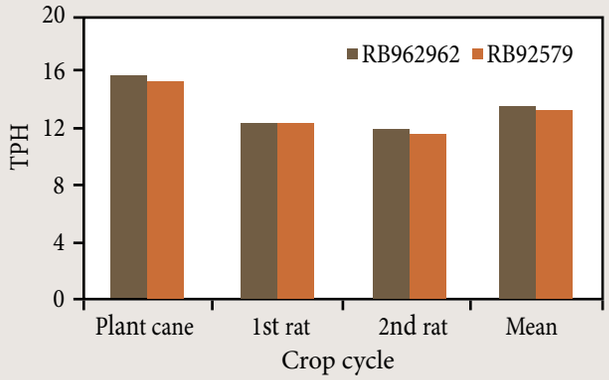
RELEASE 2010

Characteristics		RB962962
Agricultural productivity		High
Harvest		Intermediate/late
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		Moderately susceptible
Leaf scald		–
Mosaic virus		–

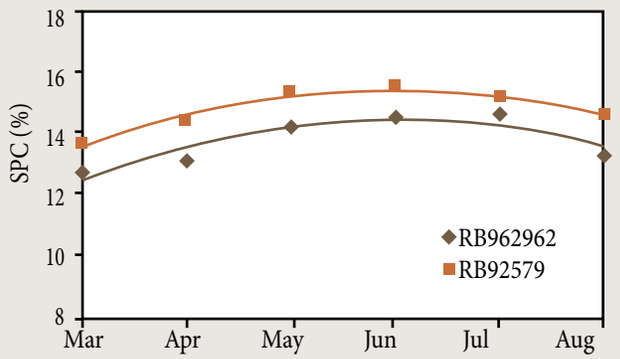
General aspects

Erect growth habit, fast development and dense canopy, medium tillering capacity; green leaf sheath, purplish under sun, weak adherence of leaf sheath and moderate amount of leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to low production potential; cutting in the middle and at the end of the crop cycle.

Particular features

High sucrose content and high agricultural productivity, tolerant to water stress, very strong plant health and sprouting in cane plant and ratoon crops.

- Developed by: UFRPE
- Release in 2010; recommended for Northeastern Brazil

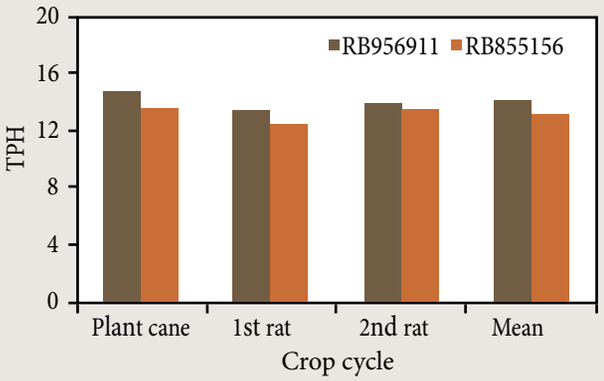
RELEASE 2010

RB855206 x RB855035 RB956911

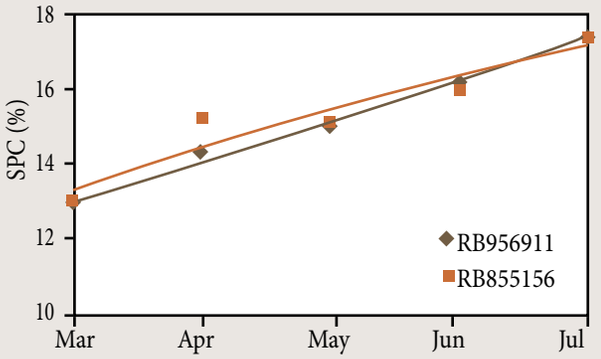
General aspects

Medium sprouting in cane plant, strong sprouting in ratoon crops, medium tillering in cane plant and ratoon crops; very dense canopy, high agricultural productivity; medium PIS and medium maturation.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to high production potential; cutting in the beginning of June for the state of Paraná.

Particular features

Medium sucrose content together with high agricultural productivity; medium sprouting in cane plant and ratoon crops; medium disease resistance.

Characteristics		RB956911
Agricultural productivity		High
Harvest		Apr - May
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Tolerant
Brown rust		Moderately susceptible
Leaf scald		Tolerant
Mosaic virus		Tolerant

- Developed by: UFPR
- Release in 2010; recommended for the South and Southeast of Brazil

RB951541

RB72454 x SP79-1011

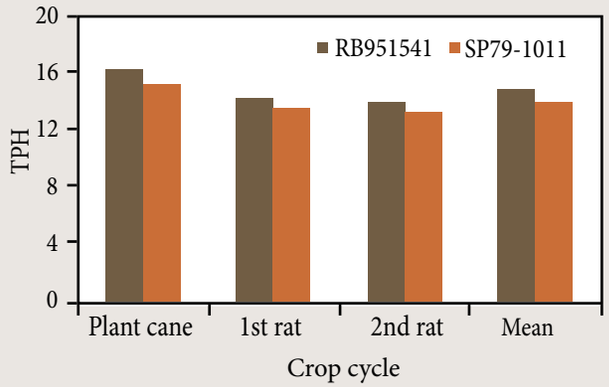
RELEASE 2010

Characteristics		RB951541
Agricultural productivity		Medium
Harvest		Sep - Jan
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		Intermediate
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		–

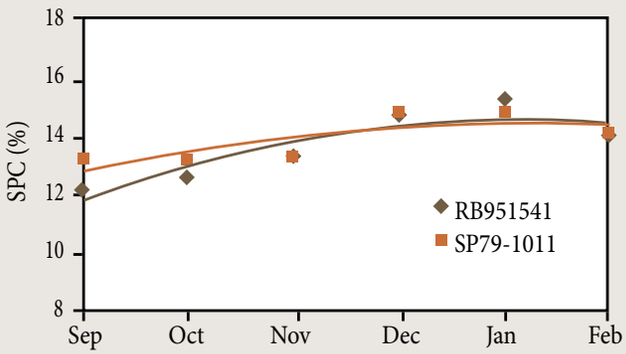
General aspects

Fast development; stained stalks with low waxiness, yellow-purple under the leaves and purple-yellow under the sun; short and medium-thick internodes; weak adherence of leaf sheath; buds with weak prominence; medium-wide leaves with curved tips, pubescence absent.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the beginning and middle of the crop cycle.

Particular features

Early-maturing, sugar-rich variety; dense canopy and high longevity of the sugarcane field.

- Developed by: UFAL
- Release in 2010; recommended for Northeastern Brazil

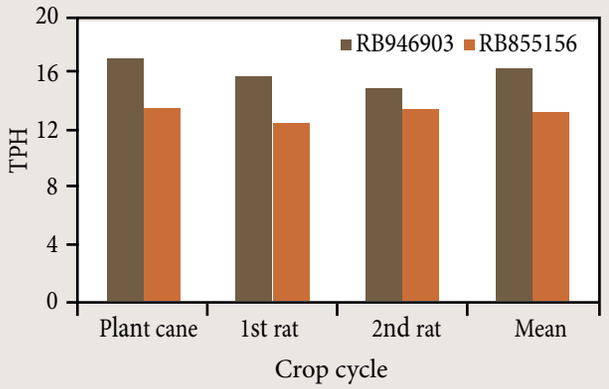
RELEASE 2010

RB765418 x RB72454 RB946903

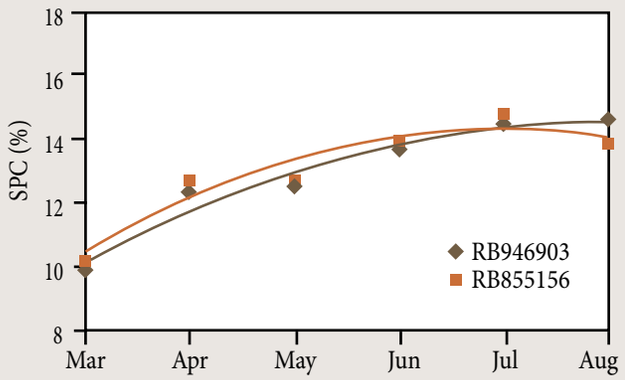
General aspects

Medium sprouting in cane plant, strong sprouting in ratoon crops, medium tillering in cane plant and ratoon crops, very dense canopy; high agricultural productivity, medium PIS and early maturation.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to high production potential; cutting from the beginning to the middle of the crop cycle in the state of Paraná.

Particular features

High sucrose content and high agricultural productivity, medium sprouting in cane plant and ratoon crops; medium disease resistance.

- Developed by: UFPR
- Release in 2010; recommended for the South and Southeast of Brazil

Characteristics		RB946903
Agricultural productivity		High
Harvest		Apr - Jun
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Tolerant
Aerial roots		Present

RB937570

RB72454 x SP70-1143

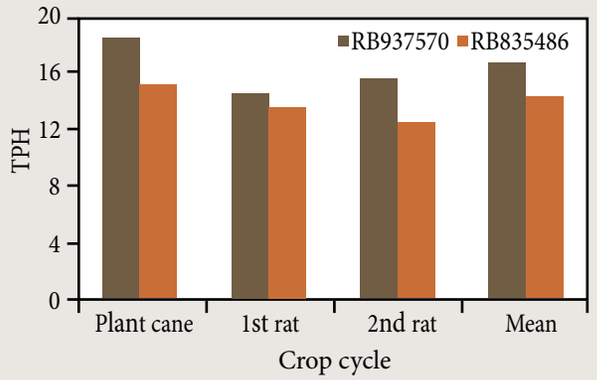
RELEASE 2010

Characteristics		RB937570
Agricultural productivity		Medium
Harvest		May - Aug
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Frequent
Pithy stalks		Few
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Moderately susceptible

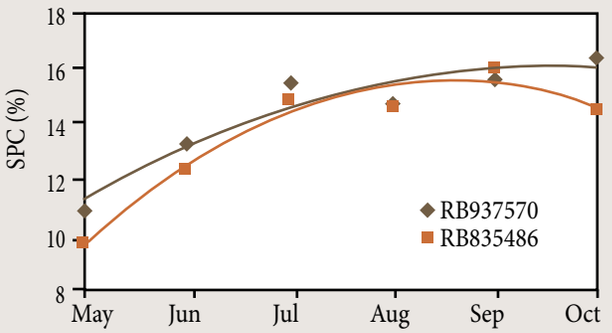
General aspects

Medium development, semi-erect growth habit, medium adherence of leaf sheath, medium stalk diameter, purple-yellowish when exposed to the sun, medium waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with good production potential; cutting from May to August.

Particular features

High sucrose content and medium to high agricultural productivity, medium plant health and very strong sprouting in cane plant and ratoon crops; medium performance when mechanically harvested.

- Developed by: UFV
- Release in 2010; recommended for the Midwest and Central South of Brazil

RELEASE 2010

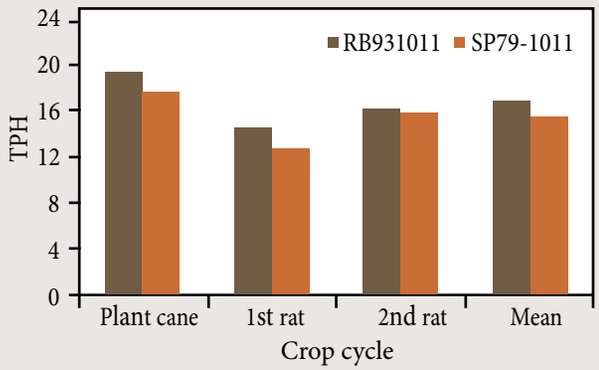
RB83160 x RB72454

RB931011

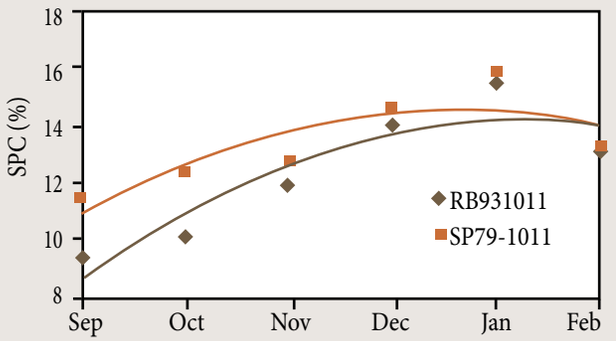
General aspects

Fast development; stained stalks with high waxiness, purple-green under the sun and yellow-purple under the leaves, short and medium-thick internodes; medium adherence of leaf sheath; buds with weak prominence; erect, medium-wide leaves without pubescence on margin.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle and at the end of the crop cycle; planting management to avoid flowering; cultivation in environments with low to medium production potential.

Particular features

Excellent performance on sandy soils; fast vegetative growth.

Characteristics		RB931011
Agricultural productivity		Medium
Harvest		Dec - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Frequent
Pithy stalks		Medium
Maturation		Late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		High
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFAL
- Release in 2010; recommended for Northeastern Brazil

RB931003 RB72454 x RB835089

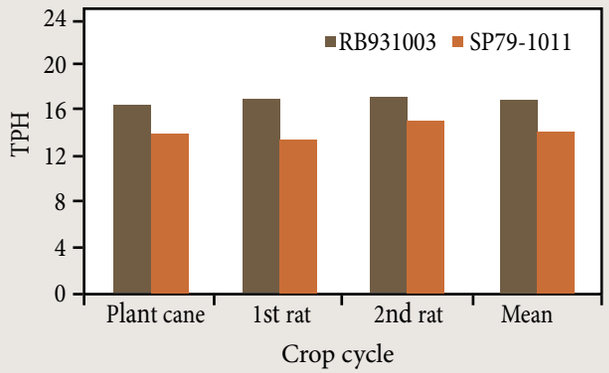
RELEASE 2010

Characteristics		RB931003
Agricultural productivity		High
Harvest		Dec - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		–

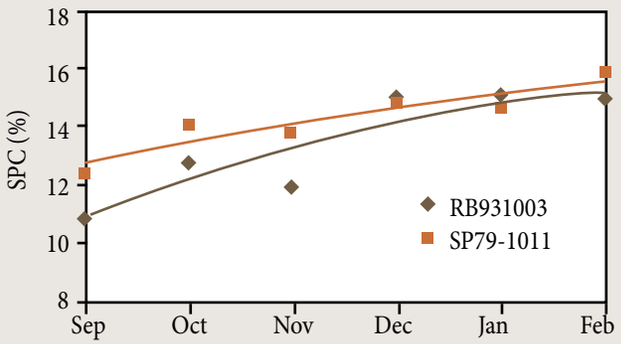
General aspects

Fast development; stained stalks with weak waxiness, green-purple under the sun and green-yellow under the leaves; internodes with medium length and diameter; weak adherence of leaf sheath, medium bud prominence and erect leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle or at the end of the crop cycle.

Particular features

High agricultural productivity in cane plant and ratoon crops; tolerance to water stress.

- Developed by: UFAL
- Release in 2010; recommended for Northeastern Brazil

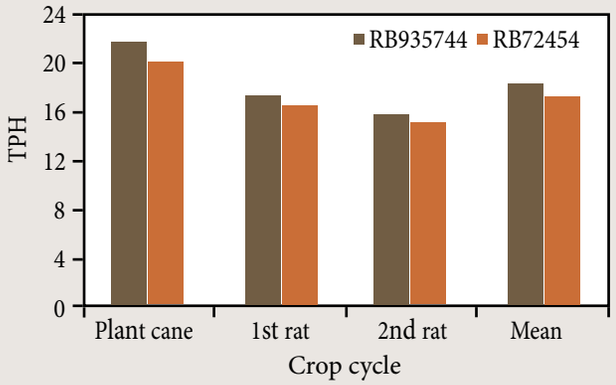
RELEASE 2006

RB835089 x RB765418 RB935744

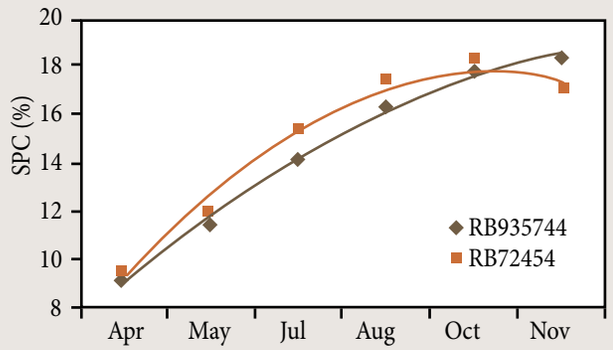
General aspects

Fast development, erect growth habit, weak adherence of leaf sheath; medium to thick, brown-greenish stalks with weak waxiness; triangular-pointed bud.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to good production potential; cutting at the end of the crop cycle.

Particular features

Robust variety, very strong plant health and high yields.

Characteristics		RB935744
Agricultural productivity		High
Harvest		Sep - Nov
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Few
Maturation		Late
Adherence of leaf sheath		Weak
PIS		Short
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Tolerant

- Developed by: UFSCar
- Release in 2006; recommended for the Central-South of Brazil

RB925345

H59-1966 x ?

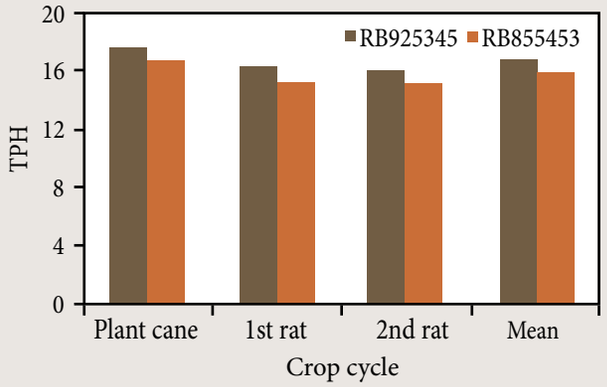
RELEASE 2006

Characteristics		RB925345
Agricultural productivity		High
Harvest		May - Jul
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Frequent
Flowering		Frequent
Pithy stalks		Medium
Maturation		Early
Adherence of leaf sheath		Strong
PIS		Short
Environmental demands		High
Sucrose content		High
Fiber content		High
Smut		Tolerant
Brown rust		Tolerant
Leaf scald		Resistant
Mosaic virus		Resistant

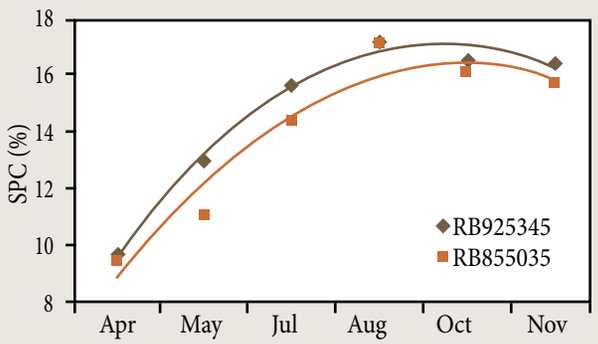
General aspects

Fast development, erect growth habit, strong adherence of leaf sheath; medium stalk diameter, purple-yellowish when exposed to the sun, medium waxiness; oval bud.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in favorable environments to reduce smut susceptibility; cutting in the beginning of the harvest period.

Particular features

High sucrose content, high productivity and high fiber content in the beginning of the harvest period.

- Developed by: UFSCar
- Release in 2006; recommended for the Central-South of Brazil

RELEASE 2006

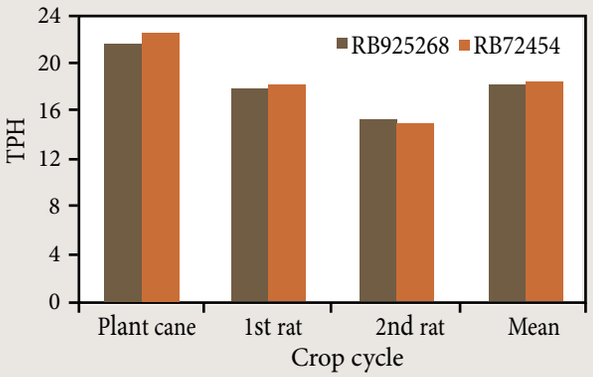
RB855511 x ?

RB925268

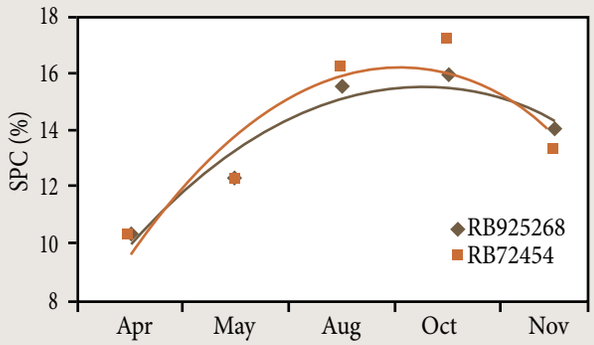
General aspects

Medium development, erect growth habit; weak adherence of leaf sheath, yellow-greenish stalk with medium diameter, medium waxiness; round bud.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to good production potential; cutting in the middle and at the end of the crop cycle.

