EFFECTS OF HARVESTING AGES ON YIELD AND RIPENING CHARACTERISTICS OF PHIL 2009-1969

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ABSTRACT

Chronological age is one of the maturity indices of sugarcane. When the canes reach the mature age, ripening occurs depending on the variety.

A Study on the yield performance of Phil 2009-01969, was conducted to determine the yield at 10, 11 and 12 months after planting. This was conducted at the La Granja Agricultural Research and Extension Center, La Granja, La Carlota City, from December 2021 to December 2022.

Results showed that varieties and ages of harvest significantly differed in terms of sugarcane stalk length and diameter at 12 months after planting. Phil 2009-1969 obtained bigger and higher stalks that can express the good characteristics of quality sugarcane. In terms of tonnage and sugar yield, although not significant, Phil 2009-1969 performed at 11 MAP and 12 MAP. The highest sugar rendement was at 12 MAP (2.41 LKg/TC), while in cane yield, an 11-month-old cane yielded higher (108.54 TC/Ha).

Sugar yield has a significant interaction with the age of harvest. The Highest average LKg/Ha was obtained from an 11 months old cane (258.27 LKg/Ha).

The ripening characteristics of Phil 2009-1969 exhibited no significant interaction on percentages of Brix and Pol. However, the results revealed that an 11 months old cane obtained higher percentage of Brix (20.36 %) and Pol (18.93 %).

Keywords: sugarcane tonnage; sugar yield; sugar rendement;

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INTRODUCTION

One of the banner programs of the Sugar Regulatory Administration (SRA), La Granja Agricultural Research and Extension Center (LGAREC) is the development of high yielding and pest resistant sugarcane varieties. This continuing endeavor is under the Variety Improvement and Pest Management Unit. Yearly ecological tests are being conducted purposely to evaluate the growth and yield performance of promising varieties in different locations.

The Production Technology and Crop Management Unit on the other hand, are in charge of the conduct of agronomic tests for new high yielding varieties after its ecological tests. Yield performance at different ages at harvest is among the tests conducted for the total cultural packaging of high yielding varieties. The test determines the best age of harvest for new promising sugarcane varieties.

Chronological age at harvest is one of the indices for sugarcane maturity. In a study conducted by Bañas *et al* (2020), they observed significantly higher sugar rendement in canes harvested 13 months after planting. On the other hand, Hagos *et al* (2014) got the highest sugar yield in 12 month old canes.

Since sugarcane varieties differ in their ability to ripen and the delay in harvesting at the right age may cause decline in yield, thus this study was carried to determine the optimum harvest age for promising Phil varieties.

METHODOLOGY

The experiment was laid out at the Sugar Regulatory Administration, La Granja Agricultural Research and Extension Center, La Granja, La Carlota City Negros Occidental.

Selected three eye cuttings of test varieties were planted at a seeding rate of 4 lacsas per hectare or 40,000 cuttings per hectare. Fertilization was done on

split doses. The amount of fertilizer applied was based on the result of the soil analysis. All other cultural practices for sugarcane were employed for the entire duration of the study.

Harvesting was done in 10, 11 and 12 months after planting. At harvest, 10 stalks collected at random from four middle rows were measured for length and diameter. After which samples were weighed and crushed and the juice collected were analyzed for Brix, fiber, pol and purity. Harvests data on cane yield (TC/Ha), sugar yield (LKg/Ha) and sugar rendement (LKG/TC) were computed.

TEST VARIETY

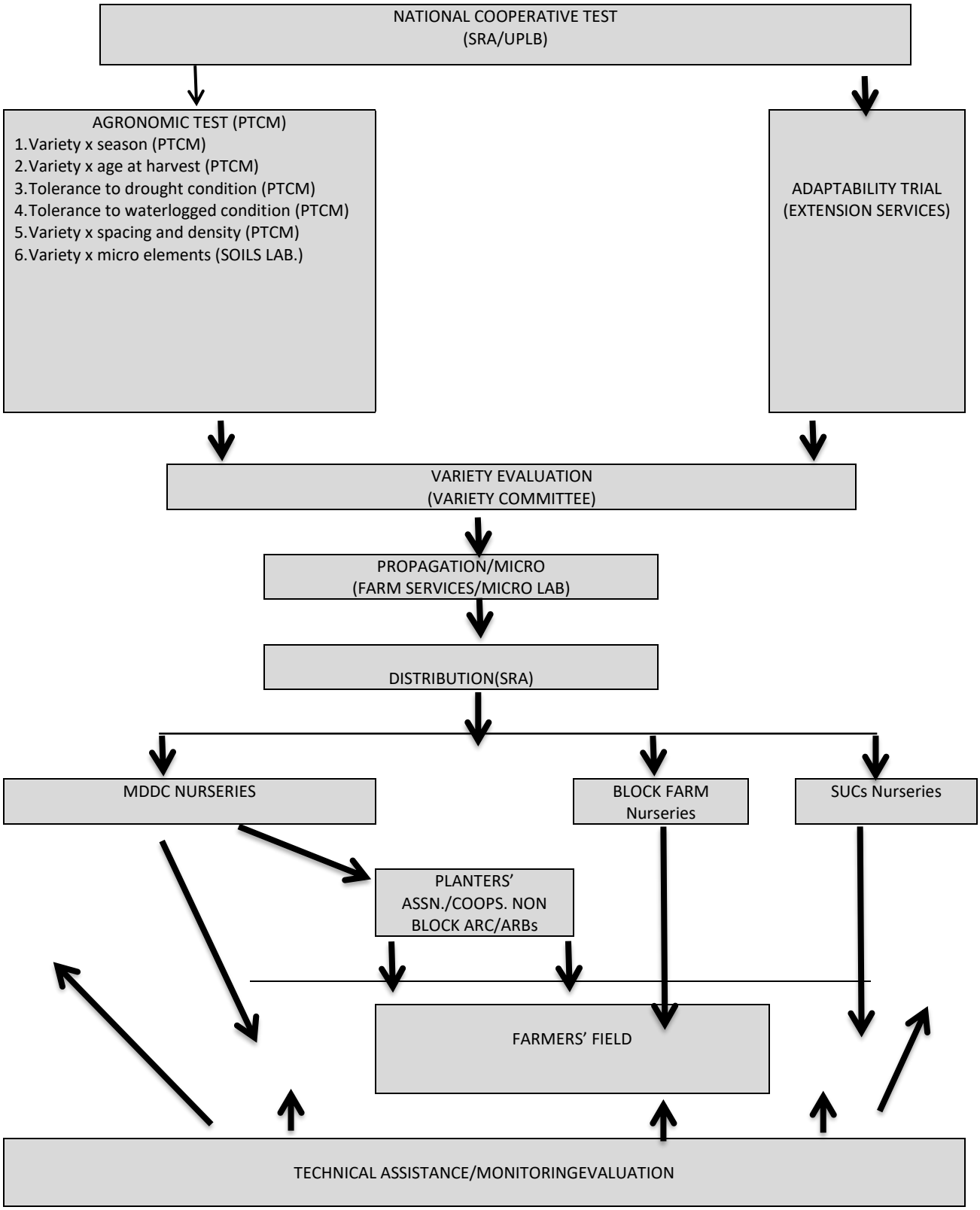
Fig. 1 Yield Potential and Reaction to Diseases of Phil 2009-0149.

