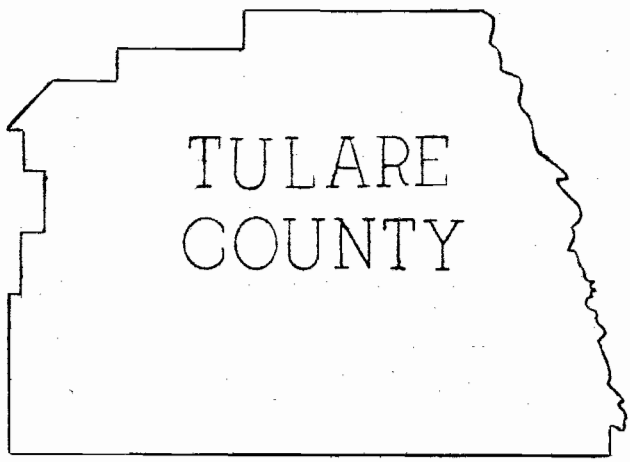


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WATERMELON GROWING

FOR



UNIVERSITY OF CALIFORNIA
AGRICULTURAL EXTENSION SERVICE
POST OFFICE BUILDING, VISALIA
TULARE COUNTY

UC Cooperative Extension

This pamphlet has been written for Tulare County conditions.

Some of the information has been taken from the multilith entitled, **Watermelon Production in California** dated March, 1949 by **Glen N. Davis** and **P. A. Minges**.

WATERMELON GROWING

Vincent H. Schweers

Farm Advisor

INTRODUCTION

The watermelon is a warm season crop of the cucurbit group well adapted to Tulare County conditions. It is highly regarded as a dessert food in hot weather but has little consumer appeal in cold weather.

About 40 per cent of the California crop is marketed within the state, with the remainder moving to markets in the Pacific Northwest, the mountain states and western Canada. Occasionally a few cars of the early crop move into the middle west.

Competition is strong for the mid-west markets as the southern states also supply these markets.

VARIETIES

Relatively few varieties are well adapted to Tulare County so care should be taken in selecting the variety for commercial use. A melon weighing 20 to 25 pounds is preferred on the west coast markets.

Green rind types are the most popular, however the striped types can also be grown.

Only varieties resistant to Fusarium wilt should be planted on land that has been planted to watermelons before.

Klondike R 7 and Blue Ribbon are wilt resistant varieties that have been developed for California growing conditions. The Klondike R 7 has a solid green rind. The Blue Ribbon is quite similar to the older

striped Klondike. The fruits of these two varieties weigh 18 to 25 pounds and are of excellent quality. They are suitable for shipping, local market, or home garden purposes. These varieties may be planted on new land or on soil previously planted to watermelons.

Klondike and Striped Klondike are the main wilt susceptible varieties used. The most popular green rind type is the black seeded No. 3 strain, also known as Natural Klondike. Others are a brown seeded strain and the Peacock a black seeded strain with excellent shipping ability. Striped Klondike No. 11 is an improved strain of this striped variety.

It is generally safe to plant the wilt susceptible varieties on new land, but a second crop should not be grown until at least 12 years have elapsed. On soil badly infested with wilt 12 years may not be a long enough interval between watermelon crops.

CLIMATE

Watermelons require at least a four months frost free growing season. Optimum soil temperatures for germination are 75° to 85°F. Below 70°F germination is slow and poor.

SOIL

Well drained, sandy soils or sandy loams are preferred for watermelon production. Heavy clay and adobe soils should be avoided.

DAYS TO HARVEST

The length of the growing period from seeding to first harvest will vary with the variety and the season of the year. Early plantings may require up to 150 days, while later plantings may require 100 to 120 days. One planting may be harvested several times, usually at 5 day intervals.

YIELD

Ten tons per acre is considered a good commercial yield in Tulare County. Some growers report yields up to 18 ton per acre. Yields depend on the length of the picking season. Picking usually ceases when prices drop to an unprofitable level.

If the hills are spaced at 7 foot intervals in the rows, and the rows are alternately spaced at 7 and 10 feet, there will be about 700 hills per acre, depending on the length of rows. If two 20 pound melons are harvested per hill, the yield will be about 14 ton per acre.