Particular features

Good harvestability.

Characteristics		RB925268
Agricultural productivity		Medium/High
Harvest		Aug - Nov
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Tolerant

- Developed by: UFSCar
- Release in 2006; recommended for the Central-South of Brazil

RB925211

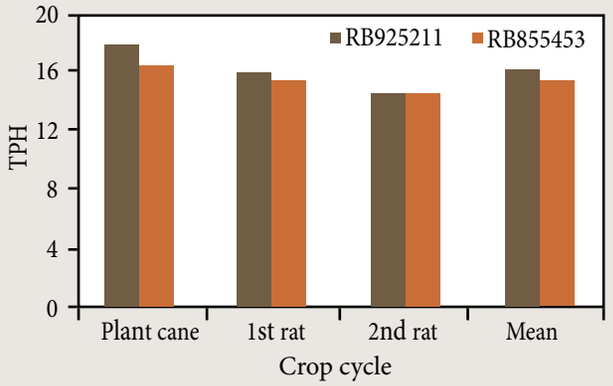
RB855206 x ?

RELEASE 2006

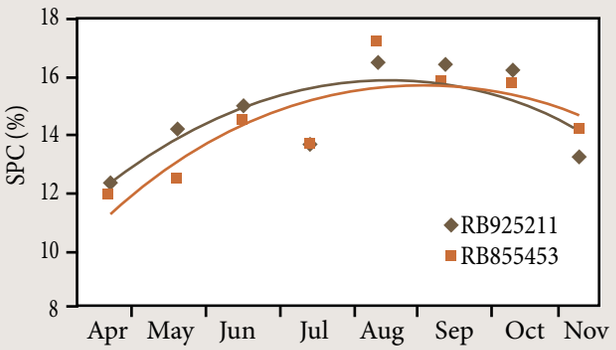
General aspects

Medium development; semi-erect growth habit, weak adherence of leaf sheath; medium-thick, green-yellow stalk, purple-yellowish when exposed to the sun, weak waxiness.

Sugar yield – TPH



Maturation/sugar content



Characteristics		RB925211
Agricultural productivity		Medium/High
Harvest		May - Aug
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium/High
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

Management recommendations

Planting in environments with medium to good production potential; cutting in the beginning and middle of the crop cycle.

Particular features

High sucrose content and high sugar yield; very strong plant health and very strong ratoon sprouting after machine harvesting.

- Developed by: UFSCar
- Release in 2006; recommended for the Central-South of Brazil

RELEASE 2005

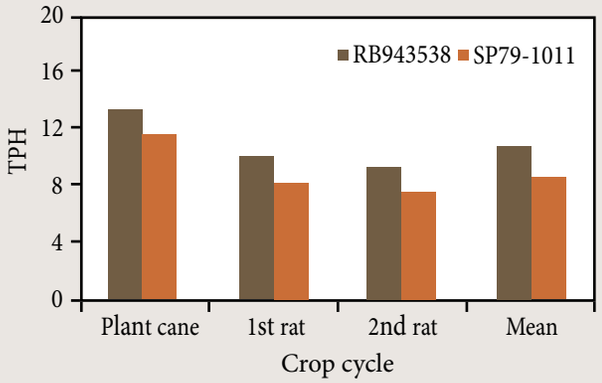
RB775035 x ?

RB943538

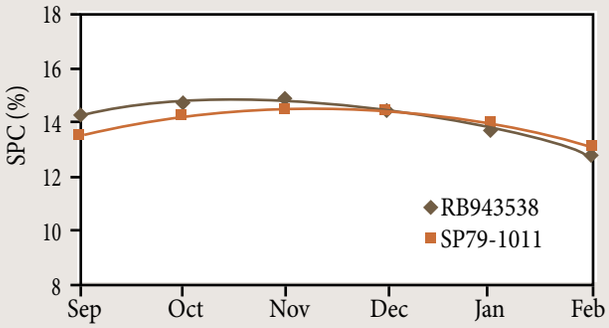
General aspects

Semi-erect growth habit, dense canopy, medium tillering; green leaf sheath, slightly purplish under the sun, with weak adherence; moderate amount of leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to good production potential; cutting in the beginning of the harvest period.

Particular features

High sucrose content and high agricultural productivity, very strong plant health and very strong sprouting in cane plant and ratoon crops.

Characteristics		RB943538
Agricultural productivity		High
Harvest		Early
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Rare
Flowering		Absent
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Short
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		Moderately susceptible
Leaf scald		Moderately susceptible
Mosaic virus		–

- Developed by: UFRPE
- Release in 2005; recommended for Northeastern Brazil

RB943365

ROC3 x RB83100

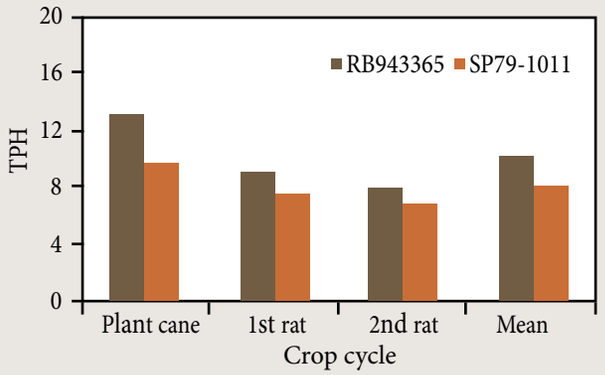
RELEASE 2005

Characteristics		RB943365
Agricultural productivity		High
Harvest		Early
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Short
Environmental demands		Moderate
Sucrose content		High
Fiber content		Low
Smut		–
Brown rust		Moderately susceptible
Leaf scald		Resistant
Mosaic virus		–

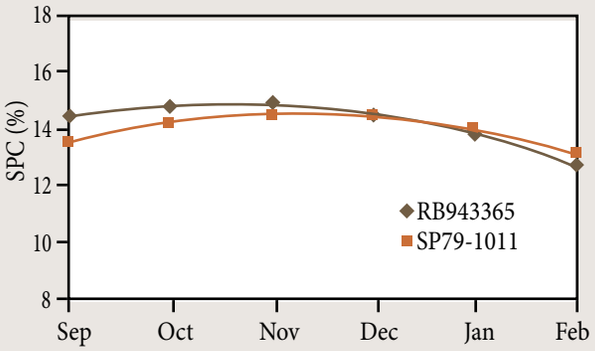
General aspects

Erect growth habit, medium tillering and medium canopy; green leaf sheath, slightly purplish under the sun; medium adherence of leaf sheath and moderate amount of leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to good production potential; cutting in the beginning of the harvest period.

Particular features

High sucrose content and medium agricultural productivity; very strong plant health and very strong sprouting in cane plant and ratoon crops.

- Developed by: UFRPE
- Release in 2005; recommended for Northeastern Brazil

RELEASE 2005

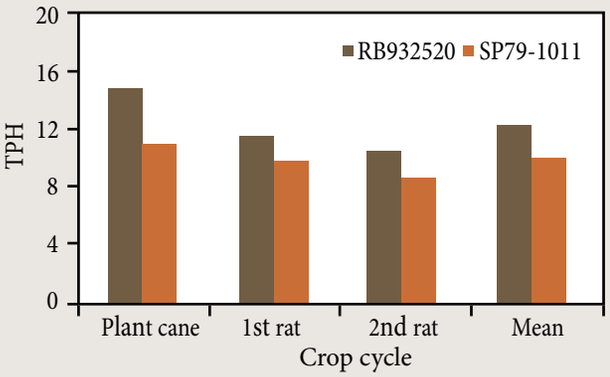
SP71-1406 x ?

RB932520

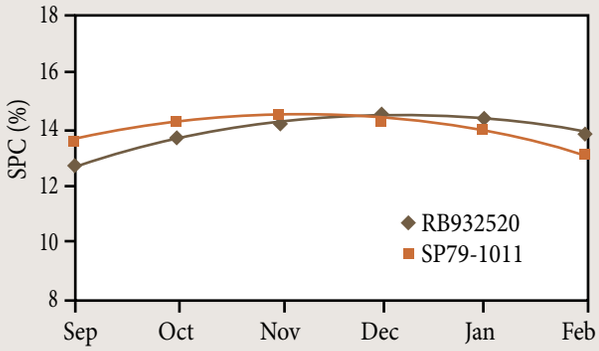
General aspects

Erect growth habit, medium development and medium-dense canopy, medium tillering; dark-green leaf sheath, slightly yellowish under the sun; weak adherence of leaf sheath and moderate amount of leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to good production conditions; cutting in the middle and at the end of the crop cycle.

Particular features

High sucrose content and agricultural productivity; very strong plant health and very strong sprouting in cane plant and ratoon crops.

Characteristics		RB932520
Agricultural productivity		High
Harvest		Intermediate/ late
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		Tolerant
Leaf scald		Resistant
Mosaic virus		–

- Developed by: UFRPE
- Release in 2005; recommended for Northeastern Brazil

RB872552

RB754665 x RB773720

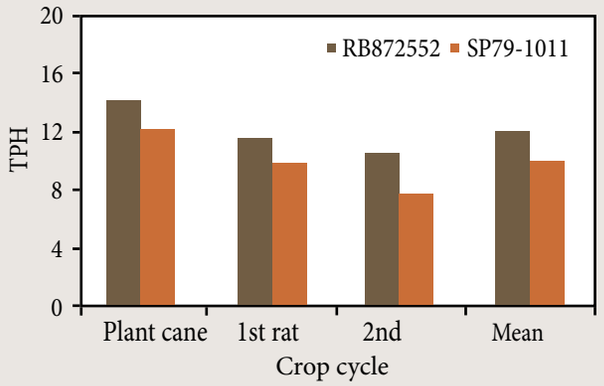
RELEASE 2005

Characteristics		RB872552
Agricultural productivity		High
Harvest		Early/late
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Semi-erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Absent
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		–

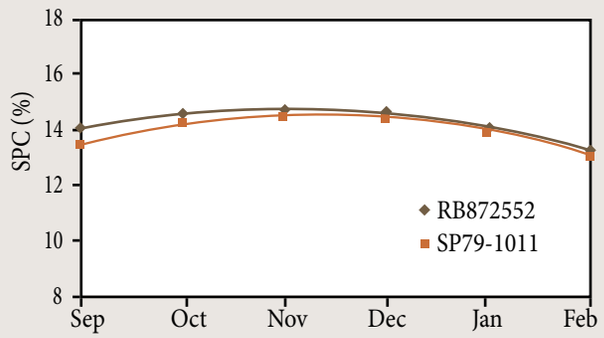
General aspects

Semi-erect growth habit, medium development, dense canopy, medium tillering; green leaf sheath, slightly yellowish under the sun, with medium adherence; moderate amount of leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to good production conditions; cutting in the beginning and middle of the crop cycle.

Particular features

High sucrose content and high agricultural productivity; very strong plant health and very strong sprouting in cane plant and ratoon crops.

- Developed by: UFRPE
- Release in 2005; recommended for Northeastern Brazil

RELEASE 2005

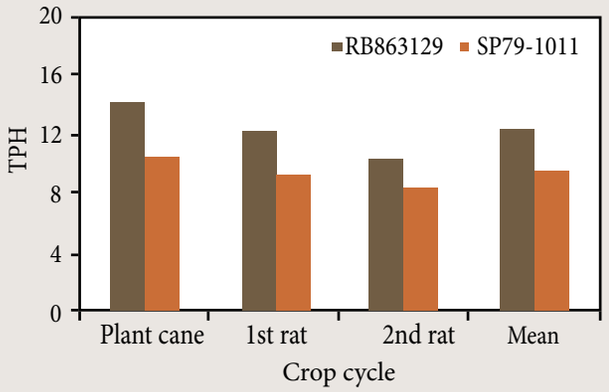
RB763411 x ?

RB863129

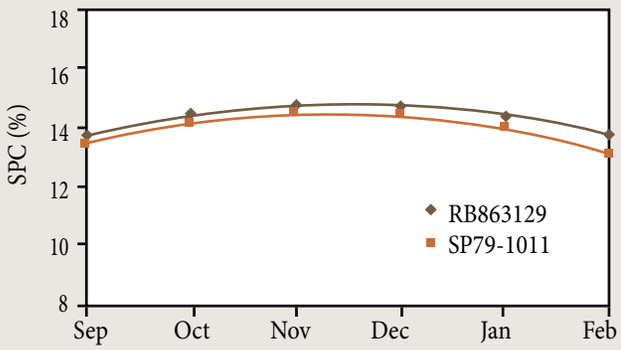
General aspects

Intermediate growth habit, fast development and medium-dense canopy, medium tillering capacity; green leaf sheath, slightly purplish under the sun, with weak adherence; moderate amount of leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to low production potential; cutting in the beginning and middle of the crop cycle.

Particular features

Medium sucrose content, high agricultural productivity; tolerant to water stress, very strong plant health and medium sprouting in cane plant and ratoon crops.

- Developed by: UFRPE
- Release in 2005; recommended for Northeastern Brazil

Characteristics		RB863129
Agricultural productivity		High
Harvest		Early/ intermediate
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Intermadiate
Lodging		Rare
Flowering		Occasional
Pithy stalks		Few
Maturation		Early/medium
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Absent
Sucrose content		Medium
Fiber content		Medium
Smut		–
Brown rust		Moderately susceptible
Leaf scald		Resistant
Mosaic virus		–

RB858927

NA56-79 x RB739735

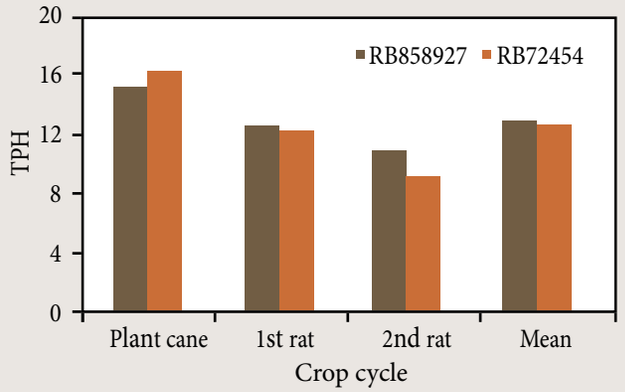
RELEASE 2005

Characteristics		RB858927
Agricultural productivity		High
Harvest		May - Jul
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Short
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Tolerant

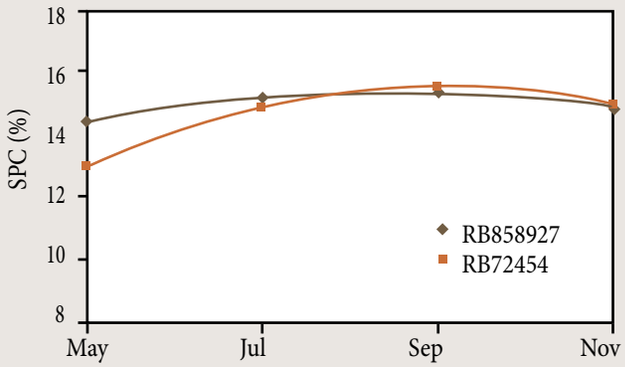
General aspects

Dense clump formation, semi-erect stalks with medium diameter and length, yellow-purplish when exposed to the sun; curved internodes with moderate zigzag alignment; rhomboid bud, with medium size and width; leaf sheath green/slightly purplish, with strong waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting preferentially from January to May, in medium to highly fertile soils.

Particular features

Very responsive to favorable environments, high sucrose richness, strong tillering in cane plant and ratoon crops.

* Developed by: UFRRJ
* Release in 2005; recommended for the Central South of Brazil

RB931530

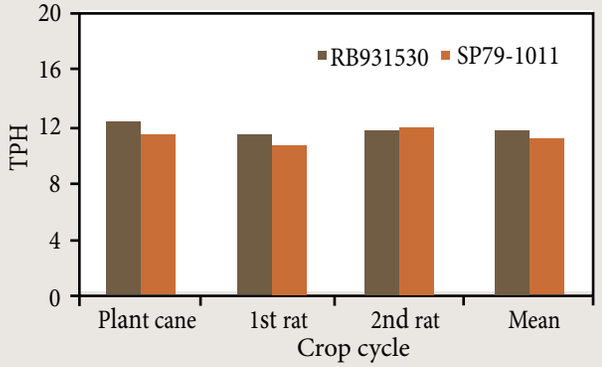
RELEASE 2003

Q107 x ?

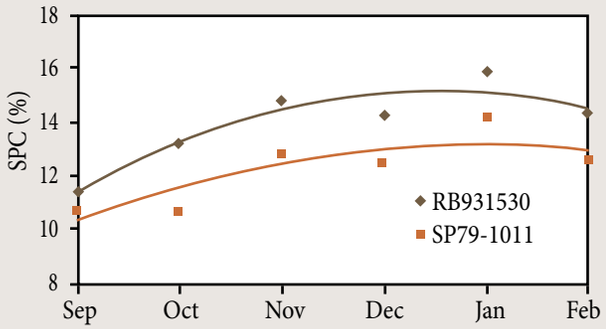
General aspects

Slow development; stained stalks with weak waxiness, from yellow-green under the sun to purple-green under the leaves; internodes with medium length and thin diameter; weak adherence of leaf sheath; buds with medium prominence; medium-wide, arched leaves, with sparse pubescence on margin.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with good production potential (in lowlands and under vinasse application).

Particular features

Medium ratoon sprouting; early maturation and long PIS, high total recoverable sugar content.

Characteristics		RB931530
Agricultural productivity		High
Harvest		Sep - Feb
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Slow
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		–

- Developed by: UFAL
- Release in 2003; recommended for Northeastern Brazil

RB93509

RB72454 x ?

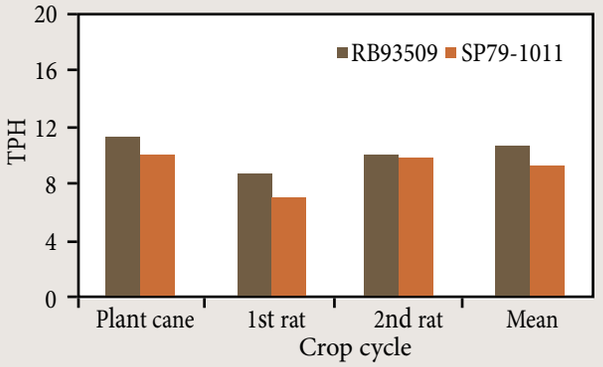
RELEASE 2003

Characteristics		RB93509
Agricultural productivity		High
Harvest		Dec - Feb
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Intermediate
Lodging		Rare
Flowering		Frequent
Pithy stalks		Absent
Maturation		Late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		–

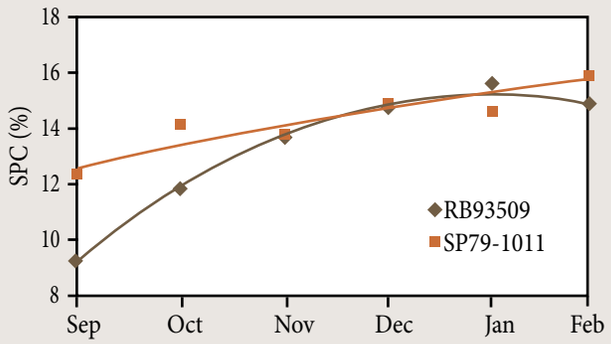
General aspects

Fast development; stalks with stripes and weak waxiness, purple under the sun; internodes with medium length and diameter; medium adherence of leaf sheath; buds with medium prominence; medium-wide leaves with curved tips and pubescence on margin.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle and at the end of the crop cycle; cultivation far away from sugar mills and in soils with high moisture retention should be avoided.

Particular features

High agricultural productivity, medium ratoon tillering and fast vegetative growth.

