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TWO NEW VARIETIES OF SUGARCANE FOR SIRUP PRODUCTION

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INTRODUCTION

Tests of numerous imported varieties of sugarcane and hundreds of seedlings produced by the United States Department of Agriculture, which have been conducted during recent years in Georgia and Mississippi, have proved the superiority of two new disease-resistant varieties for the production of sugarcane sirup. One of the varieties—C. P. 29/116 [1]—was bred by the Bureau of Plant Industry at the United States Sugar Plant Field Station, Canal Point, Fla., while the other—Co. 290—was imported from India. These varieties are grown commercially in Louisiana, the latter having been released for culture there in the fall of 1933 and the former in the fall of 1936. C. P. 29/116 and Co. 290 are valuable additions to the varieties now being grown in the sirup-producing States. It is expected that, because of the desirable characteristics described in this circular, these varieties will largely replace the disease-tolerant varieties P. O. J. 213 and C. P. 807, which were recommended in Circular No. 284.[2]

P. O. J. 213 and C. P. 807, and Cayana are grown extensively in southern Mississippi, Alabama, Georgia, and South Carolina, and northern Florida and to some extent in the Gulf area of Texas and in southern Arkansas. They are also grown to some extent in Louisiana, but in that State they have already been largely replaced by Co. 290 and C. P. 29/116, and several other varieties. As is well known, P. O. J. 213, C. P. 807, and Cayana have certain undesirable characteristics; Cayana and C. P. 807, for instance, have hard stalks of small diameter, and the stalks of C. P. 807 and of P. O. J. 213 are

[1] Varieties of sugarcane are commonly designated by letters or other abbreviations indicating the origin of the seedling cane. The meaning of such designations for varieties mentioned herein are as follows: C. P. = Canal Point (Fla.) seedlings; Co. = Coimbatore (India) seedlings; P. O. J. = Proefstation Oost Java seedlings.

[2] BRANDES, E. W., SHERWOOD, S. F., and BELCHER, B. A. SUGARCANE FOR SIRUP PRODUCTION. U. S. Dept. Agr. Circ. 284, 48 pp., illus. 1933. Copies of this circular may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 10 cents a copy.

often crooked. Cayana and P. O. J. 213 are also liable to red rot injury in the seed banks.

The purpose of this circular is to acquaint sirup producers with the superior characteristics of the new varieties C. P. 29/116 and Co. 290.

RESULTS OF EXPERIMENTAL TESTS

Table 1 gives the average yields of cane and sirup per acre in comparative tests made at the United States Sugar Plant Field Laboratory, Cairo, Ga., during the 4 years 1933–36, at the United States Sugar Plant Field Laboratory, Meridian, Miss., during the 2 years 1935–36, and at the South Mississippi Branch Station, Poplarville, Miss., during the 3 years 1934–36. Tests at the last-named place were conducted under the supervision of J. C. Robert, assistant director in charge, in cooperation with the Mississippi State Agricultural Experiment Station. Average yields in these three localities are not comparable, as the experiments were not carried on during the same years nor was the number of replications in the tests at the three stations the same, but there is an unmistakable trend pointing toward the superiority of C. P. 29/116 and Co. 290 for these areas. It is probable that similar results will be obtained in areas where soil and climatic conditions are similar to those under which these tests were made.

CHARACTERISTICS

The stalks of C. P. 29/116 are green to greenish yellow, and those of Co. 290 are green overlaid or blushed with reddish to reddish purple. Both varieties have an erect habit of growth and usually straight stalks, which are ordinarily longer and larger in diameter than those of Cayana, P. O. J. 213, or C. P. 807. In the tests so far conducted, Co. 290 has consistently given very good stands of cane as first stubble, usually also very good stands as second stubble, and in some instances excellent stands as third stubble. C. P. 29/116 has been less widely tested, but limited comparisons at the Cairo station indicate that its ratooning qualities will equal, if not exceed, those of Co. 290. Both varieties strip easily, and this advantage, combined with the fact that they have larger stalks and a smaller number of stalks per ton of cane, makes harvesting much cheaper than with the more widely used varieties.

TABLE 1.—*Acre yields of sugarcane in Georgia and Mississippi during various seasons*

PLANT CANE

Variety	Cairo, Ga.[1]									Poplarville, Miss.[1]							Meridian, Miss.[1]				
	1933		1934		1935		1936		Sirup per ton of cane[2]	1934		1935		1936		Sirup per ton of cane[2]	1935		1936		Sirup per ton of cane[2]
	Cane	Sirup	Cane	Sirup	Cane	Sirup	Cane	Sirup		Cane	Sirup	Cane	Sirup	Cane	Sirup		Cane	Sirup	Cane	Sirup	
	Tons	*Gal.*	*Tons*	*Gal.*	*Tons*	*Gal.*	*Tons*	*Gal.*	*Gal.*	*Tons*	*Gal.*	*Tons*	*Gal.*	*Tons*	*Gal.*	*Gal.*	*Tons*	*Gal.*	*Tons*	*Gal.*	*Gal.*
C. P. 29/116	25.0	511	28.0	546	27.4	591	32.9	630	20.1	30.3	486	41.0	761	19.7	355	17.6	12.7	240	22.9	420	18.5
Co. 290	24.1	464	25.4	468	29.6	630	30.3	615	19.9	30.4	422	24.6	415	17.0	314	16.0	11.9	221	20.4	373	18.4
C. P. 807	23.8	467	22.3	407	25.2	467	30.9	554	18.5	26.5	358	27.7	395	16.6	220	13.7	13.9	258	21.9	402	18.4
P. O. J. 213	19.6	409	18.3	350	19.2	380	22.9	428	19.6	19.5	258	19.4	291	11.2	184	14.6	9.9	193	16.5	317	19.3
Cayana	18.8	365	19.8	359	19.8	366	20.3	370	18.5	22.6	282	15.2	227	9.3	150	14.0	11.1	225	16.8	322	19.6
Louisiana Purple ("Red"; "Home Purple")	14.2	281	6.5	119	16.3	338	16.8	342	20.1	11.6	169	7.8	125	.....	.....	15.2	(3)	.....	(3)	.....	.....