SOIL PREPARATION

Some type of crop rotation should be practiced. Deep rooting perennials or a cover crop may help to solve water penetration problems.

The soil should be worked into seed-bed shape by plowing, discing and floating or other working as needed.

The soil should have good moisture to a depth of 6 feet or more, as the plants will root this deep if they are not restricted by dry soil or a compacted layer. A pre-irrigation may be necessary to insure an adequate moisture supply.

PLANTING

Planting is usually done on the flat in Tulare County. The rows are alternated at 7 and 10 feet spacing. In this arrangement a large irrigation ditch is made in the 7 foot space, and the vines are turned into the 10 foot space as they form. The large irrigation ditch, similar to a head ditch, is formed when the vines begin to form.

WHAT WILL IT COST TO GROW WATERMELONS IN TULARE COUNTY

Vincent Schweers *

Based on a yield of 10 tons per acre

Burt Burlingame **

Man labor at \$.90 and \$1.05; tractor - medium track type \$2.75; light wheel \$1.25/hr.

	Sample costs	
	Per acre	Per ton
<u>Pre-harvest Labor and Material Costs:</u>		
Land preparation: man and track tractor 3 hrs.	11.40	
Planting: (machine) 2 men and tractor 1/2 hr.	2.35	
Seed: 3 pounds @ \$1.50	4.50	
Hot capping - contract @ \$3.50 per 1,000	2.60	
Hot caps - @ \$15 per 1,000	11.00	
Hoe, thin, remove caps and replant: 17 hrs.	15.30	
Cultivate: 4X man and light tractor 2 hrs.	4.60	
Fertilize - man and light tractor 1/2 hr.	1.15	
Fertilizer - 60 lbs. nitrogen	9.00	
Ditch for irrigation - man and track tractor .3 hr.	1.14	
Irrigate: 10X - 12 man hrs.	10.80	
Water: power and tax for 20 inches @ \$2 per A. ft.	3.33	
Dusting: 3X - hand - 3 man hrs.	2.70	
Dust: 15 lbs. @ 19¢	2.85	
Turning runners: 4X - 2 man hrs.	1.80	
Miscellaneous labor and material	5.00	
Total Pre-harvest Labor, Field Power and Material	89.52	8.95
<u>Harvesting Costs:</u>		
Picking - contract @ \$2.25 per ton	22.50	2.25
Haul out and load truck (roadside)	52.50	5.25
Total Harvesting Cost	75.00	7.50
<u>Cash Overhead Costs:</u>		
General expense @ 5% of labor and material	8.23	
County taxes	6.00	
Miscellaneous repairs, insurance, etc.	3.00	
Total Cash Overhead Costs	17.23	1.72
Total Cash, Labor and Field Power Costs:	181.75	18.17
<u>Depreciation:</u>		
Irrigation facilities \$90 original cost	5.50	
Equipment, except tractor \$20 - 10 yrs.	2.00	
Total Depreciation	7.50	.75
<u>Interest on Investment @ 5%:</u>		
Irrigation facilities - @ 1/2 original cost (\$45)	2.25	
Equipment, except tractor @ 1/2 original cost	.50	
Land at \$700	35.00	
Total Interest on Investment	37.75	3.78
Total Cost of Production	227.00	22.70

The above costs are based on watermelons as the only crop for the year. If a winter crop were grown in rotation overhead costs of depreciation, interest and taxes would be partly reduced.

Machine planting is assumed in the above costs which accounts for higher seed costs than hand planting. Hand planting, however, would increase total costs of production by approximately \$20 per acre.

Hot capping included above is not always practiced, but usually insures early harvest.

* Farm Advisor, Tulare County

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Several growers use a modified sled planter that spans the 7 foot space, planting 2 rows at one time. The field is cross-marked at 7 foot intervals to space the hills before planting is started. The planter can be raised between marks, planting only a 2 foot section over each mark. Some growers drill complete rows across the field. If covers are to be used, the covers are placed over the cross-marks usually covering 3 or 4 seeds.

The short handled hoe is used for planting by some growers. From 5 to 8 seeds are dropped per hill. The plants are later thinned to 2 or 3 plants per hill. The seeds are planted from 1 to $1\frac{1}{2}$ inches deep.