- Developed by: UFAL
- Release in 2003; recommended for Northeastern Brazil

RB92579

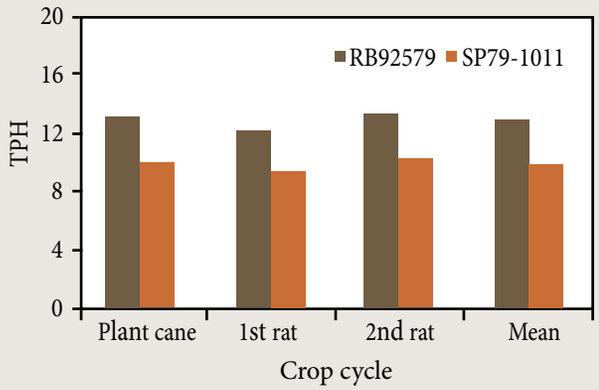
RB75126 x RB72199

RELEASE 2003

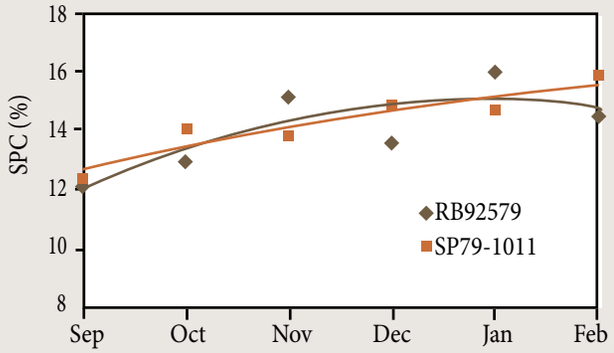
General aspects

Slow development; stained stalk with weak waxiness, yellow-green under the leaves and purple under the sun; internodes with medium length and diameter; strong adherence of leaf sheath; very weak bud prominence; long and broad leaves with curved tips, absent pubescence on margin.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting on tableland, lowland, hillside and plain areas; cutting in the middle of the crop cycle.

Particular features

Strong ratoon tillering and sprouting; high agricultural productivity, high total recoverable sugar content; fast drought recovery.

- Developed by: UFAL
- Release in 2003; recommended for Northeastern Brazil

Characteristics		RB92579
Agricultural productivity		High
Harvest		Oct - Jan
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Slow
Plant height		Tall
Growth habit		Intermediate
Lodging		Frequent
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Strong
PIS		Long
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		Tolerant
Leaf scald		Resistant
Mosaic virus		–

RB928064

SP70-1143 x ?

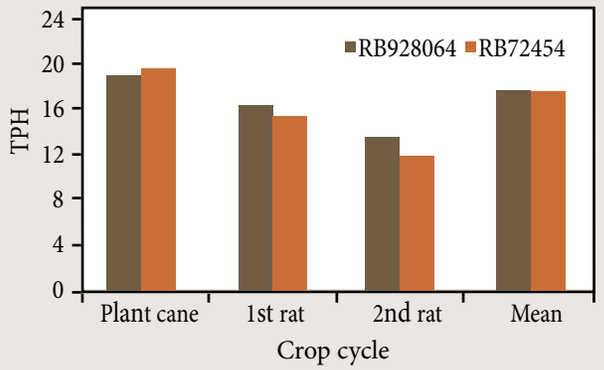
RELEASE 2001

Characteristics		RB928064
Agricultural productivity		High
Harvest		Sep - Nov
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		High
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Resistant

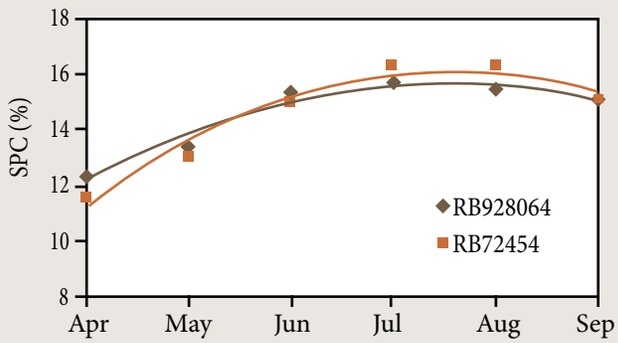
General aspects

Medium development, erect growth habit; medium adherence of leaf sheath; medium-thick, green stalk, green-yellowish when exposed to the sun, absent waxiness, very few hairs on leaf sheath.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to high production potential; harvest at the end of the crop cycle.

Particular features

Medium sucrose content at the end of the crop cycle; high agricultural productivity, medium plant health and very strong sprouting in cane plant and ratoon crops; rare flowering and no pithy stalks.

- Developed by: UFV
- Release in 2001; recommended for the Midwest and Central South of Brazil

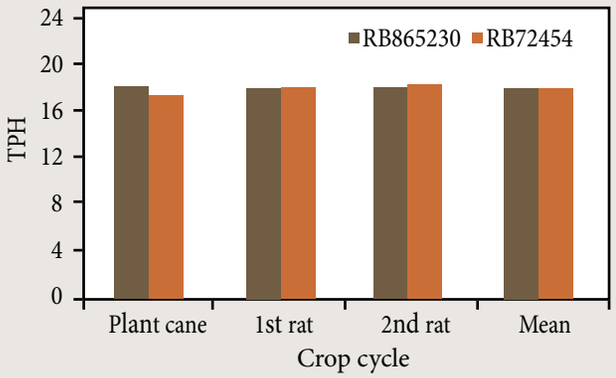
RELEASE 2001

SP70-1143 x RB72454 RB865230

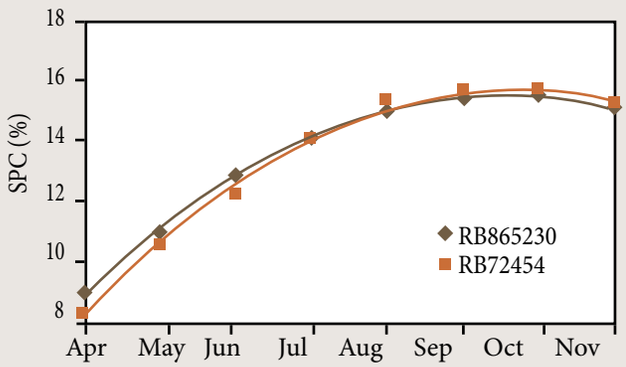
General aspects

Medium sprouting, high tillering capacity, very dense canopy and very strong sprouting in ratoon crops; semi-erect growth habit, medium to thin stalk diameter and medium flowering incidence, but few pithy stalks.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting preferentially in soils with low production potential; cutting in the middle of the crop cycle.

Particular features

High sugar yield on all soil types; resistant to brown rust, smut, mosaic virus, leaf scald and red streak.

Characteristics		RB865230
Agricultural productivity		High
Harvest		Aug - Nov
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Semi-erect
Lodging		Medium
Flowering		Medium
Pithy stalks		Medium
Maturation		Early
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Low
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar and UFPR
- Release in 2001; recommended for the Central South of Brazil

RB855036

RB72454 x SP70-1143

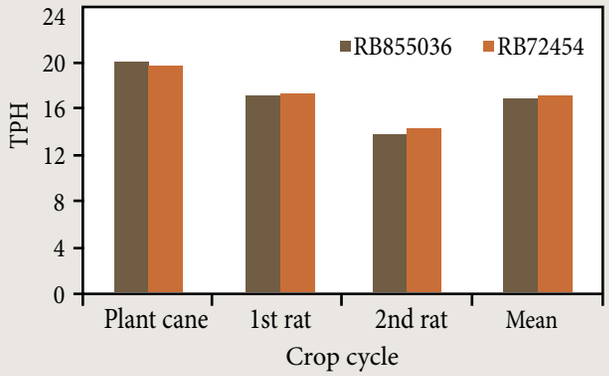
RELEASE 2001

Characteristics		RB855036
Agricultural productivity		Medium
Harvest		Jun - Aug
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Short
Environmental demands		High
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

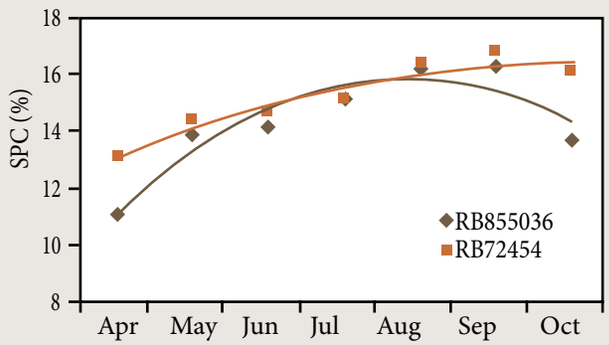
General aspects

Semi-erect growth habit, medium clump formation; dark green leaf sheaths with medium adherence; medium-thick, green-yellowish stalks.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting recommended from June to August for southern São Paulo state and the state of Paraná; herbicide-sensitive variety; low tolerance to water stress.

Particular features

Good agro-industrial potential when grown in the recommended production environment.

- Developed by: UFSCar and UFPR
- Release in 2001; recommended for the Central South of Brazil

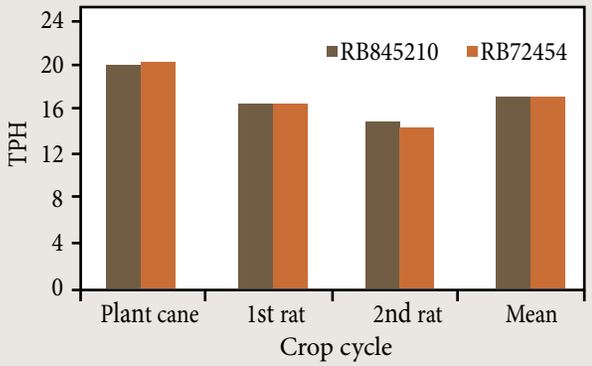
RELEASE 2001

RB72454 x SP70-1143 RB845210

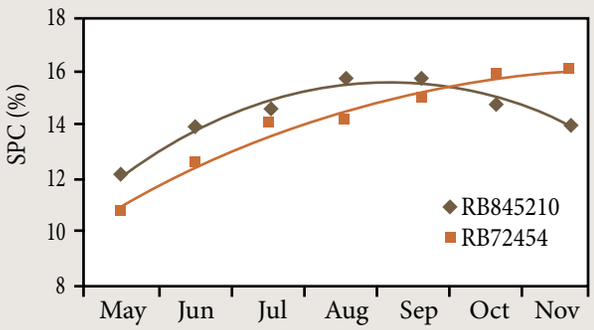
General aspects

Semi-erect growth habit, slightly open clump; slightly purplish leaf sheaths with medium adherence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Good performance in the state of Paraná and central and southern São Paulo state, well-adapted to moderately fertile environments with sandy soil.

Particular features

Well-adapted to high planting density; medium machine-harvested and high hand-harvested yield; medium transport density of stalks.

Characteristics		RB845210
Agricultural productivity		High
Harvest		May - Sep
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Rare
Flowering		Absent
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar and UFPR
- Release in 2001; recommended for the Central South of Brazil

RB845197

RB72454 x SP70-1143

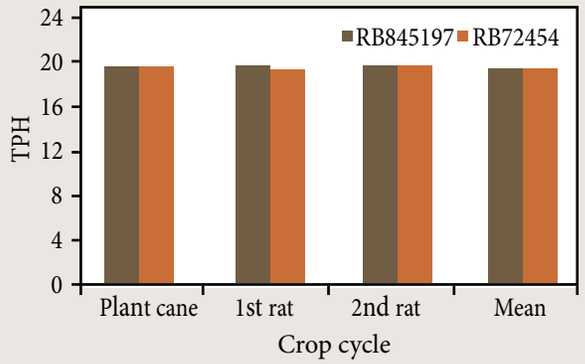
RELEASE 2001

Characteristics		RB845197
Agricultural productivity		High
Harvest		Apr - May
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Medium
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Tolerant
Brown rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Tolerant

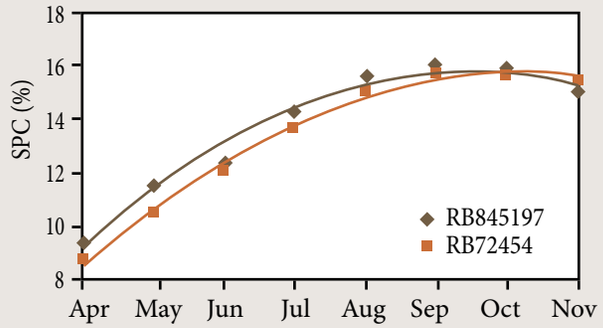
General aspects

Erect growth habit, sparse clump formation; tiny part of the internode is visible under the slightly purplish, medium-sized leaf sheath with medium adherence; medium amount of leaves; medium-dense canopy.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Indicated for the state of Paraná, where flowering and pithy stalks rarely occur; cutting in the middle of the crop cycle.

Particular features

Well-adapted to high planting density and responsive to ripeners.

- Developed by: UFSCar and UFPR
- Release in 2001; recommended for the Central South of Brazil

RB855511

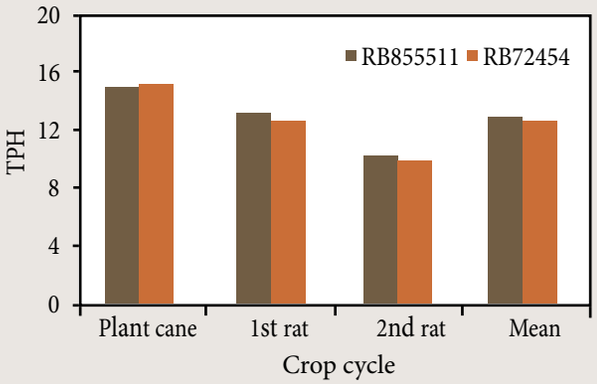
SP71-1406 x ?

RELEASE 2000

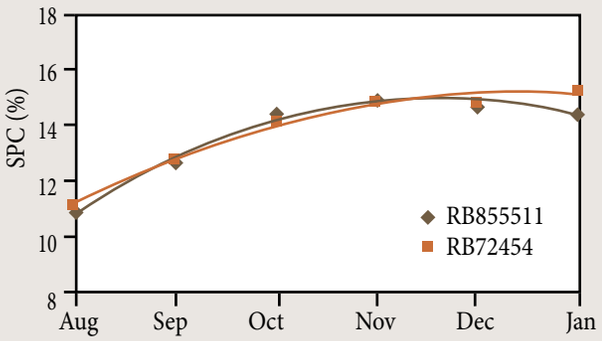
General aspects

Fast development; stalk purplish under the sun, internodes short, with strong waxiness; medium adherence of leaf sheath; buds with weak prominence; medium wide and long, dark-green leaves with curved tips; greenish leaf sheath with few hairs.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle and at the end of the crop cycle.

Particular features

Well-adapted to low-fertility soils, fast vegetative growth, medium ratoon sprouting.

Characteristics		RB855511
Agricultural productivity		Medium
Harvest		Oct - Dec
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Intermediate
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Absent
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		High
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Highly tolerant
Leaf scald		Resistant
Mosaic virus		Tolerant

- Developed by: UFAL
- Release in 2000; recommended for Northeastern Brazil

RB855463

RB72454 x ?

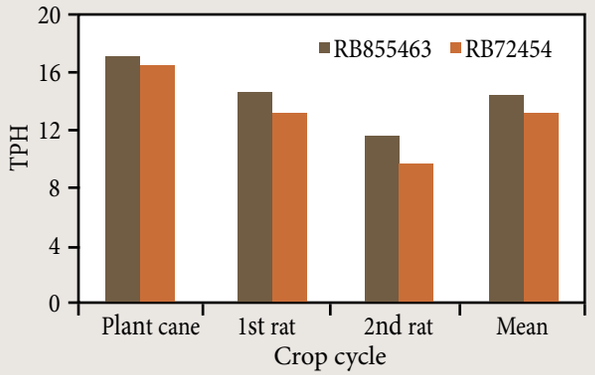
RELEASE 2000

Characteristics		RB855463
Agricultural productivity		Medium
Harvest		Sep - Nov
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Intermediate
Lodging		Occasional
Flowering		Frequent
Pithy stalks		Few
Maturation		Early
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

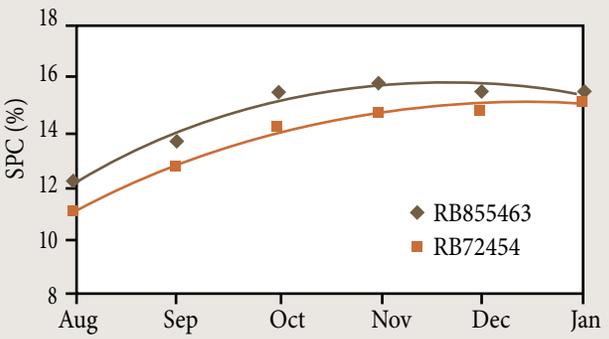
General aspects

Fast development; green-purple stalks, long internodes with weak waxiness; medium adherence of leaf sheath; buds with weak prominence; medium wide and long leaves with curved tips, absent pubescence on margin.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Management of the harvest period to avoid flowering.

Particular features

Early-maturing and sugar-rich variety, fast vegetative growth.

- Developed by: UFAL
- Release in 2000; recommended for Northeastern Brazil

RELEASE 2000

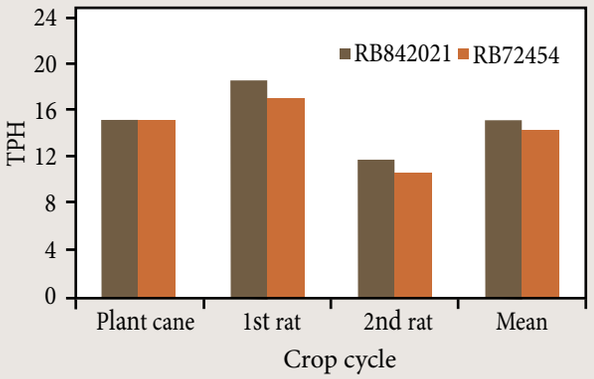
B3337 x RB72454

RB842021

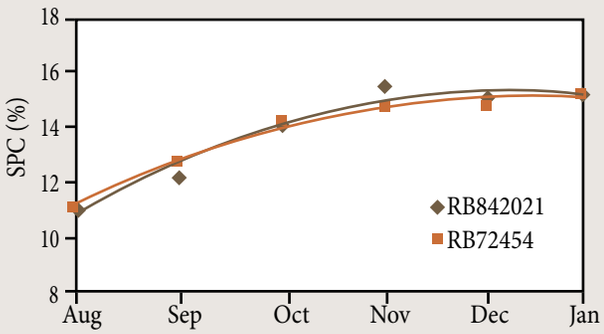
General aspects

Fast development; thin stalks, purple under the sun; medium adherence of leaf sheath; round and small buds; short leaf sheath; leaves medium wide and long, dark-green, without pubescence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cultivation in highly fertile soils; cutting in the middle and at the end of the crop cycle.

Particular features

High sugar content in the middle and end of the crop cycle; rare flowering.

Characteristics		RB842021
Agricultural productivity		High
Harvest		Oct - Dec
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Intermediate
Lodging		Rare
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Absent
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Resistant

- Developed by: UFAL
- Release in 2000; recommended for Northeastern Brazil

RB8495

SP70-1143 x ?

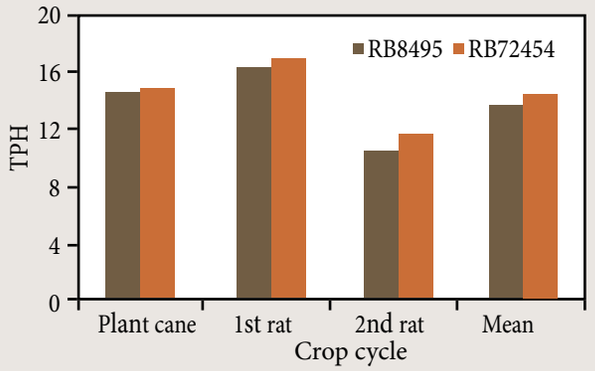
RELEASE 2000

Characteristics		RB8495
Agricultural productivity		Medium
Harvest		Sep - Nov
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Intermediate
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		Absent
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

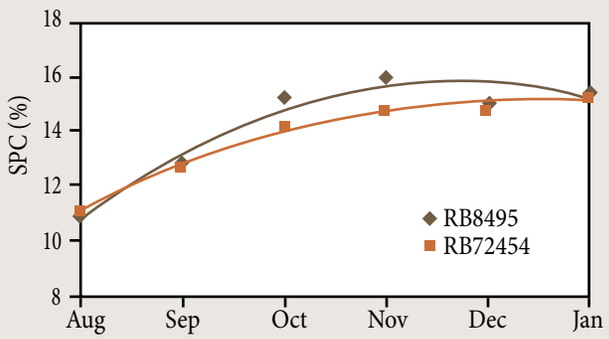
General aspects

Good development; medium-thick, green-yellow stalk; medium adherence of leaf sheath, short internodes with weak zigzag alignment; small buds with weak prominence; short, green-yellow leaf sheath; narrow leaves with curved tips, absent pubescence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cultivation in environments with high production potential; cutting in the beginning and middle of the crop cycle.

Particular features

Early-maturing and sugar-rich variety, rare flowering; good response to fertigation.

