

**Pink Bollworm (Lepidoptera:Gelechiidae): Field Testing
a New Polyethylene Tube Dispenser for Gossyplure**

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Summary

Gossyplure, the sex pheromone of the pink bollworm, Pectinophora gossypiella (Saunders), was applied by hand on June 5 to 2-ha cotton fields at the Maricopa Agricultural Center using a polyethylene tube dispenser (Shin Etsu, Tokyo, Japan). Three treatments were tested: 64 g AI/ha in one treatment (894 dispensers/ha), and totals of 66 or 31 g AI/ha applied in three treatments each (fields 1, 2, and 3, respectively). Treatments were begun on June 5 at ca. pin square. Multiple applications were at 30-day intervals. In addition, untreated and insecticide-treated blocks of cotton were included for comparison (fields 4 and 5, respectively). All fields were planted with Deltapine--62 during the 3rd week of April. The effects of the gossyplure applications were measured by reductions in trap catch, mating of laboratory females in mating stations, and bloom and boll infestation.

Catches in gossyplure-treated fields averaged less than 1 moth/trap/night until August 13 (94-98% average reduction in catch compared to the untreated and insecticide-treated fields, Table 1). Bloom infestations during the 6/27-7/20 observation period were not significantly different in fields 1, 2, 4 and 5 (average of 44 larvae/ha). Field 3 (3 x 10 g AI/ha) had a significantly greater infestation (344 larvae/ha). This difference subsequently resulted in significantly greater infestations of bolls in early August (8/6 and 8/13 sampling dates) than in all the other fields (Table 2). Fields 1 (1 X 64 g) and 2 (3 X 22 g) had significantly lower boll infestations than the control field through 8/20 and 8/13 sampling dates, respectively. Populations of pink bollworm were not detected in the insecticide-treated field until the 8/27 sample. Females in mating stations in gossyplure-treated fields remained unmated through tests on 8/21 (fields 1 and 3) or 9/3 (field 2). Mating occurred in the untreated and insecticide-treated fields on 6 of 7 test dates. Tests of tube dispensers collected from the fields during the test period indicated a half life of ca. 58 days and a gossyplure emission rate of 1.03 mg/day and 0.35 mg/day for the first and last 10 days of that period. The single application of 64 g AI/ha of gossyplure had a significant effect on trap catch, mating in stations, and boll infestations for a 2-month period. These results are unprecedented for a single application and are the result of the large dose of gossyplure and the new slow release dispenser. Further field tests of the new dispenser will be conducted in the Imperial Valley during the 1985 season.

Table 1. Catch of male pink bollworms in Delta traps placed in test fields at Maricopa, AZ.

Field no. (treatment)	<u>Avg. moths caught during indicated interval¹</u>						
	5/17-6/5	6/21	7/9	7/25	8/9	8/24	9/7
1 (1 X 64g)	2558	2	1	3	14	82	1039
2 (3 X 22g)	2659	16	19	2	2	12	56
3 (3 X 10g)	2432	27	25	16	30	71	1376
4 (untreated)	1590	384	57	158	419	1100	2960
5 (insecticide)	2941	1643	720	387	509	524	2245

¹Four Delta traps/field. Fields 1-3 treated with gossyplure for the first time on 6/5. Field 5 treated with 9 insecticide applications, 7/4-9/8.

Table 2. Infestations of cotton bolls by pink bollworms (PBW) in test fields (averages of 3-50 boll samples/field on each date).

Field no. (treatment)	Infestation on indicated date							
	PBW/100 bolls ¹			PBW/ha ²				
	7/18	7/2	7/30	8/6	8/13	8/20	8/27	9/3
1 (1 X 64g)	0	0	0	1617c	2271b	496b	4979ab	7700a
2 (3 X 22g)	0	0	2	1020c	1296b	15330a	11258a	9705a
3 (3 X 10g)	4	1	8	38454a	48913a	26225a	9322a	6282a
4 (untreated)	3	4	2	12938b	10217b	14231a	12081a	7060a
5 (insecticide)	0	0	0	0c	0b	0b	3751b	1528b

¹Incubated boll samples

²Number of PBW/ha computed from the number of PBW in incubated samples of infestable bolls and estimates of the number of infestable bolls/ha. Estimates of infestable bolls/ha based on counts from 6 samples of bolls in 3 m of row per field. Means within column followed by a common letter are not significantly different at the 0.05% level.