

WHAT SUGAR-CANE VARIETY TO PLANT

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I have taken as a subject for this paper to be read before you, "What Variety to Plant". I have taken this subject because this is an every-day question made by the cane growers, and no doubt a very important one. Offhand, it seems very easy to answer this question, especially if the person that is questioned has had any success with a specific variety of cane; he will immediately advise his friends to plant nothing but that variety that has done so well with him.

To my mind, and no doubt to the mind of most of you present, this is a very hard and delicate question to answer since it may involve great financial losses. Whenever this question is put up to me, my answer is that it is up to every cane grower to decide what variety is best adapted to his soil and special conditions prevailing in that region. Naturally I don't mean by this, that if my neighbor has exactly the same kind of soil and conditions and I have had success with a certain variety of cane that I would hesitate to recommend it to him, but I do mean that to-day in Porto Rico, and this is a very common practice, because a variety does well in one section most of the growers think that it should give similar results in the whole Island. I can safely say that at present there have been great losses experienced by cane growers as well as factories due to the little or no importance given to the adaptation of varieties to the different localities. Reading the JOURNAL OF THE DEPARTMENT OF AGRICULTURE OF PORTO RICO, Vol. 8 No. 3, for the month of July 1924, in the article "Some Java P.O.J. Seedlings in Tucumán and Porto Rico", I find a paragraph by Mr. A. H. Rosenfeld whose clear mind has sized up this question of how varieties are planted. His paragraph I quote as follows:

"In the case of varieties of sugar cane, size and appearance, yes, even a characteristic color or mode of growth may exert more influence than their actual productivity or resistance to disease and it appears to the author that we could find no better illustration of this fact than the case of D-433, the well-known "Ceniza" cane, which has proven so valuable under the peculiar conditions of Central Fajardo, in Porto Rico. Careful experimentation and years of experience at this progressive central have demonstrated beyond the shadow of a doubt the value of this cane—normally a variety of good tonnage but indifferent sugar content—under the conditions of most of their properties, but this demonstration

under limited conditions does not justify the wide distribution of D-433 under materially distinct environment of soil and climate. No one will deny, we think, that the good size and ease of identification of this variety, as well as the notoriety it has received from its good record at Fajardo, have been more potent factors in its wide distribution than the results of carefully conducted field trials under the actual conditions of the many other sections into which it has of late years been extended.''

Just as a matter of illustration I am going to give some more details of this specific case.

The variety used in Fajardo in a plantation scale (when I say in Fajardo I mean administration cane as well as *colono's*), is the D-433; I know very well from experience as well as records obtained from other factories and experimental stations that this variety has been a great failure in most parts of the Island, but I do know that this cane has been the savior of the sugar business in our district.

In evidence of the above statement let me give you acreage and tonnage of this variety for the last five crops and the average tonnage obtained by the Fajardo Sugar Growers' plantation so that you have a clear idea of what the introduction of the variety D-433 meant for the sugar business in our region. The yearly acreage not reported as D-433 includes at least one thousand acres of BH 10-12, SC 12-4, Y.C., D-109, F. C. Seedlings and other varieties exclusive of Cristalina and Rayada.

Crop Year	Variety	Acreage	Tons Cane per Cda.	Brix	Purity	Yield	T Sugar Per Cda.
1921	All included	9,601.7	16.75	18.25	82.90	10.70	1.79
	D 433 exclusively	453.3	26.37		82.70	10.30	2.72
1922	All included	8,615.02	20.74	18.23	81.15	10.95	2.27
	D 433 exclusively	1,517.81	33.92	18.20	82.90	10.40	3.51
1923	All included	7,773.29	19.94	18.64	81.54	11.28	2.25
	D 433 exclusively	2,495.06	26.42	18.90	84.60	11.30	2.97
1924	All included	8,045.16	26.86	17.71	82.24	10.25	2.75
	D 433 exclusively	1,095.90	32.52	17.90	82.60	10.40	3.25
1925	All included	7,435.60	31.74	17.94	82.27	10.40	3.30
	D 433 exclusively	4,245.97	35.61	18.24	82.81	10.78	3.84

NOTES:

Figures for crop 1925 only include cane harvested up to June 25, 1925.

In crops 1921, 1922 and 1923 no B. H. 10-12 or S. C. 12-4 were harvested, and very little for crops 1924 and 1925.

Now I will give you some data in this same variety, D-433, which

have been obtained from Central Carmen, Vega Alta, and which goes to prove that a variety that behaves well in a place does not necessarily give equal results when tried elsewhere.

Kind of cane	Acreage	Tons Cane per Cda	Brix	Purity	Yield	Tons Sugar per Cda.
G. C.	96.67	28.84	13.71	76.5	7.10	2.01
G. C.	9.10	43.74	15.66	77.6	8.35	3.65
Primavera	22.69	38.66	15.44	78.4	8.14	3.15

You will naturally ask the question of why these great differences. The following is my explanation:

The soils of Vega Alta where this cane was planted are of a sandy structure while the ones of Fajardo are heavy clay formations. To my best understanding this is the main reason, as it has been our experience that D-433 whenever planted in the sandy soils of Fajardo has given as poor or poorer results than the ones obtained in Vega Alta. I am only mentioning the soil factor, but there are others such as climatic conditions, cultivation, etc., which also affect the adaptability of a variety; for instance, we are propagating today a great deal of our seedling F. C. 306, which is a high-tonnage and rich sugar cane, in our plantations, yet we had to discard it from one of our estates situated in a high altitude and where the precipitation and atmospheric humidity is very great, because it is extremely susceptible to the leaf eye-spot disease.

I have taken D-433 as an example, because it is the cane with which we have experimented most, but I could have used B. H. 10-12, S. C. 12-4 or any of the great number of varieties we have in Porto Rico for the same purpose. I have seen results obtained from S. C. 12-4 in Mercedita, Ponce, and personally examined the cane fields, and nothing better could be expected. In Humacao this variety also does excellently, yet in Fajardo our experience has been that of a very high sucrose cane but low tonnage per acre. We had a technologist from the Federal Experimental Station visiting our fields some time ago and he refused to believe that this was the same S. C. 12-4 they had in Mayagüez. I am only mentioning this to impress upon you the behavior of varieties in different localities.

I also want to make clear to you that even with the good results that we have obtained with the D-433 we do not expect to keep it in our fields for a lifetime. There may be today hundreds of other varieties that will do even better than D-433 and this is the kind of investigations that every cane grower should make when possible.

At present great hopes are placed in B.H.10-12 to replace D-433 as a *gran-cultura* cane (long growth), as it will give equal tonnage and higher sucrose content, but in *Primavera* planting and ratoons running between eleven and twelve months old, so far D-433 is showing some superiority.

In concluding we would recommend to all cane growers not to accept any offhand advice as to the variety he should plant unless the special variety recommended to him has been successfully and thoroughly tried out in his section.

The ideal of every cane grower is to find a high tonnage variety with an equally high sucrose content. I firmly believe that this could be attained if all the centrals of the Island that have means to do it should run experimental stations. These stations should carry out the expensive work of determining which is the variety best suited to their region and recommend it to the planters.