- Developed by: UFAL
- Release in 2000; recommended for Northeastern Brazil

RB758540

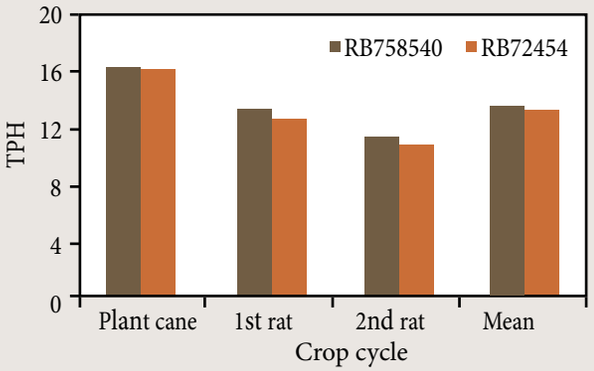
RELEASE 1999

CB61-122 x ?

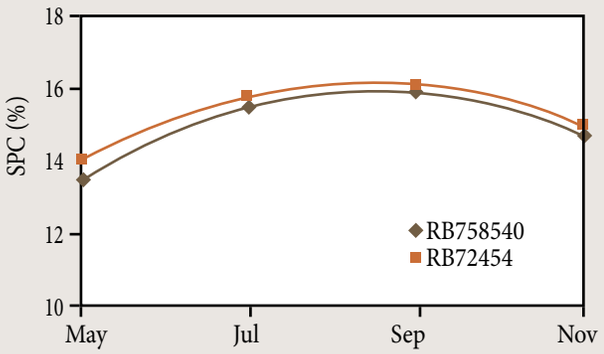
General aspects

Medium clump formation; medium thick and long, erect stalks, green-purplish when exposed to the sun, no cracks; pentagonal bud, with medium size and width; leaf sheath green/straw-colored with medium number of hairs.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Indicated for planting on soils of lowlands, hillsides and tablelands.

Particular features

Wide adaptability; good drought resistance.

Characteristics		RB758540
Agricultural productivity		High
Harvest		Jul - Oct
Tillering	Plant cane	Medium/strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Frequent
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Tolerant
Leaf scald		Resistant
Mosaic virus		Tolerant

- Developed by: UFRRJ
- Release in 1999; recommended for the Central South of Brazil

RB867515

RB72454 x ?

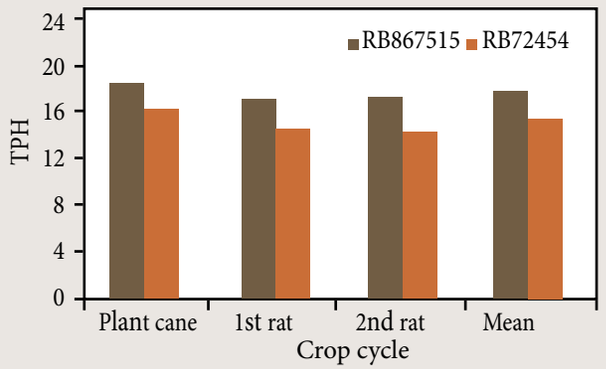
RELEASE 1998

Characteristics		RB867515
Agricultural productivity		High
Harvest		Jul - Sep
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Medium
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Tolerant

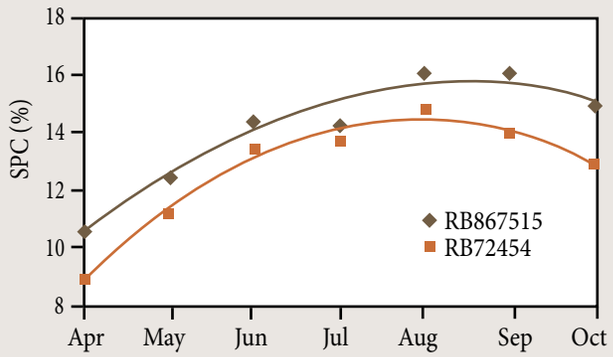
General aspects

Fast development, erect growth habit; medium adherence of leaf sheath, medium stalk diameter; cylindrical, green-purplish internodes, deep purple when exposed to sun, few cracks, weak zigzag alignment, weak waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in soils with intermediate natural fertility; harvest period mid-July to September.

Particular features

High sucrose content and agricultural productivity; ripener-responsive; can be harvested at the beginning of the harvest period; excellent development, medium sprouting in cane plant and ratoon crops; excellent performance in sandy soils.

- Developed by: UFV
- Release in 1998; recommended for the Midwest and Central South of Brazil

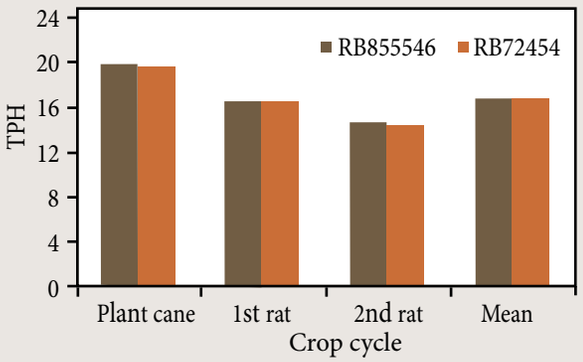
RELEASE 1998

SP70-1143 x RB72454 RB855546

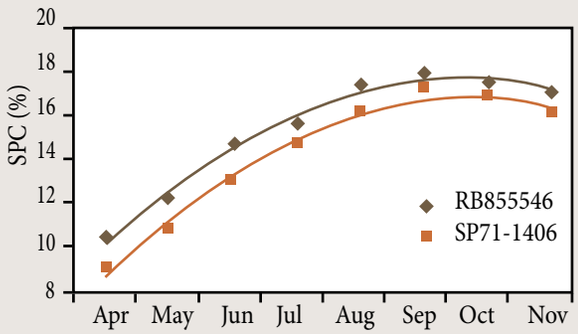
General aspects

Medium clump formation; upright, yellow-purplish stalks with medium leaf cover, weak adherence of leaf sheath; medium to thick stalk diameter.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with high production potential; cutting from the middle to the end of the crop cycle; flowering can occur in favorable regions or years.

Particular features

Very strong ripener response; very sugar-rich when cut between the middle and the end of the crop cycle; medium ratoon tillering in favorable environments.

Characteristics		RB855546
Agricultural productivity		Medium
Harvest		Aug - Oct
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 1998; recommended for the Central South of Brazil

RB855536

SP70-1143 x RB72454

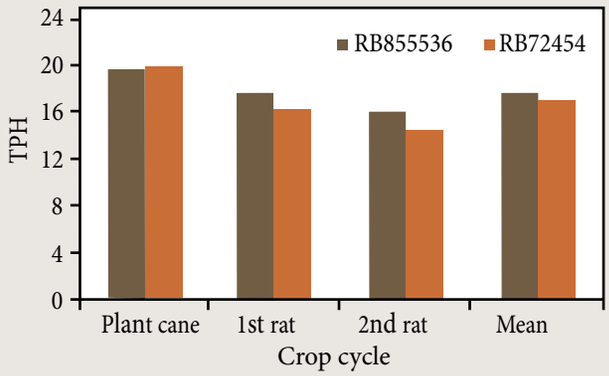
RELEASE 1998

Characteristics		RB855536
Agricultural productivity		High
Harvest		Jul - Oct
Tillering	Plant cane	Medium
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Absent
Flowering		Absent
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		High
Sucrose content		High
Fiber content		Low
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

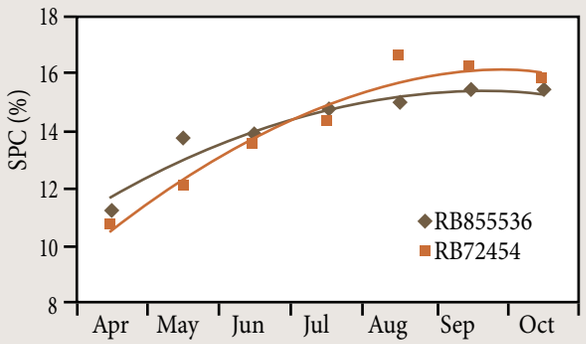
General aspects

Medium-dense clumps and erect stalks; good leaf cover, medium adherence of leaf sheath; medium-thick, green-purplish stalks, with stronger colors where exposed to sunlight.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in favorable environments; early planting (December to January) may result in extreme water deficit in very dry winters.

Particular features

High agro-industrial yield and strong ratoon tillering, even under residue cover; erect growth habit and excellent harvestability; no flowering.

- Developed by: UFSCar
- Release in 1998; recommended for the Central South of Brazil

RB855113

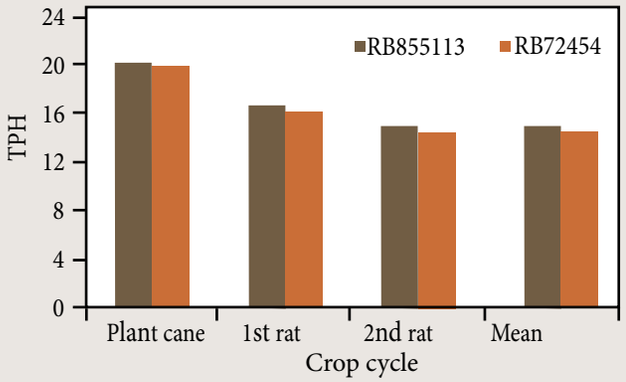
SP70-1143 x RB72454

RELEASE 1998

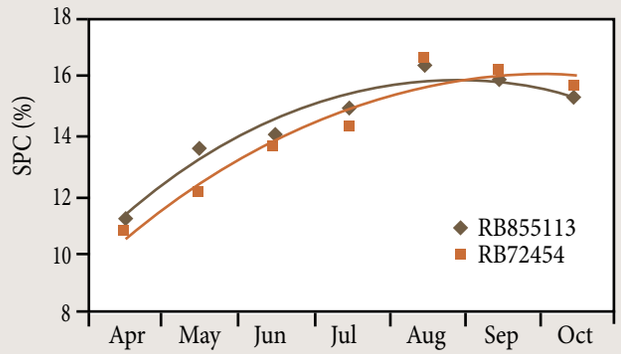
General aspects

Dense clump formation; erect, medium-thick stalks with good leaf cover, green-yellowish, with wax stains.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Slow development; late cutting should be avoided; care required for herbicide application; planting in environments with medium to high production potential.

Particular features

High agricultural and industrial productivity, erect growth habit; hand-harvested yield high and high stalk transport density.

Characteristics		RB855113
Agricultural productivity		High
Harvest		Jun - Aug
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Dense
Growth speed		Medium
Plant height		Short
Growth habit		Erect
Lodging		Absent
Flowering		Absent
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Medium
Sucrose content		High
Fiber content		Low
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 1998; recommended for the Central South of Brazil

RB855035

L60-14 x SP70-1284

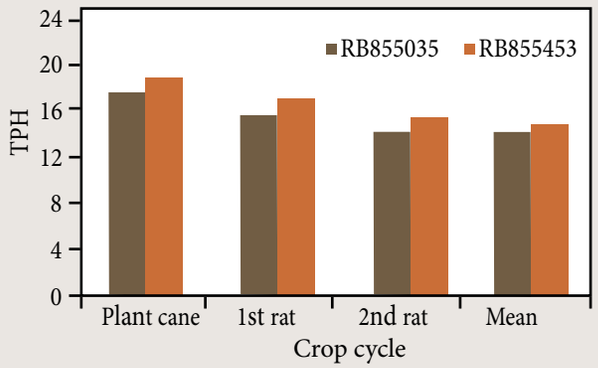
RELEASE 1998

Characteristics		RB855035
Agricultural productivity		Medium
Harvest		May - Jun
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Rare
Flowering		Frequent
Pithy stalks		Medium
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Short
Environmental demands		Low/moderate
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Tolerant
Leaf scald		Resistant
Mosaic virus		Resistant

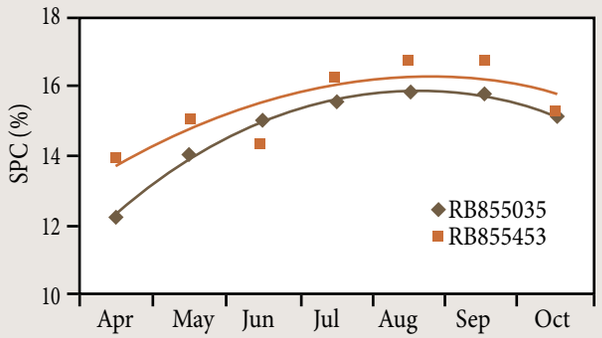
General aspects

Medium clump formation; erect stalks with medium to thick diameter, green-yellowish, purplish when exposed to sunlight; weak adherence of leaf sheath.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in regions favorable to brown rust should be avoided; indicated for environments with low to medium production potential; not recommended for cane-plant cycles of 12 months.

Particular features

Early variety, well-adapted to light soils with moderate fertility.

- Developed by: UFSCar
- Release in 1998; recommended for the Central South of Brazil

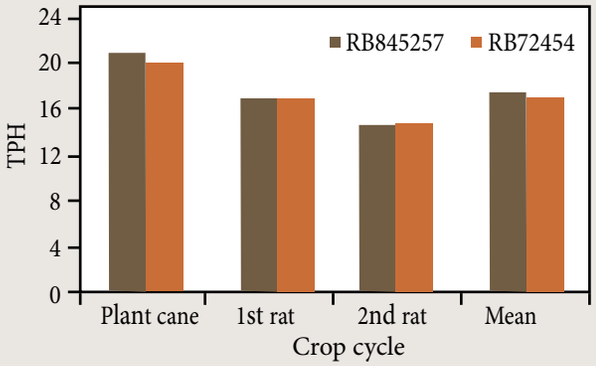
RELEASE 1998

RB72454 x SP70-1143 RB845257

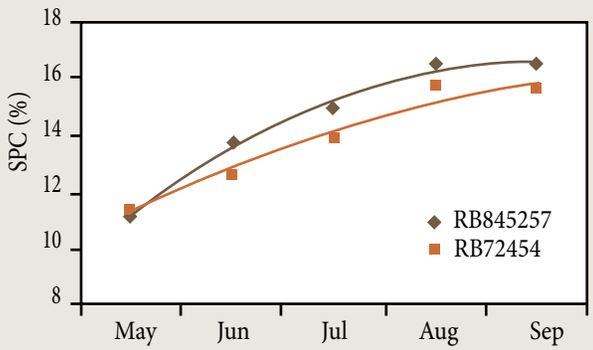
General aspects

Dense clump formation; medium thick, erect stalks, green-yellowish, with dark wax stains.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting preferentially in the middle of the crop cycle; planting in favorable production environments; very demanding in terms of water availability.

Particular features

High agro-industrial yield; good tillering capacity and harvestability.

Characteristics		RB845257
Agricultural productivity		Medium
Harvest		Aug - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium
Adherence of leaf sheath		Medium
PIS		Short
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 1998; recommended for the Central South of Brazil

RB835054

RB72454 x NA56-79

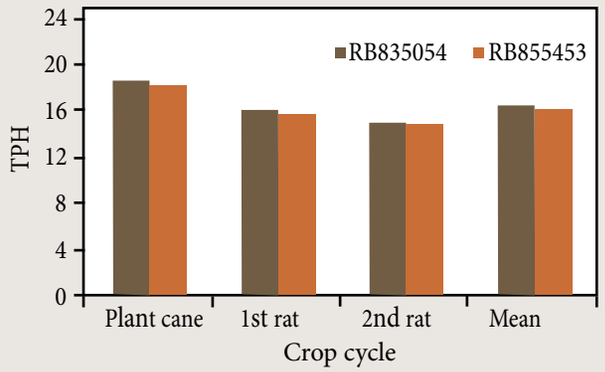
RELEASE 1998

Characteristics		RB835054
Agricultural productivity		High
Harvest		May - Jul/ Sep - Nov
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Very sparse
Growth speed		Slow
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Absent
Maturation		Early/medium
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Moderate/high
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

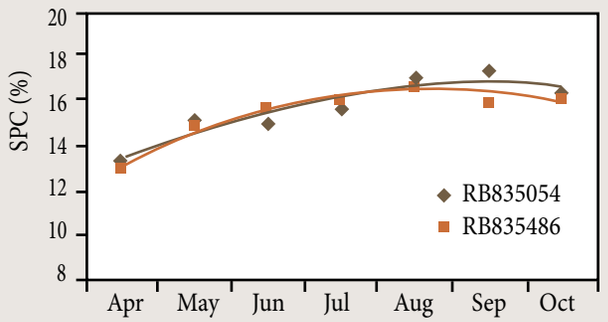
General aspects

Medium clump formation; erect stalks with partial leaf cover; weak adherence of leaf sheath; medium-thick, light green stalks, with dark wax stains when exposed to the sun.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Environments with low production potential should be avoided; cutting in the beginning of the crop cycle can cause losses during mechanical harvesting (in 18-month crop cycles).

Particular features

Good performance in 12-month crop cycles; high agricultural and industrial productivity; long PIS; rare flowering.

- Developed by: UFSCar
- Release in 1998; recommended for the Central South of Brazil

RB813804

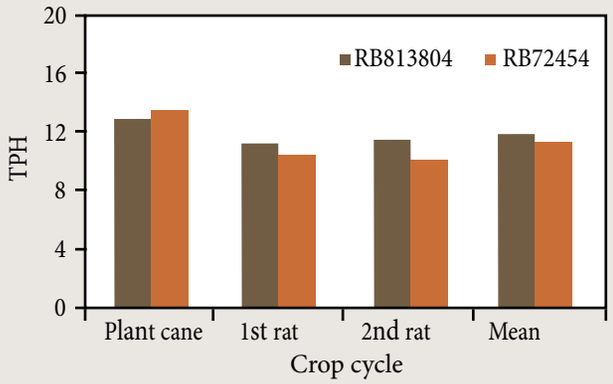
CP48-124 x ?

RELEASE 1996

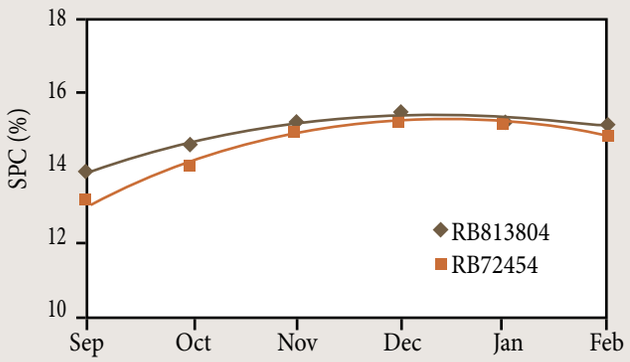
General aspects

Erect growth habit, medium development and medium-dense canopy, medium tillering; green leaf sheaths, slightly yellowish under the sun, regular amount of leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting under medium to good environmental conditions; in regions with rare flowering, cutting in the beginning of the crop cycle.

Particular features

High sucrose content, early maturation, high agricultural productivity and very strong plant health.

Characteristics		RB813804
Agricultural productivity		High
Harvest		Early/late
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		Resistant
Leaf scald		Moderately susceptible
Mosaic virus		–

- Developed by: UFRPE
- Release in 1996; recommended for Northeastern Brazil.

RB763710

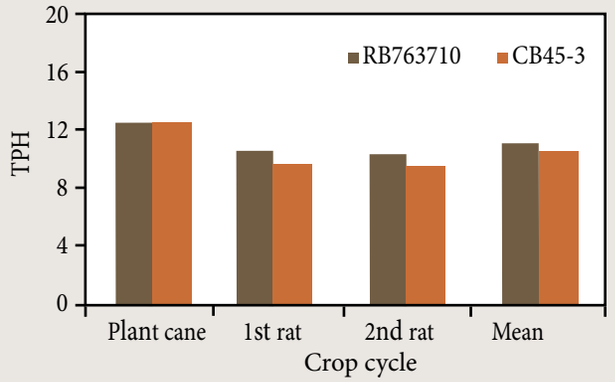
F147 x ?

RELEASE 1996

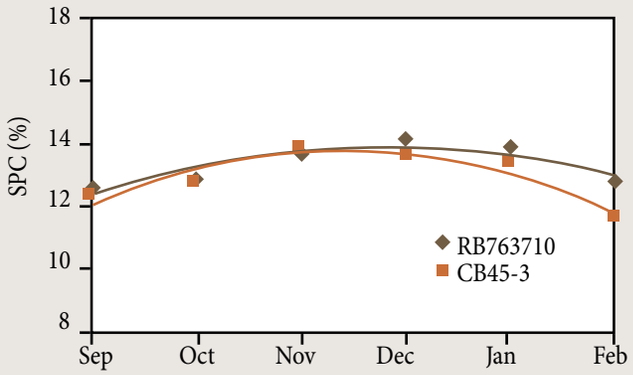
General aspects

Semi-erect growth habit, medium development; green leaf sheath with medium adherence, medium amount of leaves, very strong tillering and dense canopy.

