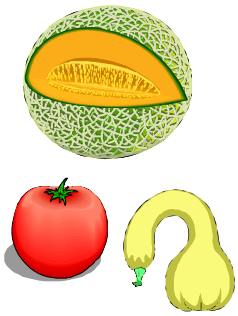

VEGETABLE CROPS FACTS

Merced and Madera Counties

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION 2145 WARDROBE AVE., MERCED, CA 95340 (209) 385-7403

2000 VEGETABLE CROP SUMMARY

According to the California Agriculture Statistic Service, California vegetable crop production (excluding potatoes) was 11.7 million tons, 3 percent more than the previous year. California continued to be the leading fresh market State, accounting for 48 percent of the production and 53 percent of the value for the United States. Like any year, certain crops increased in value and other decreased. Crops that had value increases included bell peppers, broccoli, cauliflower, lettuce, watermelons, and fresh market tomatoes. Crops showing a decrease included asparagus, garlic, cantaloupes, spring onions, and sweet corn.

California's processing tomato production in 2000 was 10.3 million tons, 16 percent below the 1999 production. Harvested acreage was 271,000 acres. Merced county harvested 14,600 acres with an outstanding average yield of 39.42 tons per acre.

As of January 15, California's tomato processors expect to contract for 8.9 million tons in 2001, on roughly 244,000 acres.

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March, 2001

Vegetable acreage for selected crops in Merced County in 2000.

Lima Beans	2593	Sweetpotatoes	9200
Cantaloupe	7167	Fresh Market Tomatoes	10,162
Honeydew Melons	1151	Processing Tomatoes	19,094
Bell Peppers	405	Watermelon	557
Madera County Veg Crops Acres:	4000		

Average date of last spring frost (based on 1980—2000 data):

Getting the itch to start putting out transplants? The following dates may help decide if it's safe. Keep in mind that in 1 year out of 10 the Merced area gets a freeze in April.

Merced:	March 4
Los Banos:	February 13
Ballico/Delhi:	March 13
LeGrand:	March 2

Cooperative Extension Work in Agriculture, Home Economics and 4-H, U.S. Department of Agriculture, University of California, and county of Merced Cooperating

COVER CROPS AND NO-TILL IN PROCESSING TOMATOES

No-tillage and cover crops for tomato production are nothing new—if you live in the mid-west or the east. In those areas, winter cover crops and reduced tillage have been used for years as an effective way to reduce soil erosion and increase soil organic matter. But in the San Joaquin Valley, with our flat, furrow irrigated fields, the concept is relatively untested. Because no-till offers the potential for reduced input costs, however, interest in this system is growing. The good news is that recent research trials by UCCE Specialists and Farm Advisors demonstrate the feasibility of no-till production and cover crops in furrow irrigated processing tomatoes [1].

A no-till and cover crop production system was evaluated in 1997 and 1998 at Five Points, CA. Four winter cover crops were planted and compared to a tilled + fallow system that did or did not use herbicides. The cover crops were killed in the spring, but left on top of the bed to provide a mat for weed control, and to provide organic matter to the soil. Tomato seedlings were then transplanted into the cover crop residue. Three different nitrogen rates were used (0, 100, and 200 lbs/A) to see if the cover crops also had a nitrogen benefit.

Table 1. Weed cover in 1998 and tomato yield in 1997 as effected by cover crop treatment. Values with the same letter are not significantly different.

Cover Crop Treatment	Weed Cover (%) June 1998	Yield (tons/A) 1997
Fallow + herbicide	1.5 a	41 a
Fallow, no herbicide	8.0 b	38 ab
Sava	7.0 b	36 b
Sephi	11.0 b	26 c
Triticale/vetch	9.0 b	37 ab
Rye/vetch	9.0 b	35 b

1. E.V. Herrero, J.P. Mitchell, W.T. Lanini, S.R. Temple, E.M. Miyao, R..D. Morse, and E. Campiglia. Use of cover crop mulches in a no-till furrow irrigated processing tomato production system. 2001. HortTechnology 11: 43-48.

Relatively good weed control was obtained by using cover crops. In 1997, no differences were found between the cover crops and the fallow control treatments. In 1998, weed suppression was best in the fallow plus herbicide, though the cover crops still did a reasonable job of suppressing weeds (Table 1). Tomato yields were best in the triticale/vetch and fallow treatments in 1997 (Table 1), but there were no differences in yield in 1998.

For a producer, cover crops and no-tillage may reduce input costs by suppressing weeds and decreasing the number of cultivations and/or trips through the field. Reducing nitrogen fertilizer requirements may or may not occur. In California, the lack of summer rain keeps the cover crop from breaking down during the growing season, thus keeping organic N from getting into the crop. Indeed, this experiment found that N availability did not match crop uptake. Tissue N concentrations were consistently lower in the tomatoes grown with a cover crop than under fallow conditions.

Another point to consider is that cover crops keep the soil cooler, especially in the spring, which slows root development and tomato growth.

