

use of growth regulators in shortening the harvest cycle interval between first and second ratoon crops. It also suggested the possibility for rapid multiplication without loss of yield from the mother plant. Studies in 2 field trials were conducted.

Physiological study of the suckering behavior

In the first trial, the pseudostem of a 7-month-old mother plant was cut off and the apical meristem removed. The growth regulators; GA (Gibberillic acid, GA + NAA (Naphthylene acetic acid), GA + cytokinin and ABA (abscisic acid); were applied on alternative days in 1ml doses in concentrations of 10^{-2} and 10^{-4} M. Five peepers per mother plant were treated at 2-4 weeks after detopping of the mother plant.

Treatments with GA/NAA were not considered because the structure of the peepers seems to be changed. There were no significant differences in height and girth after 4 weeks among the peepers of the 16 treatments (2 durations \times 2 concentrations \times 4 hormones), except for the height of the GA 10^{-2} M treated peepers. Peepers injected with ABA were not significantly different in their growth from the control.

In the second trial, the mother plant was retained. Treatment began at 6 months after planting. Only 1 peeper per plant was treated. Treatments with GA/NAA and GA/NAA CYT were not considered because of abnormal changes in the peepers. Suckers injected with GA, GA + flurenol and GA + CYT showed, compared with the control, significant differences in height and girth after 6 weeks. Suckers injected with GA + CYT became significantly thicker.

Also, there were no significant differences between durations, but there were between the 2 concentrations. As in trial 1, peepers injected with ABA did not differ significantly from the control.

The effects of GA on suckers in Trial 2 proved that the significant growth of injected suckers is not linked to the duration of the injection but to the hormone concentration. In the next experiment, 1 ml of Ga 10^{-2} M was injected into the second peeper (P_2) at 10 days after emergence on 10 different plants. The injection was repeated once on the same peeper at 5 days after the first. The controls were no treatment (neutral control), and

injection of 1 ml of H_2O also repeated once after 5 days. Observations were on the mother plant, P_1 , P_2 and P_3 at the time of first injection and 6 weeks after the second injection (Table 52).

The GA treated peepers developed faster than the first peepers on the same stool and the GA injection did not significantly stimulate the growth of the first and third peepers. No effects could be observed on the main pseudostem. This points to a very localized action of GA on the treated suckers only, and an immediate change in the balance is enough to stimulate the growth. The H_2O -treated peepers did not show any difference in growth compared with the peepers of the neutral control, proving that tissue changes by the injection was not interfering with the development of a sucker.

Effect of Flurenol on apical dominance

Flurenol is known to counteract the apical dominance. This effect on plantain was compared with the neutral control (no treatment) and decapitation (Table 53). Flurenol was injected into the 4.5 month-old main pseudo-

Table 53. Mean height (H_0 , H_6) and girth (G_0 , G_6) of the second peeper and the main pseudostem at 0 and 6 weeks (in cm). Number of peepers at 0 and 6 weeks (N_0 , N_6).

		Control	Flurenol	Decapitation
P_2	H_0	3.7	1.64	1.4
	H_6	22.7	16.82	57.7 (1)
	G_0^*	3.8	1.73	1.8
	G_6	13.2	9.27	16.8 (5)
*Girth at soil level				
Mother plant	H_0	182.6	146.3 (5)	157.9
	H_6	264.5	211	-
	G_{050}^*	44.2	36.78 (5)	39.8
	G_{0100}^*	37.9	31.4 (5)	32.9
	G_{650}^*	64.5	52 (1)	-
	G_{6100}^*	52	42.4 (1)	-
	N_0^{**}	2.3	0.9 (5)	1.4
N_6	8.4	6.2	4.6 (1)	

*Girth at 50 cm and 100 cm height

**Number of peepers

Means in the same row followed by (1) or (5) respectively, are significantly different for 1% and 5%.

Table 52. Height and girth of second peeper, mother plant pseudostem and number of peeper at 0 and 6 weeks after treatment.

Type of Plant	Parameter	Control		Water		GA	
		Start	6 weeks	Start	6 weeks	Start	6 weeks
Peeper ₂	Height (cm)	8.1	24.6	8.2	28.6	7.6	87.6*
	Girth (cm)	6.7	13.4	8.3	16.4	6.6	20.1*
Peeper ₁	Height	24.8	65.7	-	-	16.7	47.7
	Girth	13.1	24.9	-	-	10.2	19.5
Peeper ₃	Height	5.2	15.5	-	-	4.6	20.8
	Girth	5.5	12.9	-	-	4.0	13.5
Mother plant	Height	200.1	285.9	200.0	277.5	196.6	285.8
	Girth (50 cm)	48.8	68.9	47.9	65.1	49.3	66.3
	Girth (100 cm)	41.1	54.7	40.1	53.2	41.9	54.1
	No. of peepers	4	10	3.8	9.6	3.8	8.6

*Significant differences between treatments at 5% probability.