Sugar yield – TPH



Maturation/sugar content



Characteristics		RB763710
Agricultural productivity		High
Harvest		Intermediate/late
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Absent
Sucrose content		Medium
Fiber content		Medium
Smut		–
Brown rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		–

Management recommendations

Planting in environments with medium to low production potential; cutting in the middle and at the end of the crop cycle.

Particular features

Medium sucrose content and high agricultural productivity; excellent plant health and very strong sprouting in cane plant and ratoon crops.

- Developed by: UFRPE
- Release in 1996; recommended for Northeastern Brazil

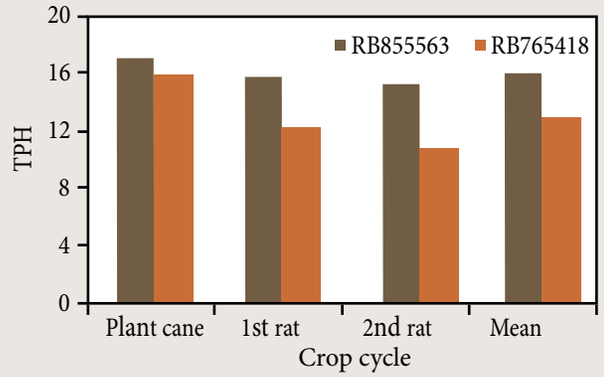
RELEASE 1995

TUC71-7 x SP70-1143 RB855563

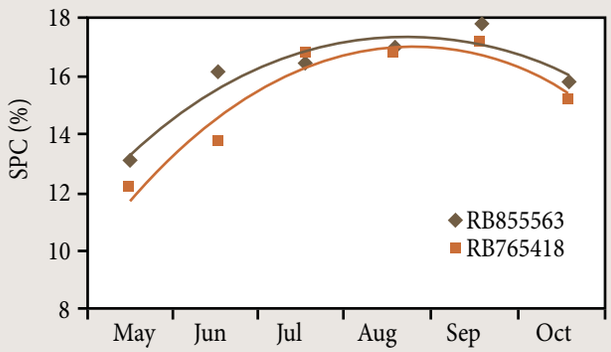
General aspects

Clump with prostrate growth habit, medium tillering ability; large, dense canopy with broad leaves; weak adherence of leaf sheath.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in fertile soils; cutting in the beginning of the crop cycle.

Particular features

Very early and sugar-rich variety.

Characteristics		RB855563
Agricultural productivity		Medium
Harvest		May - Jun
Tillering	Plant cane	Medium
	Ratoon crops	Weak
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Sparse
Growth speed		Fast
Plant height		Tall
Growth habit		Semi-prostrate
Lodging		Frequent
Flowering		Occasional
Pithy stalks		Few
Maturation		Early
Adherence of leaf sheath		Natural
PIS		Short
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Tolerant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 1995; recommended for the Central-South of Brazil

RB855453

TUC71-7 x ?

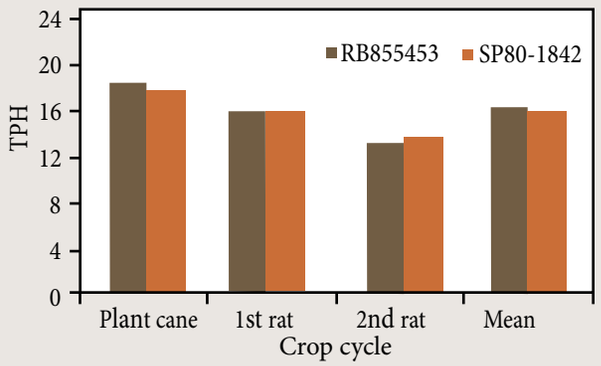
RELEASE 1995

Characteristics		RB855453
Agricultural productivity		High
Harvest		May - Jul
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Rare
Flowering		Frequent
Pithy stalks		Medium
Maturation		Early
Adherence of leaf sheath		Normal
PIS		Short
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

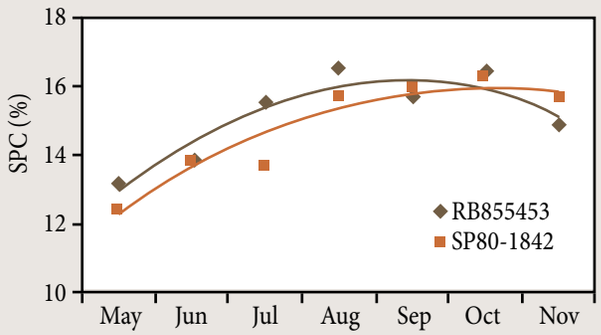
General aspects

Erect stalks, very rare lodging, moderate leaf cover; medium to thick stalk diameter, green-yellowish stalks, slightly purplish when exposed to the sun, medium waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Not recommended for cane-plant cycles of 12 months; cultivation in favorable environments.

Particular features

Early-maturing and sugar-rich variety; strong ratoon tillering and erect stalks; excellent harvestability.

- Developed by: UFSCar
- Release in 1995; recommended for the Central-South of Brazil

RB855156

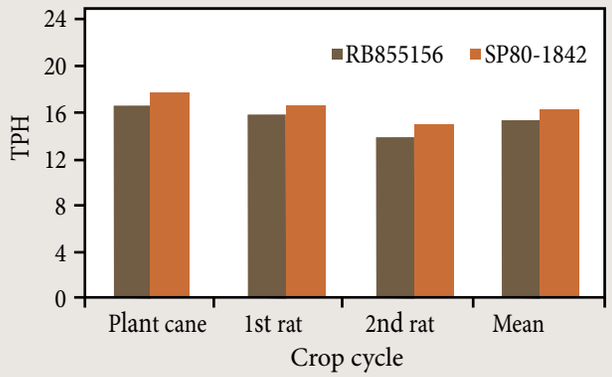
RB72454 x TUC71-7

RELEASE 1995

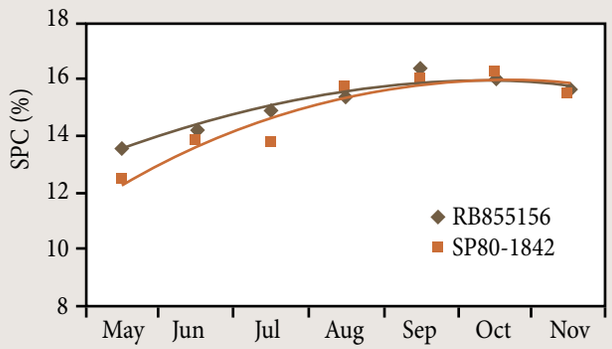
General aspects

Dense clump formation, mainly in ratoon crops; erect stalks, but prostrate in the adult stage; good leaf cover; thin to medium-thick stalks, light green, with cracks.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Not recommended for one-year cane plant cycles; cutting in the beginning of the crop cycle; minimum intervals between furrowing and seedling setting and covering operations must be observed.

Particular features

Strong ratoon tillering capacity; very early maturation.

Characteristics		RB855156
Agricultural productivity		Medium
Harvest		Apr - May
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-prostrate
Lodging		Occasional
Flowering		Frequent
Pithy stalks		Few
Maturation		Early
Adherence of leaf sheath		Medium
PIS		Short
Environmental demands		Low/moderate
Sucrose content		High
Fiber content		Low
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 1995; recommended for the Central-South of Brazil

RB835019

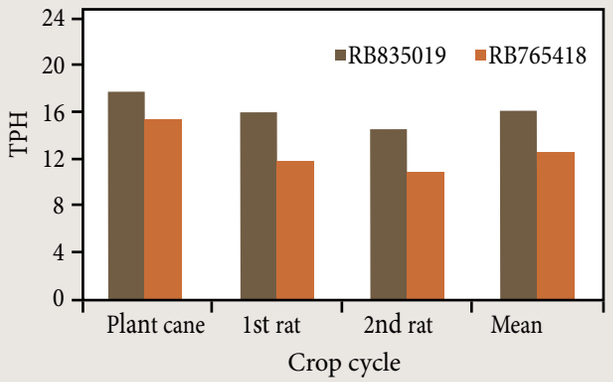
RB72454 x NA56-79

RELEASE 1995

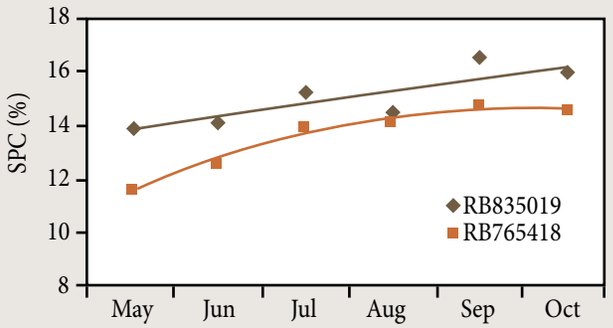
General aspects

Erect growth habit, medium tillering ability; small and sparse canopy; narrow, short, stiff and erect leaves; weak adherence of leaf sheath.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with high production potential; cutting May to June.

Particular features

High sucrose content and high stalk density.

Characteristics		RB835019
Agricultural productivity		Medium
Harvest		May - Jun
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Sparse
Growth speed		Slow
Plant height		Medium
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Short
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 1995; recommended for the Central-South of Brazil

RB83594

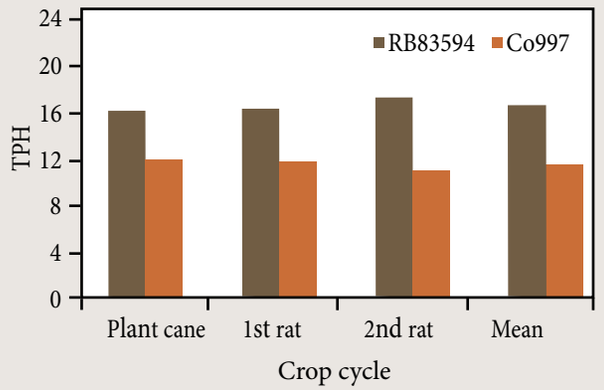
RELEASE 1993

RB72454 x B3337

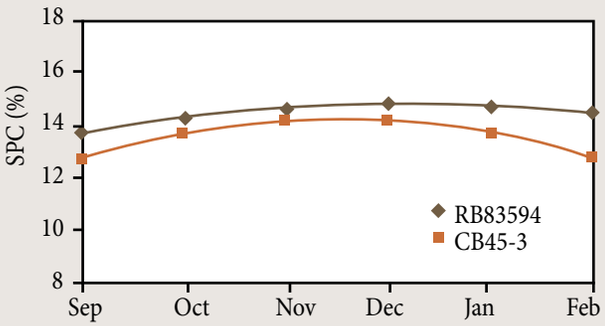
General aspects

Medium development; medium-thick stalks, purple, with medium waxiness; medium-long internodes with weak zigzag alignment; strong adherence of leaf sheath; small buds; medium-sized leaf sheath, green, with medium waxiness; medium-sized leaves with curved tips.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle and at the end of the crop cycle; avoid planting in areas with severe water deficit.

Particular features

Good canopy closure; medium tillering and sugar yield of ratoon crops.

Characteristics		RB83594
Agricultural productivity		High
Harvest		Dec - Mar
Tillering	Plant cane	Srong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Strong
PIS		Medium
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		–

- Developed by: UFAL
- Release in 1993; recommended for Northeastern Brazil

RB83252

NA56-79 x RB72454

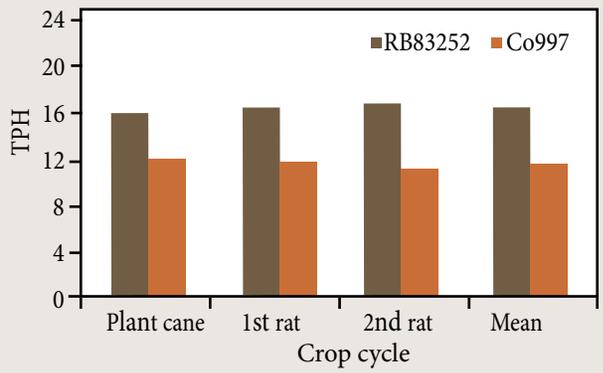
RELEASE 1993

Characteristics		RB83252
Agricultural productivity		Medium
Harvest		Nov - Feb
Tillering	Plant cane	Weak
	Ratoon crops	Weak
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Sparse
Growth speed		Fast
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		High
Sucrose content		Medium
Fiber content		Medium
Smut		Tolerant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		–

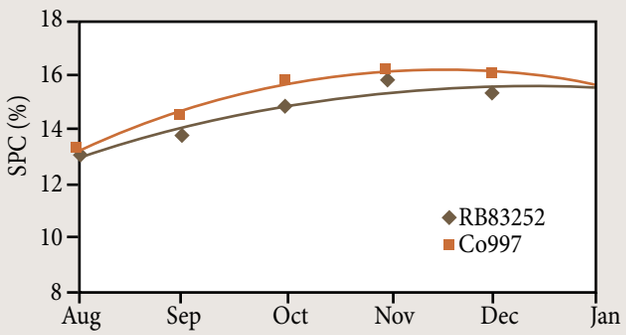
General aspects

Fast growth; medium-thick and medium-long stalks, yellow internodes without zigzag alignment; small bud; medium-sized, green leaf sheath; narrow and upright leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle and at the end of the crop cycle.

Particular features

Fast vegetative growth.

- Developed by: UFAL
- Release in 1993; recommended for Northeastern Brazil

RB83160

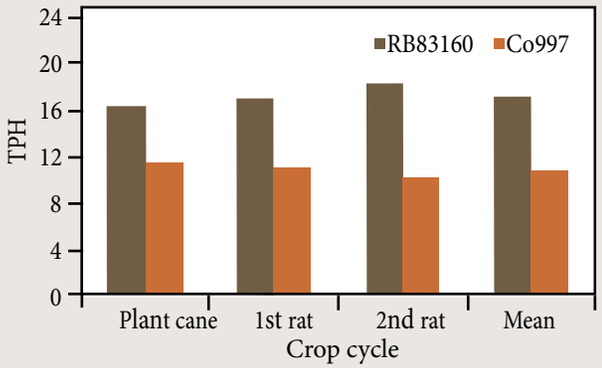
NA56-79 x SP70-1143

RELEASE 1993

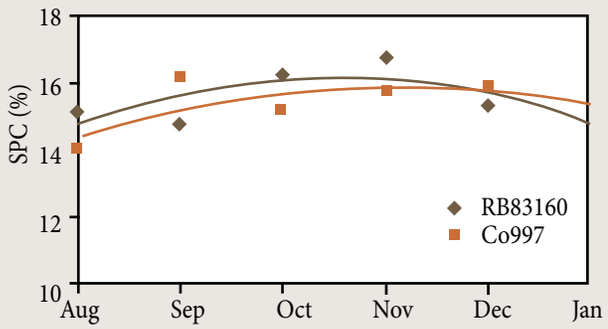
General aspects

Medium development; thin, purple stalks; medium-long internodes in weak zigzag alignment; weak adherence of leaf sheath; small bud; green, medium-sized sugarcane heart with medium waxiness; narrow and erect leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle and at the end of the crop cycle.

Particular features

Strong ratoon tillering; high longevity of the sugarcane field.

Characteristics		RB83160
Agricultural productivity		Medium
Harvest		Sep - Dec
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Frequent
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Moderately susceptible
Leaf scald		Resistant
Mosaic virus		–

- Developed by: UFAL
- Release in 1993; recommended for Northeastern Brazil

RB83102

NA56-79 x SP70-1143

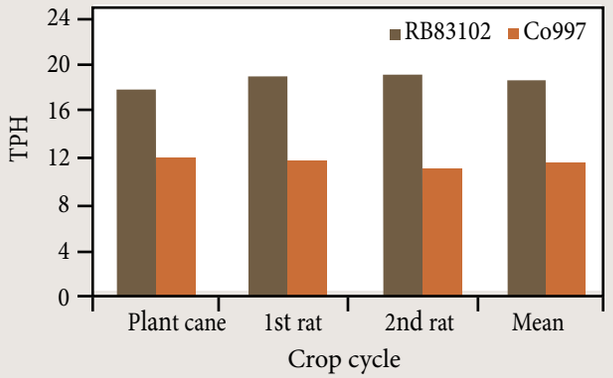
RELEASE 1993

Characteristics		RB83102
Agricultural productivity		High
Harvest		Nov - Mar
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Strong
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Frequent
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		Moderately susceptible
Brown rust		Susceptible
Leaf scald		Resistant
Mosaic virus		–

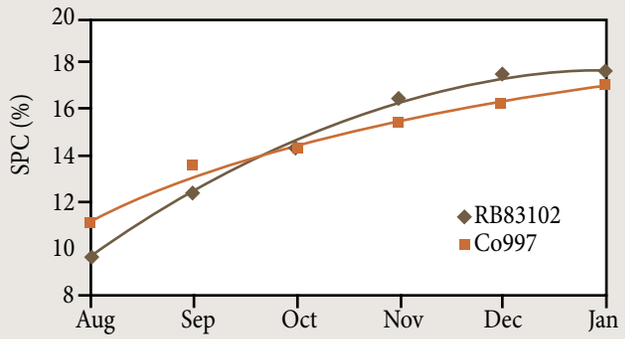
General aspects

Medium development; medium-thick stalks, purple in the sun; medium-long internodes without zigzag alignment; medium adherence of leaf sheath; small bud; narrow leaves with curved tips; medium-sized sugarcane heart, green, with medium waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle and at the end of the crop cycle to avoid flowering.

Particular features

High agricultural productivity, medium ratoon tillering, medium longevity of the sugarcane field.

- Developed by: UFAL
- Release in 1993; recommended for Northeastern Brazil

RB75126

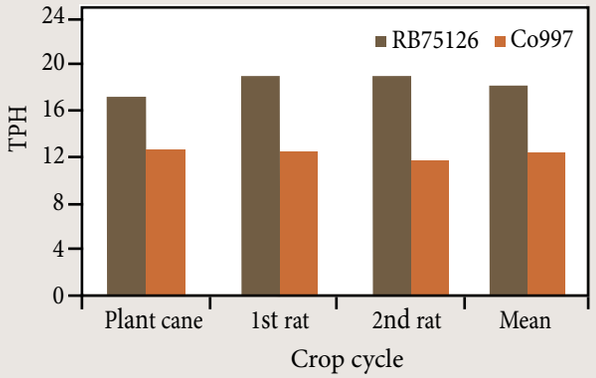
RELEASE 1993

C278 x ?

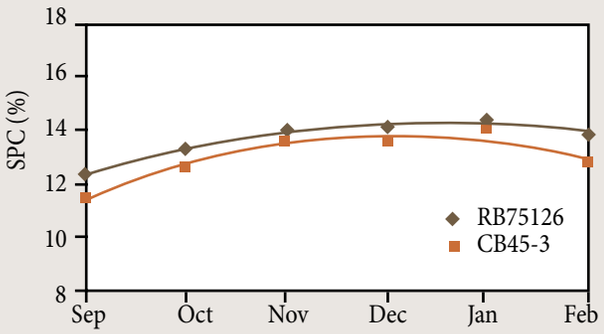
General aspects

Good development; medium-thick stalks, green-purple under the sun; medium-long, internodes without zigzag alignment; weak adherence of leaf sheath; small bud, medium-sized, green leaf sheath; broad, arched leaves without pubescence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle and at the end of the crop cycle.

Particular features

High agricultural productivity, medium ratoon tillering, medium longevity of the sugarcane field.

Characteristics		RB75126
Agricultural productivity		High
Harvest		Nov - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		–

- Developed by: UFAL
- Release in 1993; recommended for Northeastern Brazil

RB835486

L60-14 x ?

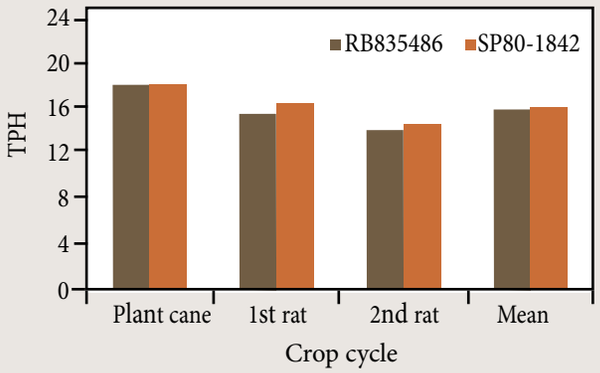
RELEASE 1992

Characteristics		RB835486
Agricultural productivity		High
Harvest		Jun - Sep
Tillering	Plant cane	Weak
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Intermediate
Lodging		Frequent
Flowering		Occasional
Pithy stalks		Few
Maturation		Early/medium
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Low/moderate
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Susceptible
Leaf scald		Resistant
Mosaic virus		Resistant

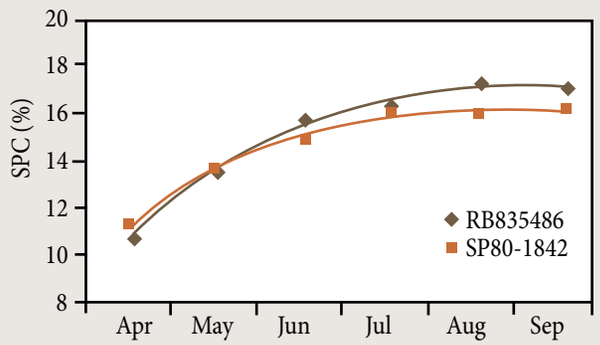
General aspects

Sparse clump formation; stalks with intermediate growth habit in the adult phase; moderate leaf cover; weak adherence of leaf sheath; medium to thick, green-purplish stalks with strong waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Not recommended: late cutting in regions favorable for brown rust; late planting for 18-month plant cane cycle on clayey or poorly tilled, dry soils; 12-month ratoon cycles.

