

Field Seeding of Tomatoes

survey in Yolo County investigates performance and problems encountered under commercial conditions

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Approximately half of the 25,000-acre 1951 canning tomato crop in Yolo County was field seeded. Field seeding was first tried in Yolo County in 1946.

The main advantages of this method are: 1, less likelihood of diseases that are spread through handling, 2, a reduced risk of introducing certain diseases and pests into clean fields, and 3, close plant spacings without additional cost.

A survey covering 48 growers and representing 2,808 acres was made in 1950 to determine the performance of field seeding and the problems encountered under commercial conditions. This survey covers the two tomato producing areas of Woodland and Clarksburg.

Of the 2,808 acres field seeded, 2,231 acres were carried through to commercial harvest. Twenty-one per cent of the acreage planted failed and had to be transplanted by the conventional method. Failures were equally distributed between the Woodland and Clarksburg areas.

The entire acreage in the Clarksburg area was flat planted, while in the Woodland area 75% were flat plantings and 25% were planted on beds. Some of the flat plantings in the Woodland area required furrowing out for irrigation to insure adequate surface moisture for a stand. Regular seed was used by 85% of the growers; the remaining 15% used coated seed. Seed treatment for disease control was carried out by 89% of the growers. One grower used a lindane seed treatment for wireworm control.

Planting dates ranged from February 10 to April 25. Seventy-five per cent of the plantings were made during March. In the 10% of the plantings made in February average emergence was 21 days; in the 39% planted between March 1-15 average emergence was 20 days; in the 36% planted March 16-31 average emergence was 15 days; and the remaining 15% planted in April emerged in 10 days. There was a slightly higher percentage of failures in the February and April plantings. Planting late had very little effect on the earliness of harvest indicating that growers need not be too concerned if weather conditions delay plantings.

Seeding rate ranged from one fourth to one pound per acre of regular seed. Most growers—61% seeded one-third pound per acre, and 19% of the growers used the one-fourth pound rate. No par-

ticular advantage was gained by using more than one-third pound per acre, and one-fourth pound appeared ample. Coated seed was planted at 5 to 10 pounds per acre, including the coating material.

Depth of planting varied from 1/2" to 3 1/2". Plantings of 1/2" to 1"—36%—emerged in 18 days, and those planted 1" to 1 1/2"—37%—emerged in 17 days. Plantings of 1 1/2" to 2" deep—21%—emerged in 15 days, while the remaining 6% planted deeper than 2" emerged in 19 days. This data would indicate that depth of planting has little effect on the time of emergence.

No irrigations were required for emergence in the Clarksburg district, but 40% of the growers in the Woodland area had to irrigate. In the Clarksburg area 66% of the plantings were rolled to conserve moisture and break crust while 36% were rolled in the Woodland area.

Most of the fields—54%—were thinned during the month of May; 35% of the fields were thinned during April and the remaining 11% in June. Plant spacings within the row in all cases were 24" or less. Slightly more growers—52%—left a spacing of 12" to 18" in the row than 18" to 24"—46%. Row spacing in the Clarksburg area was about 5' while row spacing in the Woodland area was 5' to 6'.

The number of hoeings for weed control varied from one to four times. Most fields—53%—were hoed two times, 26% were hoed three times, and 17% one time. There was even more variation in the number of cultivations, presumably for weed control. A breakdown of the cultivations shows that 12% of the growers cultivated once; 35%, three times; 25%, four times; 20%, five times; 4%, six times; and 4%, seven times.

Insect damage was quite general after the seedlings emerged as the small plants are very vulnerable to insect attack. Flea beetles and darkling ground beetles were the most serious insect pests. Flea beetle damage was reported by 64% of the growers and darkling ground beetle damage by 23% of the growers. It is reasonable to believe that the darkling ground beetle damaged more fields than detected because of their habit of hiding under clods and other debris during the day. Two growers reported wireworm damage and one grower reported centipede damage. Aphids, mainly the winged form,

were numerous on tomato plants during the early season. However, they did little damage and soon disappeared when the weather became warmer.

A 5% DDT dust, at the rate of 10 to 30 pounds per acre—depending on method of application—was used by 55% of the growers for insect control. This material was preferred over cryolite, used by 27% of the growers and at the rate of 5 to 25 pounds per acre. A 5% DDD dust was used by 22% of the growers. Two growers used lindane for aphid control. No injury to the plant was reported from the use of these materials.

Failures listed in the order of importance were due to: 1, lack of surface moisture for germination, 2, heavy crusting, preventing emergence, 3, insect damage—flea beetles, ground beetles, wireworms and centipedes, 4, early weed competition, and 5, poor seed bed.

The results of this survey indicate that tomatoes can be grown successfully in Yolo County by the field-seeded method. This method involves greater risks than transplanting—failures occurred in one out of five fields planted during 1950. Under some conditions, the conventional transplanting method of growing tomatoes is more reliable than the field-seeded method. The number of failures may vary from year to year depending on weather, weed, soil, and other conditions. When fields are carried through to maturity, the yields and the time of maturity are about the same for both methods, where approximately the same number of plants are used per acre.

During 1951, transplanted fields in many cases matured a little earlier and yielded slightly more than field-seeded fields. Adverse weather conditions during early spring caused slow growth of the field-seeded plants. On the other hand, bacterial canker and tobacco mosaic were more prevalent in transplanted fields. The record breaking tomato crop in Yolo County in 1951 would indicate that either method will produce satisfactory yields.

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