PLANT COVERS

Hot caps are used on early plantings. With clear weather the covers speed germination, early growth and afford some frost protection. The caps are put on at time of seeding and should be cut open to provide ventilation when the plants are 2 or 3 inches high. The covers are removed at the time of thinning.

CULTIVATION

Hand hoeing is usually required at the time of thinning. Cultivation for weed control should be shallow, as watermelons send out numerous long shallow roots and injury to these by deep tillage may seriously retard growth.

Permanent irrigation ditches should be formed early to avoid serious root pruning. Permanent ditches are usually made when the plants begin to form vines.

IRRIGATION

The soil should be filled with moisture to a depth of at least 6 feet at the time of planting. Watermelons root rapidly and the root system when fully

established penetrates to a depth of 6 feet or more. Accordingly the moisture present at the time of planting will carry the crop well into the growing season. Irrigations later in the season are essential and at least 15 acre inches of water should be provided. With uniform distribution of the water and good penetration this amount can be supplied in 3 or 4 irrigations. The crop should not be allowed to suffer from lack of moisture at any time.

Most growers put in just one fairly deep "V" ditch in the center of the 7 foot row space. Improved distribution of water throughout the root zone may permit a fewer number of irrigations without endangering the moisture supply of the crop. The melon fruits in the furrows will not rot from contact with water unless the soil is kept moist continuously.

FERTILIZERS

Nitrogen fertilizers are needed to produce maximum yields. Phosphorus applications may be beneficial in some areas of the county.

On soils low in fertility a light application of fertilizer at planting time or as soon as the plant emerges is advisable.

A common practice is to use one treatment of ammonia gas drilled into the soil shortly before the permanent irrigation ditch is formed. The fertilizer is usually placed about 18 to 24 inches from the plant and drilled 8 to 10 inches deep. A total of 60 to 75 pounds of actual nitrogen is applied per acre. Ammonia sulfate can be used to supply the nitrogen, or 16-20-0 will supply both nitrogen and phosphorus.

Barnyard manures worked into the soil will give some plant food and usually helps to obtain better water penetration.

FRUIT SET AND FRUIT PRUNING

Male and female flowers develop on the same plants at the ratio of about 7 to 1. Insects, usually bees, do the pollinating. Poor or inadequate pollination is sometimes the cause of mishappen fruits. The fruits set more or less irregularly throughout the season, but a vine will seldom mature more than 2 good melons. Fruit pruning is sometimes practiced to increase size or to obtain greater uniformity of size and shape. After several melons set, 2 or 3 of the best ones are selected and the rest are cut from the vines. Pruning or other disturbance of the vines is detrimental.

CONTROL OF INSECTS

Wireworms

1. Soil fumigation using EDB 85 liquid at 4 to 6 gallons per acre 2 to 3 weeks before planting.
2. Soil treatment with 3 to 5 pounds actual Aldrin per acre disked into the soil 3 to 4 inches deep 2 to 3 weeks before planting.
3. Seed treatment with Lindane will help especially for replanting. Use 4 ounces of 25% material or 1.33 ounce of 75% material per 100 pounds of seed.

Aphids

Treatment should be light but thorough coverage necessary.

1. Nicotine 10 above 70°F or Nicotine 10 F under 70°F at 30 to 40 pounds per acre.
2. Parathion 2% dust at 30 to 40 pounds per acre.
3. TEPP 1% dust at 30 to 40 pounds per acre. Some burning may appear on leaves in hot weather.

Mites

Treatment should be light but thorough coverage necessary.

1. Aramite 3% dust at 30 to 35 pounds per acre.
2. Ovotran $7\frac{1}{2}$ to 10% dust at 30 to 35 pounds per acre.
3. Parathion 2% dust 30 to 40 pounds per acre.
4. TEPP 1% dust 30 to 40 pounds per acre, repeat 5 to 7 days.

CONTROL OF DISEASE

Watermelon wilt

Watermelon wilt is a fungus disease that lives from year to year in the soil. No control other than resistant varieties is practical at the present time.

Damping-off

This problem generally arises following a late rain. The soil surface must be wet around the plant. Some cultivation or hoeing around the plants to dry the soil will be of some help.