

# Insects on Baby Lima Beans

## control experiment using two applications of 5% DDT dust reduced insect injury and increased total yield

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One half of one per cent of the baby lima beans from a field dusted with DDT showed insect damage—compared to 12% in the check plot—following a control experiment during the 1951 season.

A number of species of insects in California feed on lima beans which tends to reduce the total yield and to affect the quality by blemishing the seed. When intended for canning or freezer pack, unblemished beans are essential.

In the San Joaquin Valley several species of bugs, notably *Lygus hesperus* Knight and *Lygus elisus* Van Duzee feed upon the bloom and developing beans. Losses from their feeding result from: 1, shedding of bloom and young pods; 2, failure of young pods to size up—buckskins—and 3, necrotic lesions on the seed.

The presence of too many beans with necrotic spots will cause a loss of grade

which frequently necessitates expensive hand removal costs. These costs can soon become prohibitive.

In addition to lygus bugs, there are a number of caterpillars which feed upon the pods and cause additional losses. The most important are the corn earworm, *Heliothis armigera* (Hbn.); the lima bean pod-borer, *Etiella zinckenella* Treit.; the bean lycaenid, *Strymon melinus* (Hbn.); salt marsh caterpillar, *Estigmene acrea* Drury; and the western yellow-striped armyworm, *Prodenia praefica* Grote.

A 30-acre field of Clark's bush baby lima beans near Patterson, Stanislaus County, intended for freezer pack, was found to have a high population of two species of lygus bugs when examined with an insect sweep net early in September 1951. In addition, larvae of the

corn earworm, lima bean pod borer and western yellow-striped armyworm were present in small numbers.

An experiment was initiated to determine how much benefit would result from the application of DDT to control the insects.

On September 5, there was an average of 2.9 lygus bugs per sweep in the field. This is considered to be a heavy population.

The first treatment with a 5% DDT dust was applied by airplane on September 7, 1951, at the rate of approximately 30 pounds per acre. A second application was made on September 20 at 35 pounds per acre. Approximately 0.5 acre was left untreated as a check.

Lygus counts were made at weekly intervals in both the treated and untreated areas. Counts were made by sweeping across two rows with an insect net, with five sweeps to a station.

The beans were cut for freezing on October 3, 1951, at which time the harvest samples were taken, consisting of 50 plants selected at random from the treated area and a like number from the check. All pods were removed from these plants and examined for lygus and worm damage. These were segregated, classified and counted.

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Average Number of *Lygus* spp. per Sweep in a Field of Clark's Bush Baby Limas at Patterson, California, 1951

Treatment	September 5			September 13			September 19			September 26		
	Adults	Nymphs	Total	Adults	Nymphs	Total	Adults	Nymphs	Total	Adults	Nymphs	Total
Check	1.8	1.1	2.9	0.9	3.6	4.5	1.4	6.0	7.4	1.4	1.3	2.7
DDT												
5 per cent	1.8	1.1	2.9	0.6	0.6	1.2	1.8	0.6	2.4	0.3	0.0	0.3
Per cent reduction under check				73%			68%			89%		

Results of Treating a Field of Baby Lima Beans for Lygus and Worm Control. Patterson 1951.

Condition of sample	Check		DDT, 5 per cent	
	Number	Per cent	Number	Per cent
<b>Damaged pods:</b>				
buckskin	100	8.1	11	0.6
severe worm*	45	3.7	21	1.1
superficial worm†	49	4.0	27	1.4
Total damaged	194	15.8	59	3.2
Undamaged pods	1033	84.0	1810	97.0
Total pods	1227		1869	
<b>Damaged beans:</b>				
necrotic beans	298	9.5	8	0.2
worm damaged*	77	2.5	13	0.32
Total damaged	375	12.0	21	0.5
Undamaged beans	2785	88.0	3916	99.5
Total beans	3160		2937	

\* Includes damage done by corn earworm, western yellow-striped armyworm, salt marsh caterpillar and bean lycaenid where pod was penetrated and seed was injured.

† Worm damage where the pod alone was scarred.

Comparative number of pods and beans injured by lygus bugs from sample of 50 plants from each plot. Left, treated; right, check.