Particular features

Wide adaptability; recommended for acric soils in the Cerrado region; extremely sugar-rich variety.

- Developed by: UFSCar
- Release in 1992; recommended for the Central-South of Brazil

RB835089

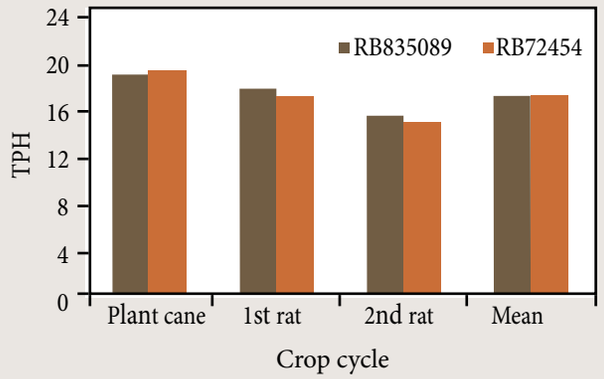
RB72454 x NA56-79

RELEASE 1992

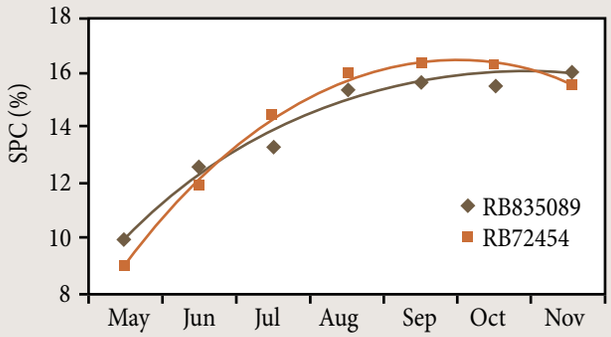
General aspects

Sparse clump formation; erect stalks with sparse leaf cover, weak adherence of leaf sheath, medium diameter, greenish and brown when exposed to the sun, medium waxiness.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in sandy soils in regions with water availability; cutting in the middle and at the end of the crop cycle.

Particular features

High agricultural productivity; high adaptability and stability.

Characteristics		RB835089
Agricultural productivity		High
Harvest		Sep - Nov
Tillering	Plant cane	Weak
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Late
Adherence of leaf sheath		Weak
PIS		Short
Environmental demands		Low/moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 1992; recommended for the Central-South of Brazil

RB825336

H53-3989 x ?

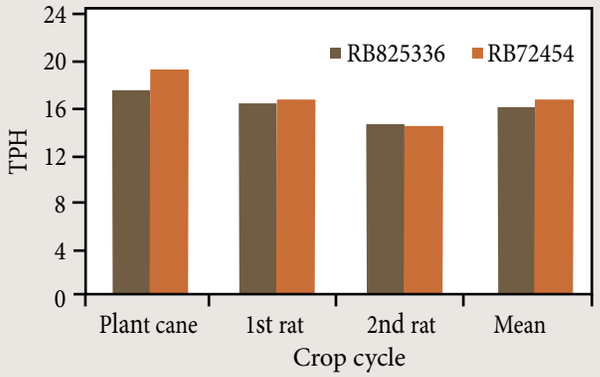
RELEASE 1992

Characteristics		RB825336
Agricultural productivity		High
Harvest		May - Jun
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Intermediate
Lodging		Occasional
Flowering		Absent
Pithy stalks		Few
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Low
Sucrose content		Medium
Fiber content		High
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

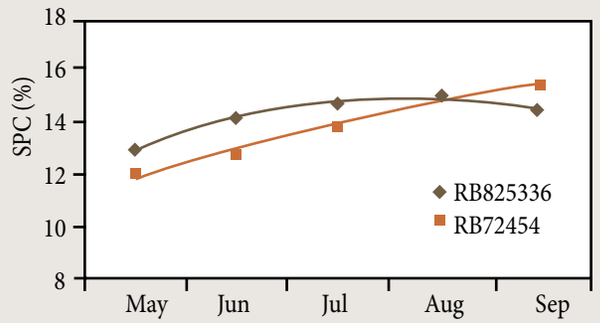
General aspects

Very dense clump formation, intermediate growth habit, partial husk cover; stalks with irregular diameter, light green, with dark wax stains.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle of the crop cycle, in regions where ratoon sprouting is problematic; variety indicated for all forms of harvesting.

Particular features

Strong sprouting capacity in plant cane and ratoon crops, high drought resistance and high fiber content.

- Developed by: UFSCar
- Release in 1992; recommended for the Central-South of Brazil

RB806043

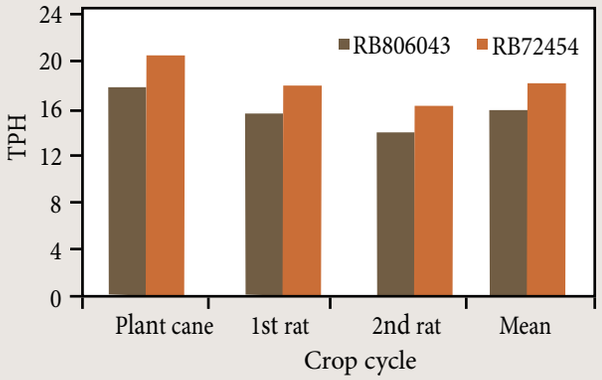
NA56-79 x ?

RELEASE 1992

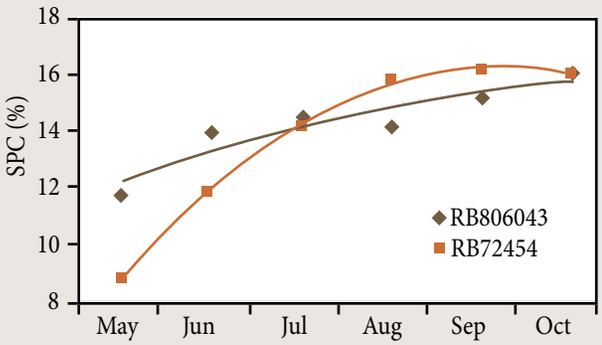
General aspects

Clump with semi-erect growth habit, medium tillering ability; medium-dense canopy, with medium-wide and -long, erect and stiff leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle of the crop cycle; planting in regions with smut should be avoided.

Particular features

High sprouting/tillering capacity; longevity of ratoon crops.

Characteristics		RB806043
Agricultural productivity		High
Harvest		Jul - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Semi-erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Susceptible
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: UFSCar
- Release in 1992; recommended for the Central-South of Brazil

RB785750

TUC67-11 x ?

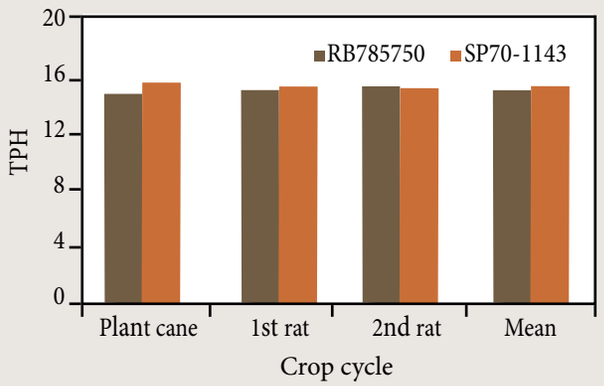
RELEASE 1992

Characteristics		RB785750
Agricultural productivity		Medium
Harvest		Jun - Nov
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Slow
Plant height		Short
Growth habit		Semi-erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Medium
Sucrose content		High
Fiber content		Low
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Tolerant

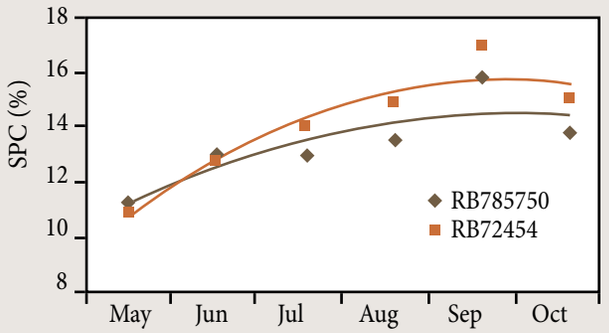
General aspects

Clumps with semi-erect growth habit, good tillering ability; sparse canopy, with medium-wide and -long leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle of the crop cycle.

Particular features

High sprouting capacity; dense canopy.

- Developed by: UFSCar
- Release in 1992; recommended for the Central-South of Brazil

RB785148

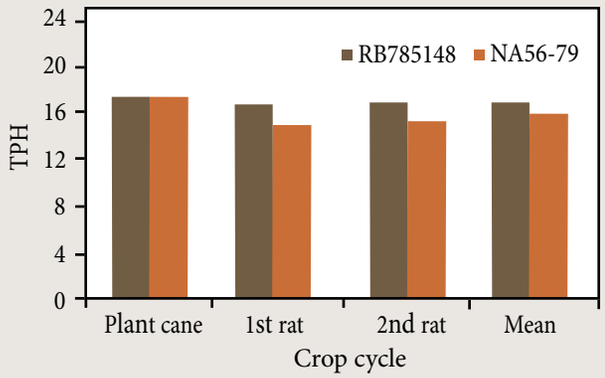
RELEASE 1988

IAC47-31 x ?

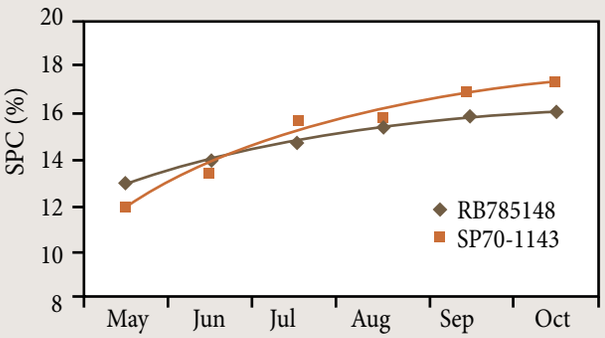
General aspects

Clumps with erect growth habit, strong tillering; open canopy, with sparse amount of leaves; medium-sized leaf sheath with weak adherence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting from the middle to the end of the crop cycle.

Particular features

High agricultural productivity and robustness.

Characteristics		RB785148
Agricultural productivity		High
Harvest		Aug - Oct
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Few
Maturation		Late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Absent
Sucrose content		Medium
Fiber content		Medium
Smut		Tolerant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Tolerant

- Developed by: Planalsucar
- Release in 1988; recommended for the Central-South of Brazil

RB765418

M253/48 x ?

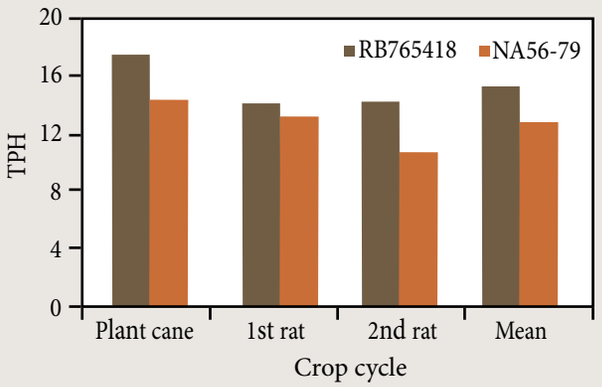
RELEASE 1988

Characteristics		RB765418
Agricultural productivity		Medium
Harvest		May - Aug
Tillering	Plant cane	Medium
	Ratoon crops	Weak
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Frequent
Flowering		Absent
Pithy stalks		Absent
Maturation		Early
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		High
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Tolerant

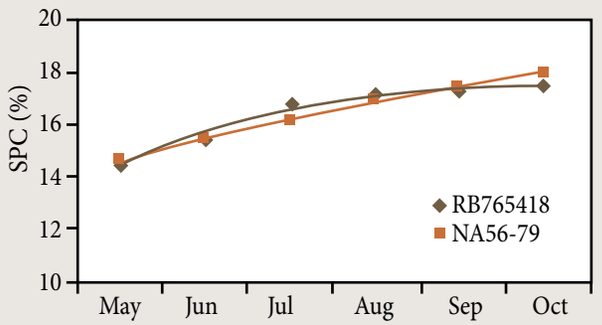
General aspects

Clump with semi-erect growth habit, medium tillering ability; medium-dense canopy, medium amount of leaves; medium-sized leaf sheath with medium adherence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with high production potential; cutting from May to August.

Particular features

High sucrose content and long PIS.

- Developed by: Planalsucar
- Release in 1988; recommended for the Central-South of Brazil

RB735220

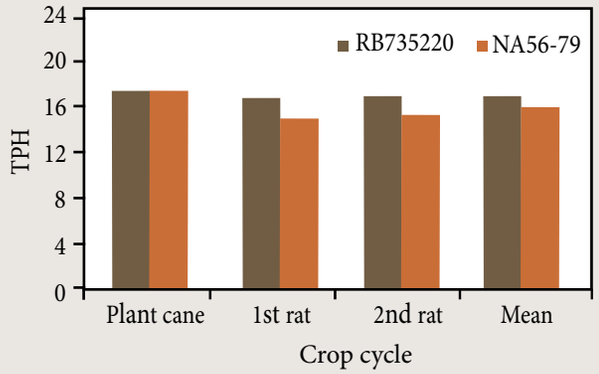
RELEASE 1988

CB61-99 x ?

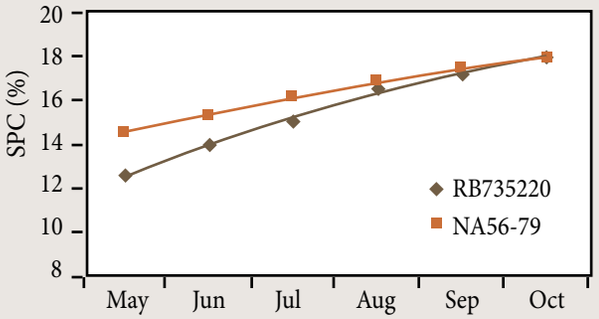
General aspects

Clump with erect growth habit and medium tillering ability; medium-dense canopy with fan-like structure; short leaf sheath with medium adherence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to good production potential; cutting from June to September.

Particular features

High sucrose content and high agricultural productivity; very strong plant health.

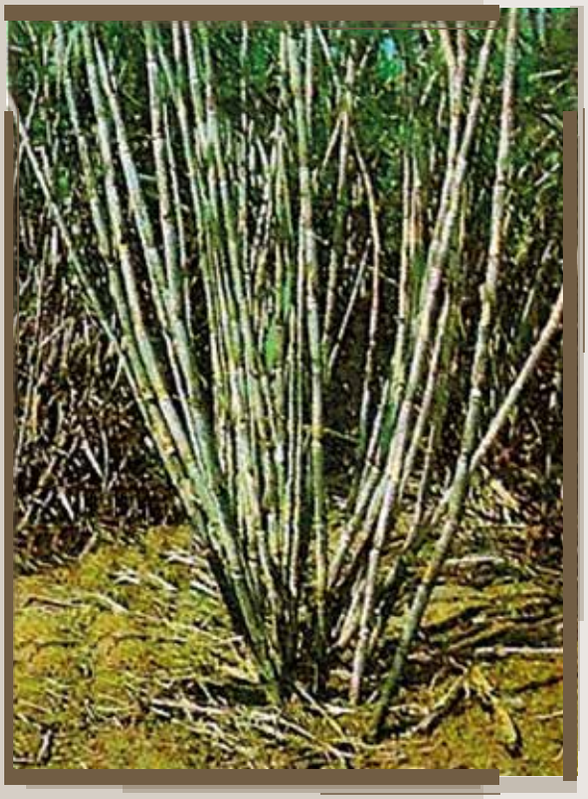
Characteristics		RB735220
Agricultural productivity		High
Harvest		Jul - Sep
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Medium
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		Resistant

- Developed by: Planalsucar
- Release in 1988; recommended for the Central-South of Brazil

RB739735

CB52-179 x ?

RELEASE 1986

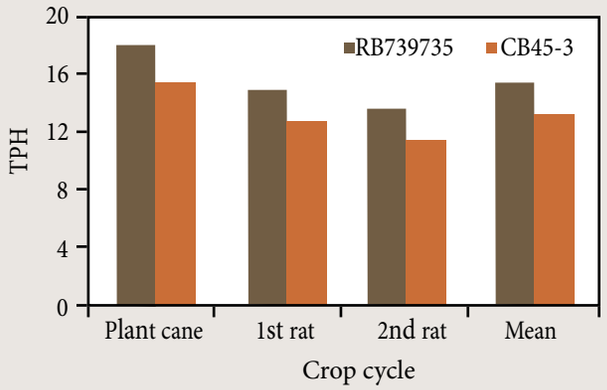


Characteristics		RB739735
Agricultural productivity		High
Harvest		May - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Erect
Lodging		Rare
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		High
PIS		Long
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Tolerant

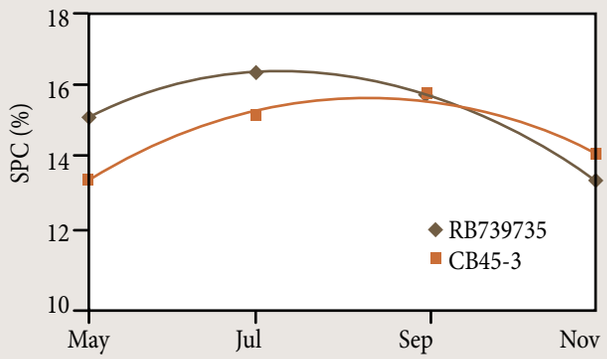
General aspects

Stalk with erect growth habit, medium diameter and length, nut-brown/yellowish when exposed to the sun, without cracks; medium-sized, medium long, obovate bud with weak prominence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Indicated for planting on lowland, hillside and tableland soils.

Particular features

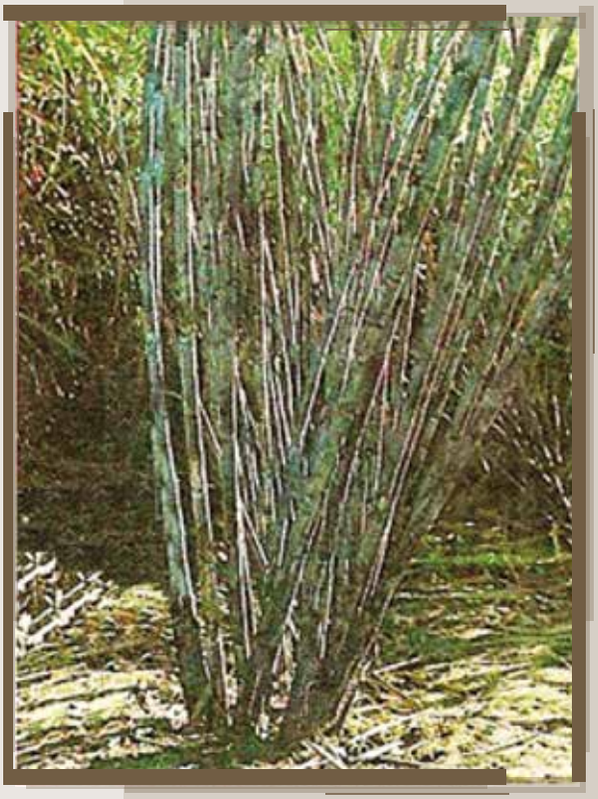
Wide adaptability and good stalk transport density; indicated for machine harvesting.

- Developed by: Planalsucar
- Release in 1986; recommended for the Central-South of Brazil

RB739359

IANE55-34 x ?

