1. **A. Variety Improvement Program (2)**

1. Screening of Phil 2013 series for resistance to smut

Casupanan, N. Guiyab, V. Serrano, B. Manlapaz, R. Sarol, J. Agsaoay,

Thirty clones of the 2013 series from LGAREC were planted and ratooned to test for their reaction to sugarcane smut.

Among the thirty clones of 2013 series, twelve clones were rated as very highly resistant. These clones are Phil 13-0573, 13-0951, 13-0985, 13-1319, 13-0249, 13-0279, 13-1619, 13-1599, 13-1753, 13-1165, and 13-1667. Phil 13-1453 was observed to be resistant while four were recorded as intermediate resistant namely, Phil 13-1495, 13-0987, 13-0117 and 13-1483. The remaining clones which were rated as very highly susceptible were Phil 13-0153, 13-0287, 13-1585, 13-1695, 13-1787, 13-1153, 13-0771, 13-1627 and clone 13-1657.

1. **2. Screening of Phil 2012 series for resistance to Downy Mildew**

Casupanan, N. Guiyab, V. Serrano, B. Manlapaz, R. Sarol, J. Agsaoay,

Ten clones of the Phil 2012 series from PYT were ratooned and tested for their reaction to sugarcane Downy Mildew.

Among the ten clones of Phil 2012 series, eight were rated as very highly resistant namely, Phil 12-0465, 12-0011, 12-1019, 12-479, 12-1263, 12-609, 12-749 and 12-1273. Phil 12-0393 and 12-0549 were highly resistant.

1. **B. Production Technology and Crop Management (3**

1. **1. Yield performance of Phil 2008-0909 at different level of Nitrogen fertilization** (R.J. Sarol, J. Agsaoay Jr., M.V. Serrano, N. Guiyab, A. Casupanan, B. Manlapaz)

Fertilizer requirement of a variety is one of the most important input in increasing productivity. In nitrogen fertilization varieties may differ in nutrient requirement for growth, development and yield. An experiment was conducted at LAREC laid-out in RCBD replicated three times. Using Phil 08-0909, four different levels of Nitrogen were tested namely, zero N (N0), ½ below recommended rate (1/2 below RR), recommended rate (RR) and ½ above the recommended rate (1/2 above RR).

Plant and ratoon cane showed comparable result in sucrose content (LKg/TC). However, in cane yield (TC/Ha) ½ above RR has significantly higher yield than N0 and ½ below RR. It has a yield 102.46 TC/HA in the plant cane and 99.71 in the ratoon. With RR it produced comparable result of 93.42 TC/Ha and 83.33 TC/Ha in plant and ratoon respectively. The same trend was observed in sugar yield (LKg/Ha) in the plant cane. In the ratoon cane, application of ½ above RR resulted in a significantly higher sugar yield of 216.66 LKg/Ha.

1. **2. Yield performance of Phil 2008-0909 at different level of Potassium fertilization**

(R.J. Sarol, J. Agsaoay Jr., M.V. Serrano, N. Guiyab, A. Casupanan, B. Manlapaz)

Fertilizer requirement of a variety is one of the most important input in increasing productivity. In Potassium fertilization varieties may differ in nutrient requirement for growth, development and yield. An experiment was conducted at LAREC laid-out in RCBD replicated three times. Using Phil 08-0909, four different levels

of Nitrogen were tested namely, zero K (K0), ½ below recommended rate (1/2 below RR), recommended rate (RR) and ½ above the recommended rate (1/2 above RR).

Plant and ratoon cane showed comparable result in sucrose content (LKg/TC). However, in cane yield (TC/Ha) ½ above RR has significantly higher yield than K0 and ½ below RR. It has a yield of 104.74 TC/HA and 80.02 TC/HA in the plant and ratoon cane, respectively. RR produced comparable results of 100.55 TC/Ha and 79.23 TC/Ha in plant and ratoon respectively. The same trend was observed in sugar yield (LKg/Ha) in both plant and ratoon cane. Application of Potassium at the rate of ½ above RR and RR showed comparable result for sugar yield that ranged from 221.57- 239.85 LKg/TC for plant cane and 183.05-186.68 LKg/Ha for ratoon cane.

1. **3. Yield performance of Phil 2008-0909 at different densities of planting**

(N. Guiyab, A. Casupanan, B. Manlapaz, M.V. Serrano, R.J. Sarol, J. Agsaoay Jr.)

A study was conducted to test the growth and yield performance of Phil 2008-0909 using different planting densities of 3.5, 4.0, 4.5 and 5.0 lacsas per hectare. The experiment was laid out in Randomized Complete Block design (RCBD), using 6 rows x 9 m experimental plots in four replications.

Data showed that cane tonnage (TC/Ha), sucrose content (Lkg/TC) and sugar yield (Lkg/Ha) of Phil 2008-0909 did not vary significantly among different level of planting densities of 3.5 lacsas, 4.0 lacsas, 4.5 lacsas and 5.0 lacsas per hectare.

Economic analysis showed that Phil 2008-0909 had highest net income and ROI at planting density of 3.5 lacsas per hectare.