Phil 2009-0919

Potential Yield:
TC/Ha: 140.46 (Plantcane)
168.81 (Ratoon)
LKg/Ha: 311.45 (Plantcane)
300.93 (Ratoon)
LKg/TC: 2.21 (Plantcane)
2.18 (Ratoon)

Resistant to: highly resistant to smut; very highly resistant to downy mildew; moderately resistant to leaf scorch and very highly resistant to the yellow spot.

PROCESS FLOW ON THE PROPAGATION AND DISTRIBUTION OF SRA NEW HYVS



RESULTS AND DISCUSSION

Table 1. Yield Parameters of Phil 2009-0919 and Check Variety Phil 8013 Influenced by Different Ages at Harvest.

Varieties	Age of Harvest								
	10 MAP			11 MAP			12 MAP		
	TC/Ha	LKg/TC	LKg/Ha	TC/Ha	LKg/TC	LKg/Ha	TC/Ha	LKg/TC	LKg/Ha
Phil 2009-0919	111.58	2.06	228.82	115.28	2.08	238.40	103.01	2.30	236.35
Phil 8013	109.77	2.27	249.98	105.60	2.20	231.52	107.36	2.52	270.08

Table 1 shows that cane yield, sugar rendement, and sugar yield of Phil 2009-0919 were influenced by the different ages of harvest. The highest cane yield and sugar yield were observed in 11-month-old cane, with a corresponding average of 115.28 TC/Ha and 2.38 LKg/Ha, respectively. While the highest sugar rendement was observed in a 12 month-old-cane with an average of 2.30 LKg/TC, it was followed by an 11-month-old cane with an average of 2.06 LKg/TC. Among the different ages of harvest, a 10-month-old-cane yielded the lowest. However, Phil 8013 had a higher cane yield with an average of 109.77TC/Ha during 10 months after planting; on the other side, sugar rendement and sugar yield of Phil 8013 was consequently highest during 12 months after planting with an of 2.52 Lkg/TC and 270.08 LKg/Ha.

Table 2. Percentages of Brix and Pol of Phil 2009-0919 and Check Variety Phil 8013 Influenced by Different ages at Harvest

Varieties	Age of Harvest					
	10 MAP		11 MAP		12 MAP	
	% Brix	% Pol	% Brix	% Pol	% Brix	% Pol
Phil 2010-0919	18.20	16.64	18.63	16.87	20.23	18.53
Phil 8013	19.70	18.22	18.82	17.52	21.20	19.86

Table 2 revealed the juice quality parameters of Phil 2009-0919 as influenced by different ages of harvest. Harvesting Phil 2009-0919 cane at 12 months after planting got the highest data, with a 20.23% Brix and 18.53% Pol, followed by cane harvested at 11 months after planting with an average of 18.63% Brix and 16.87% Pol. While canes harvested at 10 months after planting yielded the lowest percent of

brix and pol. Furthermore, Phil 8013 obtained higher percents of Brix and Pol compared to Phil 2009-0919 at different ages of harvest with an average of 21.20% Brix and 19.86% Pol respectively.

SUMMARY

The experiment was carried out to evaluate the yield performance of Phil 2009-0919 at harvesting ages of 10, 11 and 12 months after planting.

Based on the results of the routinely study on yield performance of promising varieties under different ages at harvest Phil 2010-0919 can be harvested from 10 to 12 months after planting as harvesting age has significant effect on sugar yield. However, maximum yield could be achieved at the harvest age of 12 months old.

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