B R A Z I L

Nitrogen and Potassium Fertilization on Sugarcane

By J. Orlando Filho and A.A. Rodella

Brazil more than doubled its sugarcane growing area, from 2 million to over 4 million hectares, in the last 20 years. Much of the expansion is on infertile, sandy soils on which sugarcane is being grown for the first time.

In Brazil, plant cane normally receives very low levels of N (20 to 30 kg N/ha). Nitrogen is applied with K (100 to 120 kg K_2O/ha) in the furrow at planting.

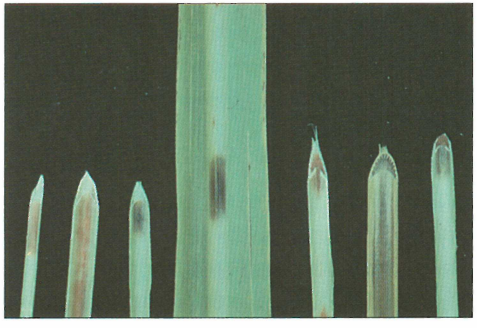
With rapidly expanding areas of sugarcane production, some field trials show significant yield response to nitrogen (N) and potassium (K) in recent studies in Brazil.

This article reports on responses of plant cane to rates and application timing of N and K on a soil containing 95 percent sand, 0.36 percent carbon (C) and less than 20 parts per million (ppm) K. The soil was limed with 3 t/ha of dolomitic limestone and all treatments received 180 kg P_2O_5/ha in the furrow at planting. Urea and potassium chloride (KCl) were used as sources of N and K, respectively.

The description of treatments and results of cane yields are shown in **Table 1**. Approximately 75 percent of Brazilian research trials involving N in plant cane have not shown significant cane yield responses. Some hypotheses have been suggested to explain the fact.

Plant cane grown in eutrophic (fertile) soils or under minimum tillage has shown response to N application. Also, when soils are planted to sugarcane for the first time, responses to N application are generally detected. This probably occurs due to the restricted supply of the nutrient through atmospheric N fixation in sugarcane roots, since low population of the bacteria *Acetobacter diazothrophicus* prevails under these soil conditions.

The percent pol in juice was not



This Transverse *section of sugarcane midrib red spot shows red rot disease (at right) and potassium deficiency (at left).*

Nitrogen *deficiency on plant cane is shown at left. Normal plant cane is shown at right.*

TABLE 1. *Fertilizer treatments and cane yields.*

Treatments						
1 N, kg/ha	2 N, kg/ha	1 K_2O, kg/ha	2 K_2O, kg/ha	Cane, tonnes/ha	Pol,%	Fiber,%
0	0	0	0	110	15.6	15.0
0	0	90	0	124	16.0	14.3
0	0	180	0	136	16.0	14.2
60	0	0	0	126	16.0	14.0
120	0	0	0	105	15.6	14.7
60	0	90	0	151	15.7	14.2
60	0	180	0	143	15.8	13.6
120	0	90	0	131	16.0	13.4
120	0	180	0	140	16.1	13.6
0	0	45	45	130	16.1	14.2
0	0	90	90	142	16.2	14.0
20	40	0	0	113	16.0	14.3
20	100	0	0	124	15.8	15.7
20	40	45	45	129	15.8	14.2
20	40	90	90	137	16.1	13.8
20	100	45	45	140	15.9	13.8
20	100	90	90	149	16.0	13.5

1 = Application in the bottom of the furrow at planting.
2 = Sidedressed application, four months after planting.

affected by N or K application. However, K reduced percent fiber cane, which is a positive response. Cane yields were also improved by application of N and K. The best result in tonnes cane/ha was obtained with 60 kg N/ha and 90 kg K_2O/ha applied at planting time. This fact is very important because in terms of maximum economic yields in commercial fields, it is possible to eliminate the need for sidedressed NK fertilization. BC

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PPI (INPOFOS) Ecuador Office Moves to New Location in Quito

The office of the Northern Latin America Program of PPI has a new location. Also known as INPOFOS (Instituto de la Potasa y el Fosforo), the program is directed by Dr. José Espinosa.

"Changing needs dictated this move. We are optimistic that the improved facilities of the new office location will help us maintain and even improve our effectiveness and productivity in agronomic research and education programs of this important region," said David W. Dibb, President of PPI.

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