

# Flower Thrips Damages Safflower

—buds bronzed and blasted

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Safflower plants are particularly susceptible to damage due to flower thrips feeding, according to investigations started in 1961. Observations of plants and fields indicated that many young buds of safflower planted from early to mid season were turning bronze in color and were showing blast damage. This damage to the developing buds had previously been attributed entirely to lygus bugs, but much of this injury occurred early in May and prior to the onset of high lygus populations in the Davis area.

**M**icroscopic examinations, counts, and pictures led to the discovery that the western flower thrips, *Frank-*

*liniella occidentalis* (Pergande), was primarily responsible for the bronzing or browning and ultimate blasting of the buds. Most of this injury was caused by the feeding of the nymphs under the bracts of the buds. The counts indicated that only about three nymphs per bract or 18 to 20 per bud were needed to cause the damage. Later feeding by the nymphs on larger, maturing seed heads caused only superficial damage and no blasting, although the number of nymphs averaged 120 to 135 per seed head.

Safflower buds damaged by the flower thrips remained upright and straight but turned light bronze in color. The seriously affected buds became a darker bronze color, turned brown, later blasted, and were lost to the plant. Thrips injury to

the larger developing seed heads darkened the edges of some of the tougher bracts and caused a generally messy or dirty appearance, but resulted in only superficial damage. The number of buds blasted by lygus bugs was much less than formerly suspected. The buds generally became slightly sickle-shaped and ultimately blasted, but only when severe bug feeding occurred. Some of the small heads showed small, bug feeding punctures that sometimes destroyed a few seeds or blasted only an occasional head.

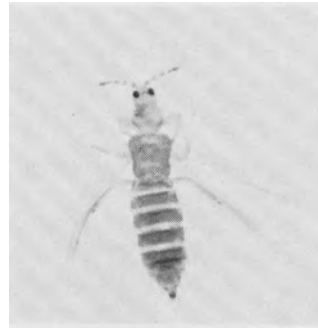
## Late plantings

Flower thrips damage was greater in the late-planted safflower, according to bud and seed head counts made during insecticidal performance experiments and in some commercial fields. Damage varied from 8 per cent severe bud injury and blasting in an early April planting of the variety Gila to a high of 40 per cent in a late planting of Pacific 7. Seed yield was increased by one insecticide applied by aircraft at the onset of bloom in only one late planting of Gila. In this trial severe bud blasting by thrips amounted to 31.9 per cent in the control plots and 6.8 per cent in the treated areas. The increase in yield obtained was of a low order of significance. This indicated that a loss of buds due to thrips feeding of the seemingly high order of about 32 per cent was apparently only on the threshold of economic importance for the variety Gila.

Another important factor apparently involved in regard to safflower bud injury and blasting due to thrips is the high tolerance of safflower plants to insect damage. A fundamental study of plant compensation will be necessary to determine the amount of bud loss that these plants can endure before actual seed losses result from insect damage. It will also be necessary to determine the exact numbers of insects involved in injuring these plants, types of damage, time and plant stage of injury, and the best insecticides to use in control of injurious species.

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Safflower bud, left, blasted due to flower thrips feeding. To right, injury by flower thrips to a safflower seed head.