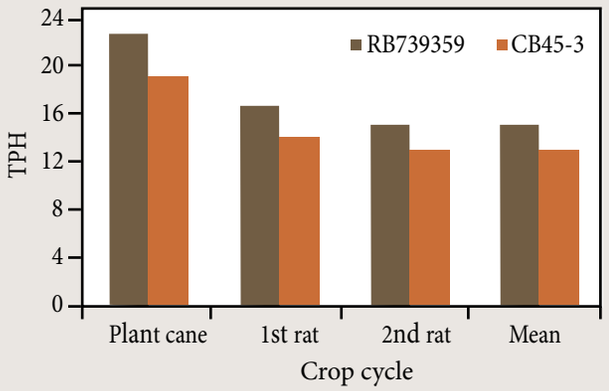
RELEASE 1986



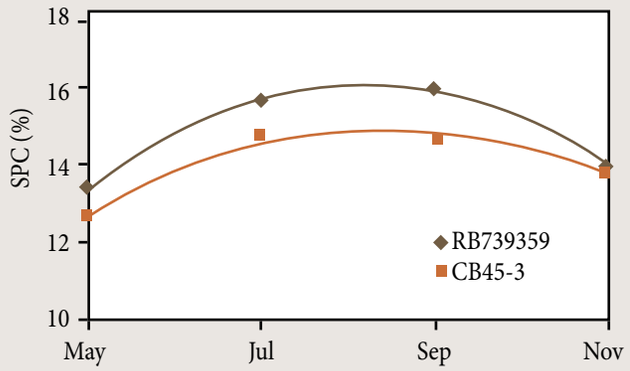
General aspects

Mean development, semi-erect growth habit, medium-thick, short stalks, purple when exposed to the sun, without cracks or stripes; medium-sized and -long, rhomboid bud with weak prominence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Indicated for planting on lowland, hillside and tableland soils.

Particular features

Wide adaptability with medium yields on lowland, hillside and tableland soils; high sucrose richness.

Characteristics		RB739359
Agricultural productivity		High
Harvest		May - Nov
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	–
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Medium
PIS		Long
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Ferrugem		Tolerant
Leaf scald		Resistant
Mosaic virus		Tolerant

- Developed by: Planalsucar
- Release in 1986; recommended for the Central-South of Brazil

RB721012

Co331 x ?

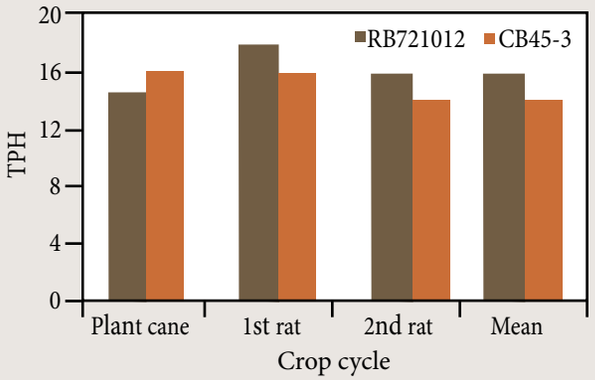
RELEASE 1986

Characteristics		RB721012
Agricultural productivity		Medium
Harvest		Dec - Feb
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		Susceptible
Leaf scald		Resistant
Mosaic virus		–

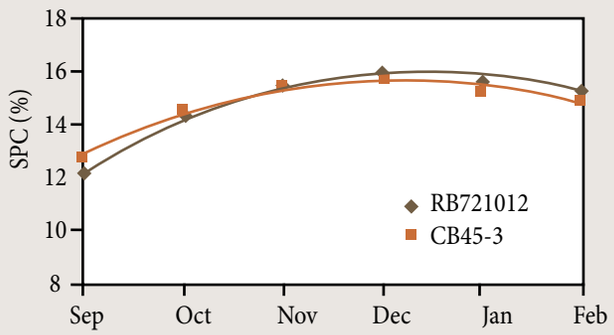
General aspects

Medium development; medium-thick stalk, purple-yellowish with medium-long internodes in a weak zigzag alignment; rhomboid buds; short, green leaf sheath with medium waxiness and strong adherence; slightly curved leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle and at the end of the crop cycle.

Particular features

Good performance in lowlands; high sucrose content.

- Developed by: Planalsucar
- Release in 1986; recommended for Northeastern Brazil

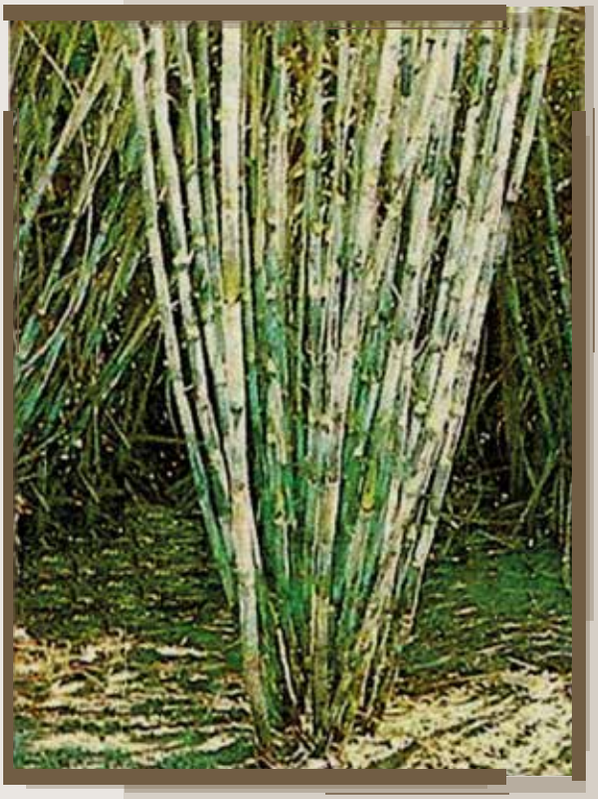
RB705440

RELEASE 1986

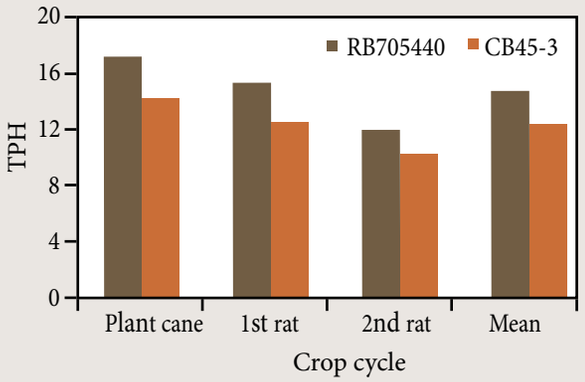
Co421x?

General aspects

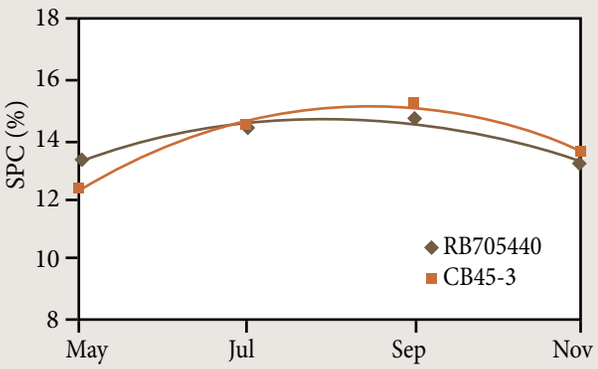
Medium development, erect growth habit; medium-thick stalks with cracks, green-yellowish when exposed to the sun; no bud depression; medium-sized and -long, obovate bud with weak prominence.



Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in medium to highly fertile soils.

Particular features

Excellent agricultural production in cane plant and ratoon crops.

Characteristics		RB705440
Agricultural productivity		High
Harvest		Jun - Aug
Tillering	Plant cane	Very strong
	Ratoon crops	Very strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Medium
Pithy stalks		Few
Maturation		Medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		High
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Resistant
Mosaic virus		–

- Developed by: Planalsucar
- Release in 1986; recommended for the Central-South of Brazil

RB754665

CB45-155 x ?

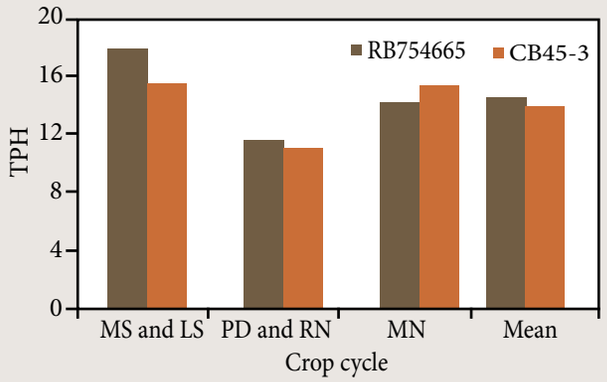
RELEASE 1985

Characteristics		RB754665
Agricultural productivity		High
Harvest		Intermediate
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Few
Maturation		Medium
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		–
Brown rust		Tolerant
Leaf scald		–
Mosaic virus		–

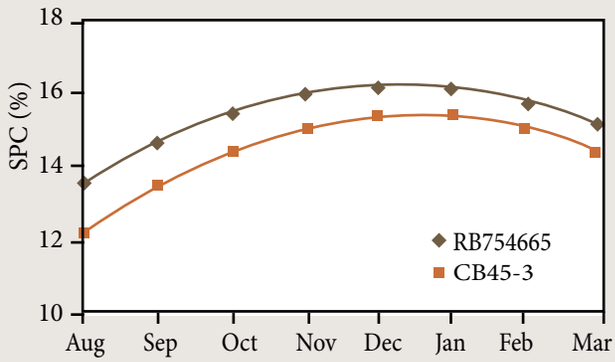
General aspects

Erect growth habit, green leaves, green leaf sheath with weak adherence; medium tillering and medium-dense canopy, medium amount of leaves; weak serration of leaf margin.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting under medium to good environmental conditions; cutting in the middle of the crop cycle.

Particular features

Medium sucrose content and high agricultural productivity; very strong plant health and medium sprouting in cane plant and ratoon crops.

- Developed by: Planalsucar
- Release in 1985; recommended for Northeastern Brazil

RELEASE 1985

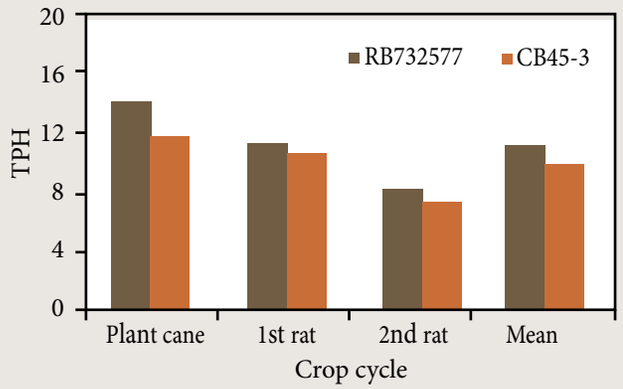
NCo376 x ?

RB732577

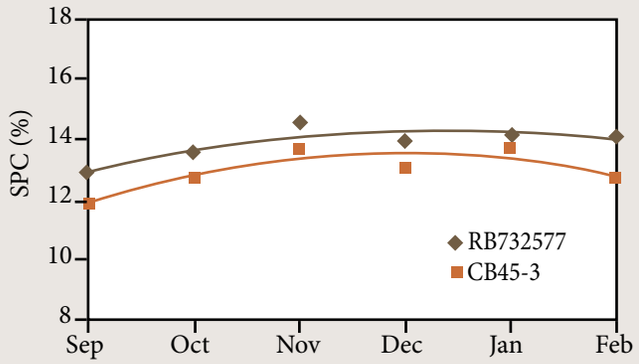
General aspects

Semi-erect growth habit, green and dark green leaves, weak adherence of leaf sheath; purple, cylindrical internodes under the sunlight; absent flowering.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to low production potential; cutting in the middle and at the end of the crop cycle.

Particular features

High sucrose content and high agricultural productivity, very strong plant health and medium sprouting in cane plant and ratoon crops.

Characteristics		RB732577
Agricultural productivity		High
Harvest		Intermediate/late
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium
Growth speed		Medium
Plant height		Medium
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		–
Leaf scald		Resistant
Mosaic virus		–

- Developed by: Planalsucar
- Release in 1985; recommended for Northeastern Brazil

RB735275

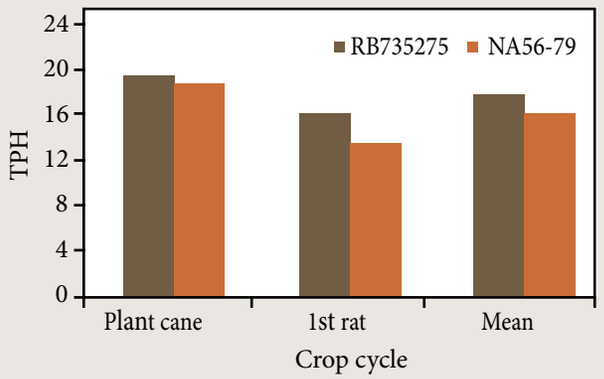
IAC49-131 x ?

RELEASE 1982

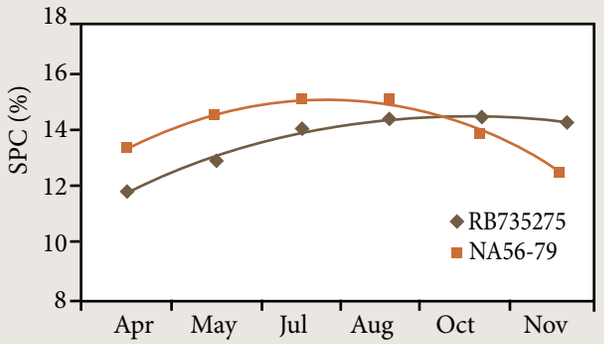
General aspects

Erect, very vigorous growth habit; erect leaves with curved tips; long leaf sheath with medium to strong adherence.

Sugar yield – TPH



Maturation/sugar content



Characteristics		RB735275
Agricultural productivity		High
Harvest		Jun - Jul
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Medium
Maturation		Early/medium
Adherence of leaf sheath		Strong
PIS		Short
Environmental demands		Absent
Sucrose content		Medium
Fiber content		Medium
Smut		Highly tolerant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Highly tolerant

Management recommendations

No environmental restrictions for planting; cutting from June to July.

Particular features

High agricultural productivity and robustness.

- Developed by: Planalsucar
- Release in 1982; recommended for the Central-South of Brazil

RB725828

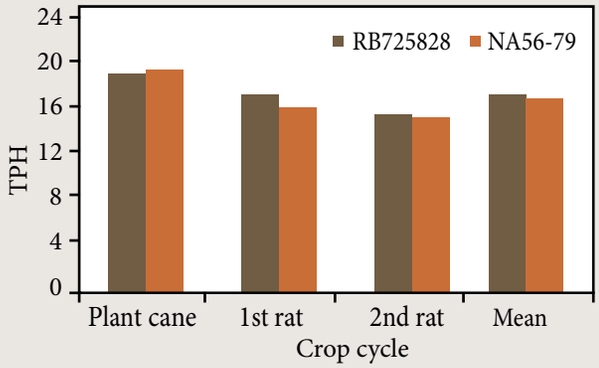
RELEASE 1982

NA56-79 x ?

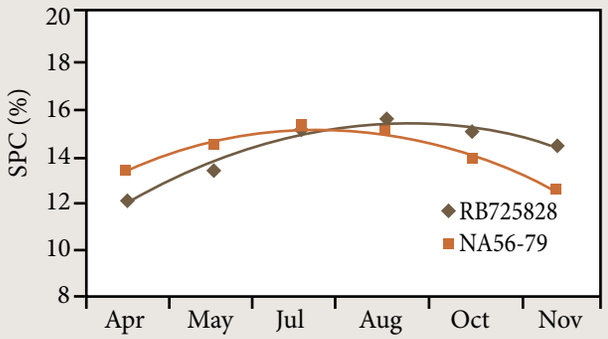
General aspects

Erect growth habit, medium sprouting and tillering capacity, high-yielding; rather short leaf sheath, medium canopy; weak adherence of leaf sheath.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to good production conditions; cutting from June to August; susceptible to brown rust.

Particular features

High sucrose content; no flowering or pithy stalks.

Characteristics		RB725828
Agricultural productivity		Medium
Harvest		Jun - Aug
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium
Growth speed		Slow
Plant height		Short
Growth habit		Erect
Lodging		Rare
Flowering		Absent
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Moderate
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Susceptible
Leaf scald		Tolerant
Mosaic virus		Moderately susceptible

- Developed by: Planalsucar
- Release in 1982; recommended for the Central-South of Brazil

RB725147

CB63-31 x ?

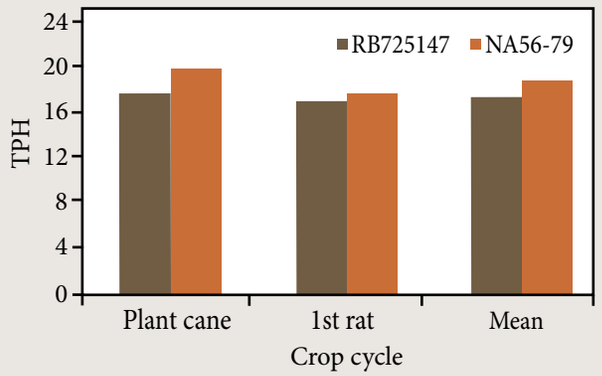
RELEASE 1982

Characteristics		RB725147
Agricultural productivity		High
Harvest		May - Jul
Tillering	Plant cane	Strong
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Slow
Plant height		Tall
Growth habit		Semi-erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Few
Maturation		Early/medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Medium
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Resistant

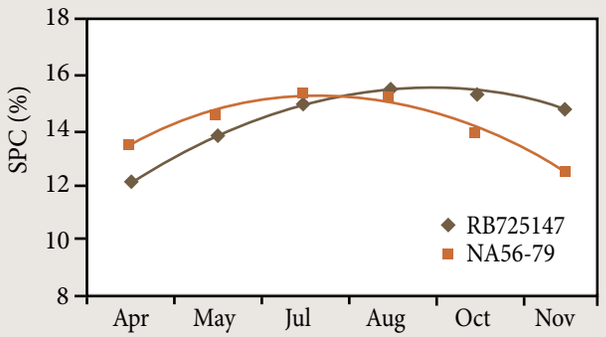
General aspects

Semi-erect growth habit, medium tillering ability, high-yielding; sparse canopy, erect new leaves, bent at the tips; medium-sized leaf sheath with strong adherence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Planting in environments with medium to good production potential; cutting from May to July.

Particular features

High sucrose content and high agricultural productivity.

- Developed by: Planalsucar
- Release in 1982; recommended for the Central-South of Brazil

RB72454

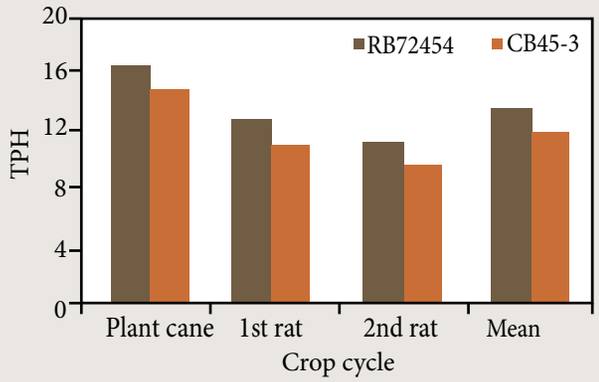
RELEASE 1982

CP53-76 x ?

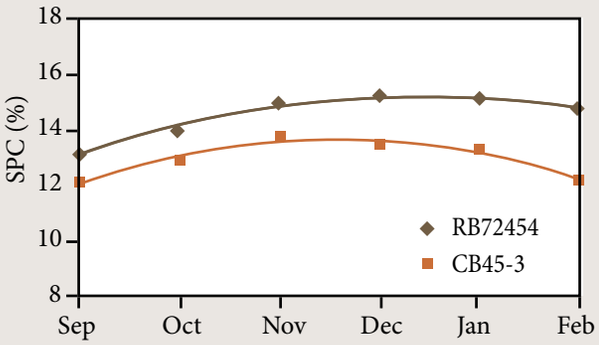
General aspects

Heavy, medium-thick stalks without cracks, medium plant height, erect or semi-erect growth; medium-sized leaf sheath, moderate leaf quantity; central leaves in a twisted arrangement.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Little demanding in terms of soil fertility; cutting in the middle and at the end of the crop cycle.

Particular features

High sucrose content and long PIS; medium/late maturation, high agricultural productivity, very strong plant health.