While this study did not observe an increase in tomato yield with the use of cover crops, it did show that with the proper equipment and techniques, planting, irrigating, and harvesting could be performed in furrow irrigated processing tomatoes. Furthermore, it also showed that weed suppression may be a possible benefit from using cover crops. Additional research is planned to determine the best cover crops for our growing area for weed suppression and nitrogen fertilizer potential.

For more information on this and other conservation tillage research in the San Joaquin Valley, contact Dr. Jeff Mitchell, UCCE Vegetable Crops Specialist, at 559-646-6565. If you would like to see this research and con-till equipment, conservation tillage field days are planned for June 26 and June 28, 2001, at Five Points and Davis, CA.

2000 TOMATO RESEARCH SUMMARY

We conducted several experiments in fresh market and processing tomatoes in Merced County last year. Below are brief summaries for each of these trials. For a complete report, contact Bill Weir or Scott Stoddard at the Merced County Extension Office at (209) 385-7403.

- Fresh Market Variety Trial. Yields ranged from 33 to 16 tons/A (2640 to 1330 boxes/A). Quali T 21 and T23 (Novartis Seeds) had best production of XL fruit. RFT 4041 (Novartis) looks especially promising.
- Processing Tomato Variety Trial. Yields ranged from 45 to 26 tons/A. Heinz yielded very well, with 5 of the top 7 slots. H9663, H8892, and CXD 199 (Campbells) had best brix tonnage production.
- Centrate on Processing Tomatoes. A liquid manure blend applied as a sidedress. Results inconclusive.
- Donlar DXL510. A liquid anionic amino acid polymer was sidedressed on processing tomatoes. A positive yield increase at one location, no difference at another.
- Sidedress Nitrogen Trial. Different sidedress N rates, ranging from 0 to 210 lbs/A, were tested at two sites on processing tomatoes. Best yields occurred at 70 or 105 lbs N/A, depending on the amount of pre-plant nitrogen. At both locations, best overall yields occurred when the total N applied was about 125 lbs/A.
- Aphid Control Trial. Second year for testing three new Novartis insecticides (Fulfill, Actara, and Platinum) were tested for their efficacy on aphids in processing tomatoes. Though insect pressure was low, all three compounds significantly reduced aphid counts compared to the untreated control.
- BASF 500 for Early and Late Blight Control. Results inconclusive because of a lack of disease pressure.
- Foliar Micronutrients on Processing Tomatoes. Albion amino acid chelated micronutrients foliar and sidedressed. We saw a trend for increased yields with foliar application of micronutrients.

STARTER FERTILIZER FOR DIRECT SEEDED AND TRANSPLANT TOMATOES

When planting into cool soil conditions, direct seeded and transplant tomatoes may benefit from a little starter fertilizer. Previous trials in the county have shown yield increases from a starter, and even if a yield increase does not occur, the plants may be more thrifty early in the season.

Starters are typically a liquid nitrogen and phosphorous fertilizer, such as 10-34-0 or similar (liquid ammonium phosphate). These materials usually have a very low salt index and are very safe when applied at low rates.

For transplants, recommended rates are 5 to 15 gallons of 10-34-0 per acre, usually in 200 to 400 gallons of water. This supplies approximately 5 to 15 lbs of N per acre. In direct-seeded fields, apply 10-34-0 to supply 5 to 10 lbs of N/A, in a narrow band 1—2 inches below the seed line. This is about 5 to 10 gallons of product per acre, but it is not diluted with water.

SOIL TESTING

UCCE fertilizer guidelines based on soil tests for tomatoes are given below. Many warm season crops follow the same guidelines.

Nitrogen: 120—180 lbs per acre. At least half should be sidedressed at 3 to 5 true leaves. Note that we have not seen yield responses in processing tomatoes at more than 125 lbs N/A (total N inputs).

Phosphorous (P): 6—12 ppm. Below 6 ppm, apply 100-120 lbs of P2O5 per acre.

Potassium (K): 80—120 ppm. Below 80 ppm, apply 100-200 lbs K2O per acre.

Zinc (Zn): 0.3—0.7 ppm. Below 0.3 ppm, apply 5-10 lbs Zn per acre. Zn can be applied with starter. Foliar applications are also effective.

Boron (B): 0.1—0.5 ppm. Avoid high levels whenever possible. Below 0.1 ppm, can apply 5-10 lbs B per acre. Foliar applications are safe and effective.

NEW REPORTS AVAILABLE

The following reports are available for no charge or for a nominal fee at the Merced and Madera County Extension Offices:

- 2000 Tomato Research Progress Report
- 2000 Sweetpotato Research Progress Report
- 2000 Bell Pepper Research Report
- Sample Costs to Produce Processing Tomatoes, 2000
- Sample Costs to Produce Fresh Market Tomatoes, 2000
- Fresh Market Tomato Production in California

UPCOMING MEETINGS:

- **Conservation tillage 2001, June 26 and June 28 at Five Points or Davis, CA.**
- **Regional Fresh Marked Tomato Field Day, LeGrand, CA. Late July or Early August**.

Bill Weir

Bill Weir
Farm Advisor