A Study of Boll Weevil Damage to Cotton

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In 1952, a small plot of cotton of the Stoneville 62 variety, one-tenth acre in size, was planted early in June near Stillwater for experimental purposes. This date is about a month late for planting cotton in this part of the State. This field became heavily infested with boll weevils and the severe damage they caused was determined by a study of the fruiting of the plants. Fruiting records (Table I, Fig. 1) were taken in the same manner as described in previous papers (1, 2, 3).

The weevil never completely stopped cotton from blooming but beginning with the 5-day period of August 21-25, 96 per cent or better of the squares were infested and almost from the beginning over half of the squares were shed from the plant because of the weevil. This infestation first delayed the normal fruiting of the crop, then greatly decreased the number of blooms produced. Most of the early blooms developed into bolls which matured on the plants, but beginning with the 5-day period of August 16-20, a relatively small proportion of the blooms developed into bolls. Thus during the peak of blooming (August 21-25) only 37.2 per cent of the flowers developed into bolls. While there is a normal loss of young bolls due to natural shed, a good share was caused by the weevil. This loss began to become very great about August 21 and was coincident with 96 per cent square infestation. The combination of square and small boll infestation greatly reduced the number of bolls matured. The mature bolls were also damaged by the weevil. This loss was measured by counting the number of locks in open bolls which were damaged by this insect. There was some loss from the beginning but greatest damage came between August 15-26.

The final figures show that there was an average of slightly over nine blossoms per plant for the season of which 50.5 per cent developed into bolls or an average of 4 to 5 bolls per plant. An average of 41.8 per cent of the lint in these bolls was destroyed. The records also show that the weevils destroyed some lint in bolls throughout the season but greatest loss came between August 16 and 30.

Three other fields planted a month earlier and located within one-fourth mile of this one produced a fair crop. They were not poisoned for boll weevils. There was considerable weevil damage to mature bolls in two of them, but the plants set a nearly normal crop.

TABLE I

Cotton Fruiting and Boll Weevil Damage, Stillwater, Oklahoma, 1952.

DATE	PER CENT SQUARE INFESTATION	NO. OF BLOOMS	NO. OF BOLLS SET	PER CENT OF BOLLS SET	PER CENT OF BOLLS TOTAL	TOTAL NO. LOCKS***	TOTAL NO. LOCKS DAMAGED	PER CENT COTTON LOSS
AUG. 1-5	40	7	5	71.4	2.2	24	5.69	23.7
6-10		22	21	95.3	11.3	99	26.69	26.9
11-15	72**	38	30	78.9	24.2	141	49.69	35.3
16-20	83	76	57	75.0	48.9	267	126	47.1
21-25	96	177	66	37.2	77.5	310	143	46.1
26-30	98	106	39	36.7	94.4	183	84	45.3
SEPT. 1-3*	98	31	13	41.9	100	61	18	29.5
TOTALS AND AVERAGES		457	231	50.5		1085	453.07	41.8

* Dusted with calcium arsenate for leafworm.

** At this point weevils began to decrease bloom production and therefore boll set. Therefore 41.8 is per cent crop lost for only that part which was set.

*** 4.69 locks per boll=average.

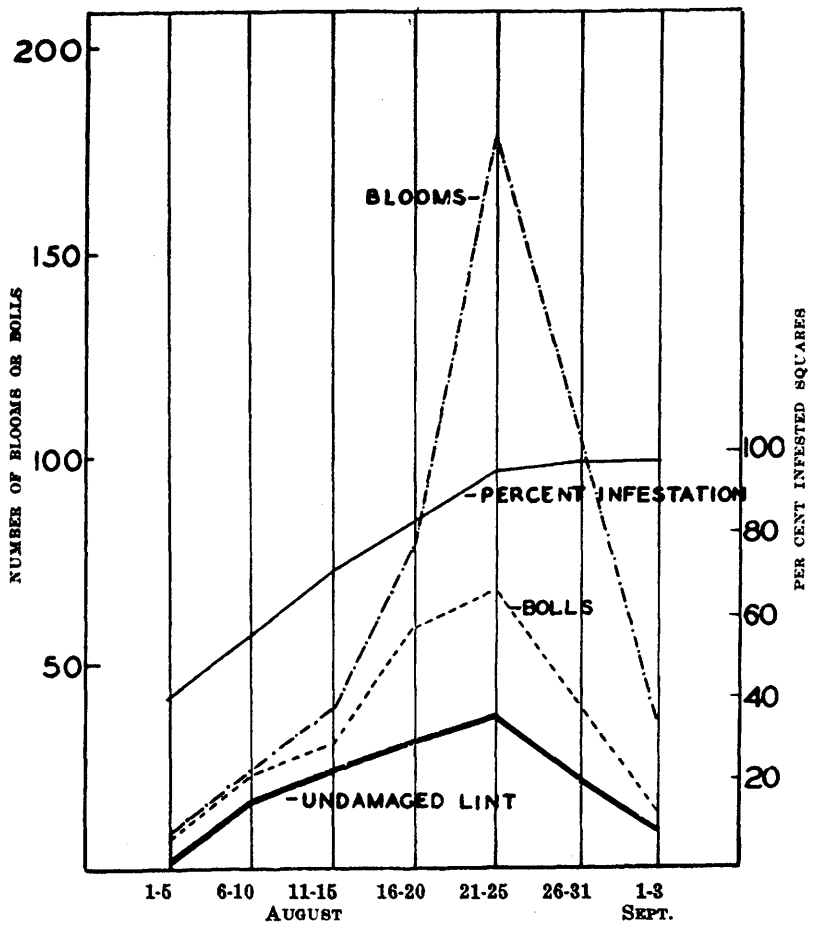

FIGURE 1. Boll Weevil Infestation and Damage in Relation to Cotton Fruiting. Stillwater, Oklahoma. 1952.

REFERENCES

1. FENTON, F. A. AND J. T. TIPPIT, 1949. The fruiting of cotton in relation to insect control. Proc. Oklahoma Acad. Sci. 29:37-38.

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