FIRST STUBBLE

C. P. 29/116	.....	.....	32.8	612	33.6	735	33.9	700	20.4	.....	.....	.....	.....	27.6	520	18.8	.....	.....	24.6	491	20.6
Co. 290	24.2	480	23.8	461	25.5	527	22.1	433	19.9	32.1	522	43.4	584	11.2	201	15.1	.....	.....	17.2	361	21.0
C. P. 807	21.7	418	29.1	558	24.9	473	27.1	470	18.7	31.3	442	38.5	552	13.3	223	14.6	.....	.....	9.5	174	18.3
P. O. J. 213	19.0	404	18.1	370	17.3	350	13.0	239	20.2	13.9	197	23.8	384	6.9	123	15.8	.....	.....	7.7	150	19.5
Cayana	18.9	372	20.5	385	23.3	456	15.9	287	19.1	9.0	125	28.5	442	7.0	127	15.6	.....	.....	7.2	137	19.0
Louisiana Purple ("Red"; "Home Purple")	11.4	241	7.9	137	6.8	134	3.2	56	19.4	.....	.....	7.6	109	.....	.....	14.3	.....	.....	(3)	.....	.....

SECOND STUBBLE

C. P. 29/116	.....	.....	.....	.....	31.7	661	34.1	709	20.8	.....	.....	.....	.....	.....	.....	.....	Second stubble tests not conducted to date.				
Co. 290	31.3	732	22.0	432	19.6	405	23.7	481	21.2	45.1	673	38.7	529	20.1	375	15.2					
C. P. 807	22.3	437	24.5	450	23.7	440	19.8	357	18.7	24.4	298	24.0	467	14.1	240	16.1					
P. O. J. 213	12.7	273	16.9	348	14.0	280	14.0	277	20.3	9.7	130	10.3	148	10.7	186	15.1					
Cayana	11.1	207	13.1	260	18.8	359	22.1	407	18.9	18.5	231	2.7	46	17.3	314	15.4					
Louisiana Purple ("Red"; "Home Purple")	.....	.....	5.8	96	2.7	45	.5	7	16.4	.....	.....	.....	.....	.....	.....	.....					

[1] Tests at Cairo were conducted largely on fine sandy loam and sandy loam soils; those at Poplarville were largely on fine sandy loam soils; at Meridian, plant-cane tests in 1935 and first-stubble tests in 1936 were conducted on deep sandy soil, and plant-cane tests in 1936 on sandy loam soil. Except for drought at Poplarville in May and June 1936 and a deficiency of rainfall throughout the growing season, climatic conditions at the 3 locations were typical of those to be expected during a period of several years.

[2] Weighted average for seasons during which the tests were conducted. Consistently low yields at Poplarville resulted largely from comparatively low extraction of juice by mill used at that place.

[3] Plantings of Louisiana Purple were restricted to border rows adjoining extensive replicated plantings of the other varieties. The total length of the border rows was 241 feet in 1935 and 213 feet in 1936. Because the growth of the cane was extremely poor and the stalks very short at harvesttime, yield data were not obtained. Equivalent yields per acre were estimated as amounting to not more than 3 tons of cane and not more than 50 gallons of sirup.

Important characteristics of both varieties which should make possible greater recovery of juice on the low-power mills commonly used throughout the sirup-producing States are the lower percentage of fiber and the relative softness of stalks as compared with those of Cayana, C. P. 807, and P. O. J. 213.

While C. P. 29/116 and Co. 290 are not immune from mosaic and red rot—two of the principal diseases of sugarcane which are prevalent in nearly all areas in which cane is grown—they withstand the effect of the disease reasonably well.

C. P. 29/116 and Co. 290 represent an approach to the ideal type of large-diameter, low-fiber or "soft" sugarcanes possessing high yielding capabilities which are desired by the growers. Their relative resistance to diseases, superior physical characteristics and yielding capacity, and the good quality of the sirup made from them fully justify their recommendation for commercial culture until such time as more disease resistant and otherwise more desirable sugarcanes may be developed. It is believed that these varieties will prove generally more suitable for culture throughout large areas of the States in which sugarcane sirup is produced than the varieties that are now grown.

SOURCES OF SEED CANE

The United States Department of Agriculture has no seed cane of C. P. 29/116 or Co. 290 or of other varieties of sugarcane for general distribution. In order that planting material may be available in quantity as soon as possible, seed cane has been supplied, as far as has been feasible, to State extension services, to State agricultural experiment stations, and in some instances to individual county agents, for growing during the crop year 1937 for the production of supplies of seed cane for distribution in the fall of 1937 or in the spring of 1938. Growers who wish to secure seed cane for establishing initial plantings should apply to the above-mentioned State agencies or consult their local county agents concerning sources from which planting material may be secured.

Transportation of seed cane from one State to another involves the risk of introducing insect pests or strains of organisms causing sugarcane diseases that may not be prevalent in the particular State where the cane is to be planted. Because of this risk, growers are urged to secure seed cane from sources in the State in which they are located or, where it is necessary to secure it from another State, to insist upon suitable precautions being taken to insure its freedom from insect pests and diseases.

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