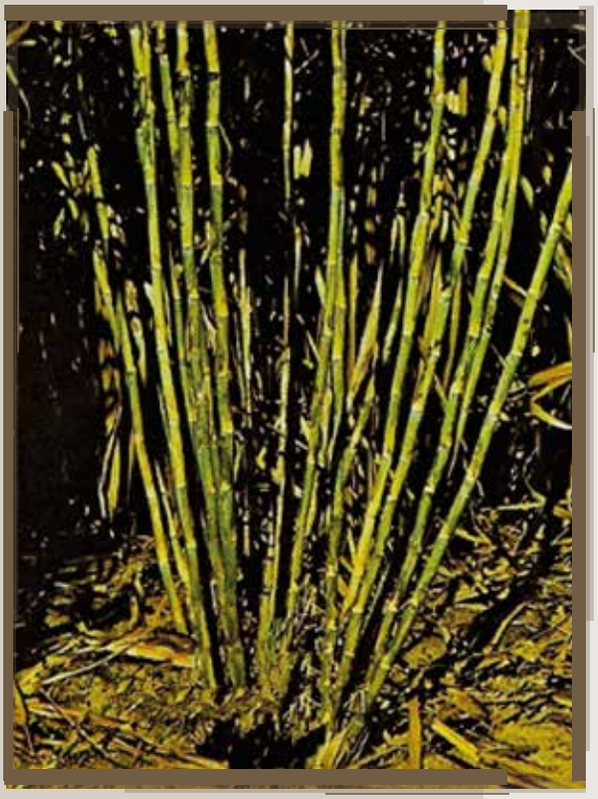
Characteristics		RB72454
Agricultural productivity		High
Harvest		Late
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Tall
Growth habit		Erect
Lodging		Rare
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium/late
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Resistant

- Developed by: Planalsucar
- Release in 1982; recommended for Northeastern Brazil

RB705146

CB40-60 x ?

RELEASE 1981

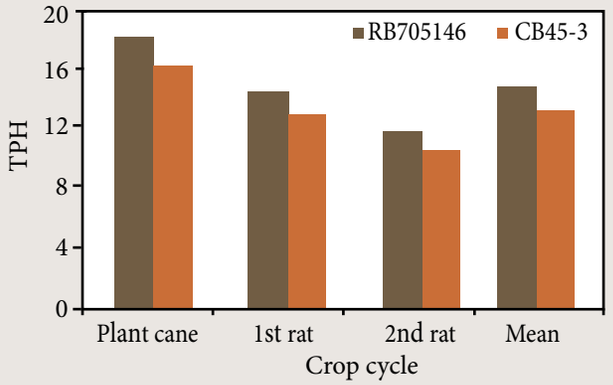


Characteristics		RB705146
Agricultural productivity		High
Harvest		Jul - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Occasional
Pithy stalks		Few
Maturation		Medium
Adherence of leaf sheath		Medium
PIS		Medium
Environmental demands		Medium
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Resistant

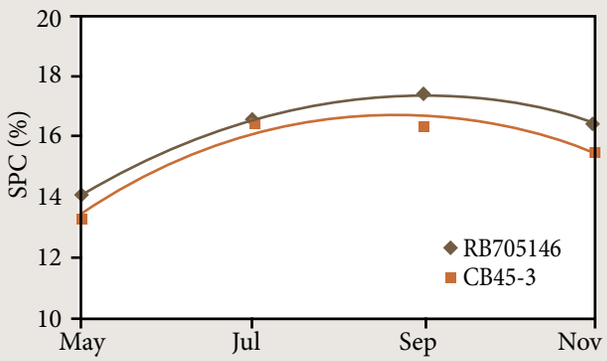
General aspects

Brown-greenish, medium-thick stalks; semi-erect growth habit; medium adherence of leaf sheath; bud with weak prominence.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Best results in soils with high fertility and moisture retention.

Particular features

High sucrose content.

- Developed by: Planalsucar
- Release in 1981; recommended for the Central-South of Brazil

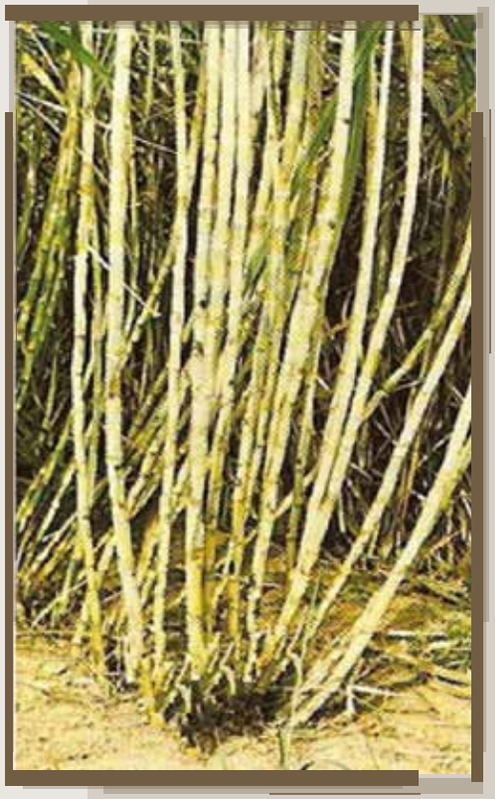
RB705051

RELEASE 1981

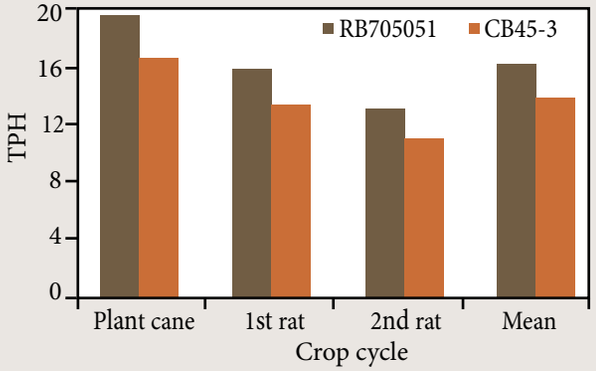
?x?

General aspects

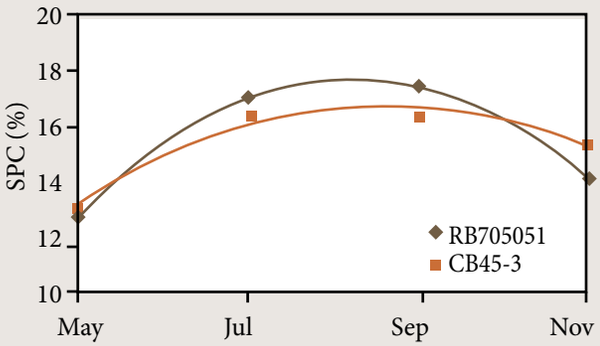
Yellow-greenish stalk, erect growth habit, medium adherence of leaf sheath, medium-thick stalks, small bud.



Sugar yield – TPH



Maturation/sugar content



Management recommendations

Best results in highly fertile soils with good moisture retention.

Particular features

Fast sprouting and strong ratoon tillering.

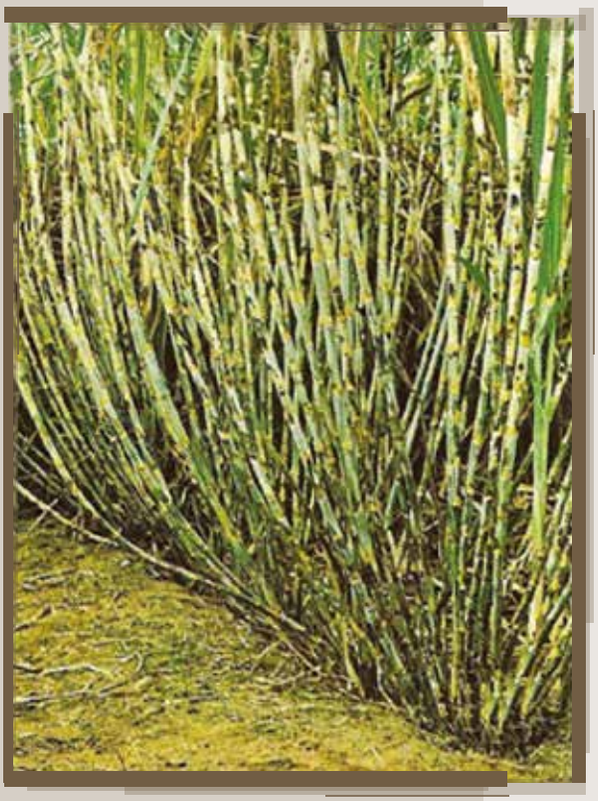
Characteristics		RB705051
Agricultural productivity		High
Harvest		Jul - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Absent
Maturation		Medium
Adherence of leaf sheath		Weak
PIS		Medium
Environmental demands		Medium
Sucrose content		High
Fiber content		Medium
Smut		Resistant
Brown rust		Resistant
Leaf scald		Tolerant
Mosaic virus		Resistant

- Developed by: Planalsucar
- Release in 1981; recommended for the Central-South of Brazil

RB705007

CP48-110 x ?

RELEASE 1981

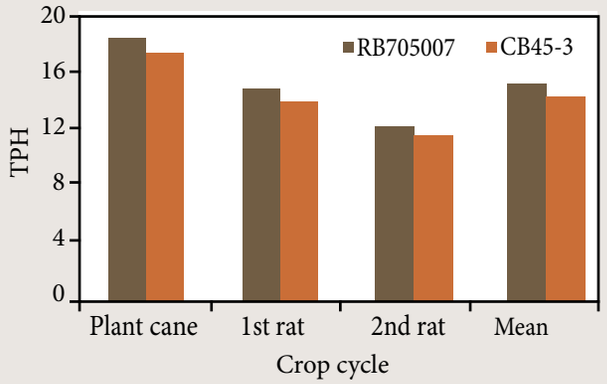


Characteristics		RB705007
Agricultural productivity		High
Harvest		Jul - Sep
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Strong
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Absent
Pithy stalks		Absent
Maturation		Medium
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Moderate
Sucrose content		Medium
Fiber content		Medium
Smut		Resistant
Brown rust		Tolerant
Leaf scald		Tolerant
Mosaic virus		Tolerant

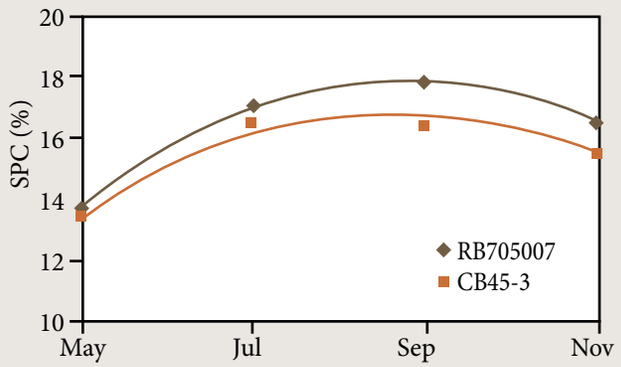
General aspects

Medium development, erect growth habit, weak adherence of leaf sheath, medium stalk diameter, green-yellowish when exposed to the sun; small, flattened bud.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Best results in soils with good moisture retention.

Particular features

Strong tillering.

- Developed by: Planalsucar
- Release in 1981; recommended for the Central-South of Brazil

RB70194

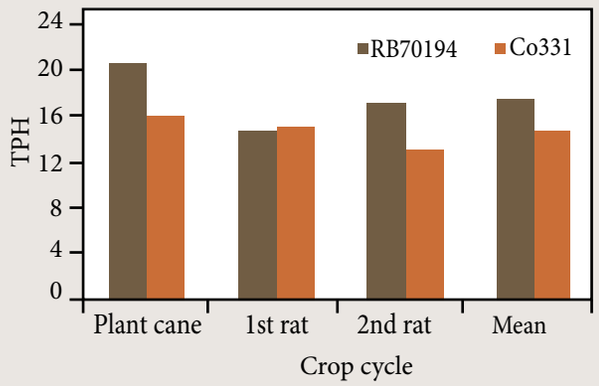
RELEASE 1977

?x?

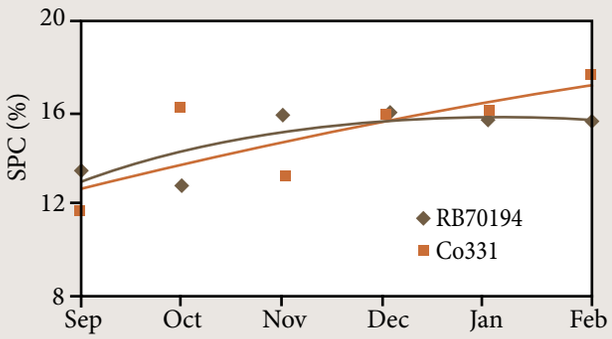
General aspects

Medium development; red-purplish, medium-thick stalks, medium-long internodes in weak zigzag alignment; weak adherence of leaf sheath; small buds; short, green leaf sheath with medium waxiness; medium-long and erect leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the beginning and middle of the crop cycle.

Particular features

High sugar yield.

Characteristics		RB70194
Agricultural productivity		High
Harvest		Sep - Dec
Tillering	Plant cane	Strong
	Ratoon crops	Strong
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Fast
Plant height		Tall
Growth habit		Erect
Lodging		Occasional
Flowering		Rare
Pithy stalks		Absent
Maturation		Early/medium
Adherence of leaf sheath		Weak
PIS		Long
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		Tolerant
Brown rust		–
Leaf scald		Resistant
Mosaic virus		–

- Developed by: Planalsucar
- Release in 1977; recommended for Northeastern Brazil

RB70141

Co331 x ?

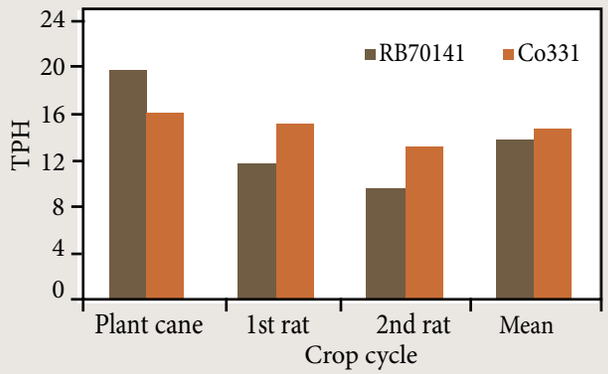
RELEASE 1977

Characteristics		RB70141
Agricultural productivity		Medium
Harvest		Dec - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Frequent
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Strong
PIS		Short
Environmental demands		Absent
Sucrose content		Medium
Fiber content		Medium
Smut		–
Brown rust		–
Leaf scald		Resistant
Mosaic virus		–

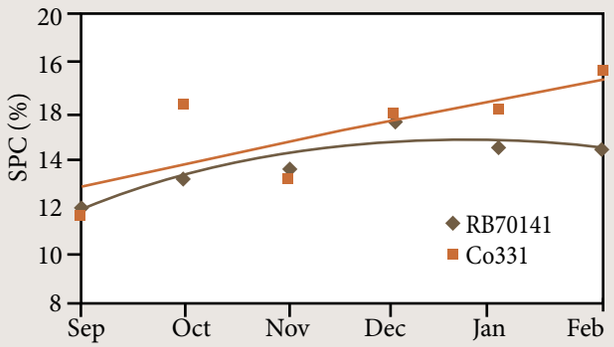
General aspects

Medium development; gray-greenish, medium-thick stalk; medium-long internodes in a weak zigzag alignment; strong adherence of leaf sheath; small buds; short, green leaf sheath with medium waxiness; slightly curved leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

Cutting in the middle and at the end of the crop cycle.

Particular features

Medium performance in lowlands.

- Developed by: Planalsucar
- Release in 1977; recommended for Northeastern Brazil

RB7096

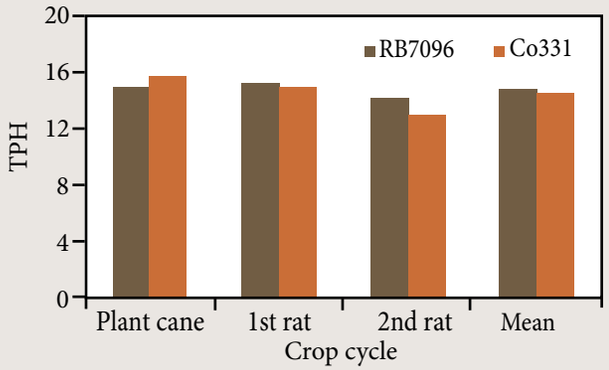
RELEASE 1977

CB36-14 x ?

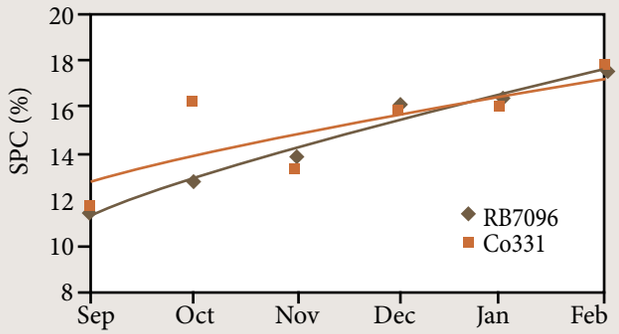
General aspects

Medium development; gray-greenish, medium-thick stalk; medium-long internodes in a weak zigzag alignment; strong adherence of leaf sheath; buds with medium prominence; short, green leaf sheath with medium waxiness; erect leaves.

Sugar yield – TPH



Maturation/sugar content



Management recommendations

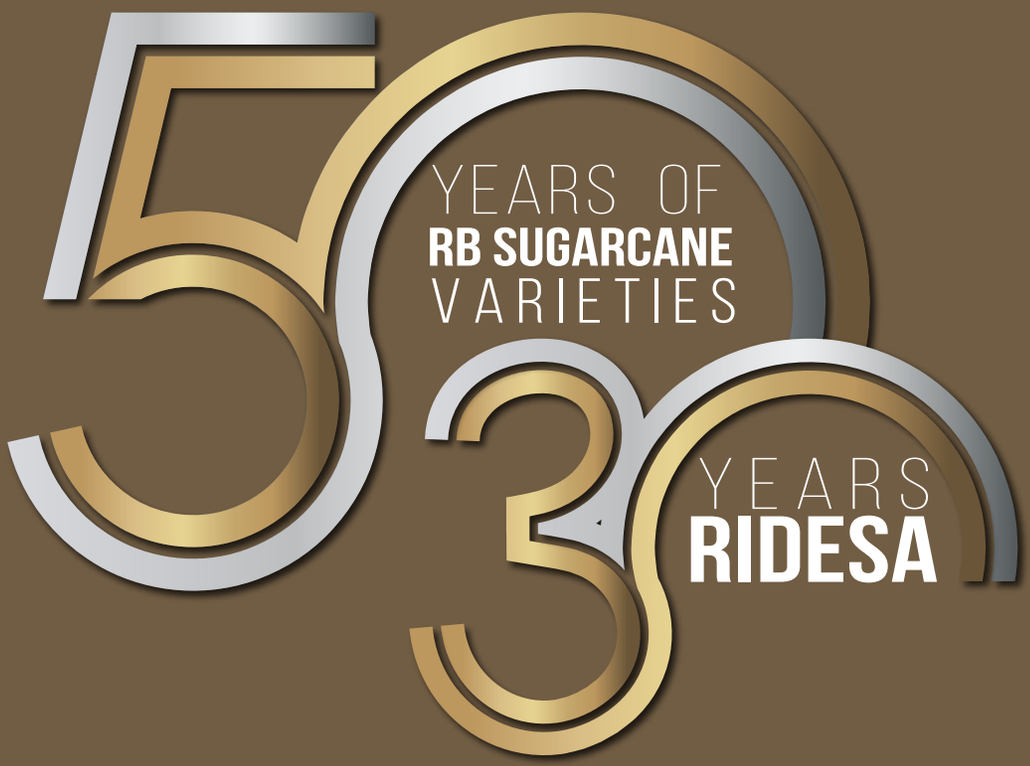
Cutting in the middle and at the end of the crop cycle.

Particular features

High sucrose content.

Characteristics		RB7096
Agricultural productivity		Medium
Harvest		Dec - Feb
Tillering	Plant cane	Medium
	Ratoon crops	Medium
Ratoon sprouting	From burnt cane	Medium
	After green harvesting	Medium
Plant canopy		Medium-dense
Growth speed		Medium
Plant height		Medium
Growth habit		Erect
Lodging		Occasional
Flowering		Frequent
Pithy stalks		Absent
Maturation		Medium/late
Adherence of leaf sheath		Strong
PIS		Medium
Environmental demands		Absent
Sucrose content		High
Fiber content		Medium
Smut		–
Brown rust		–
Leaf scald		Susceptible
Mosaic virus		–

- Developed by: Planalsucar
- Release in 1977; recommended for Northeastern Brazil


50
YEARS OF
RB SUGARCANE
VARIETIES
30
YEARS
RIDESA

RB - SUGARCANE
RIDESA BRAZIL

50 YEARS OF RB SUGARCANE VARIETIES

30 YEARS RIDESA

9 786599 417733