



## HAWAII COOPERATIVE EXTENSION SERVICE

College of Tropical Agriculture and Human Resources

HOME GARDEN VEGETABLE SERIES No. 5

### TOMATOES

by J. C. Gilbert, Yukio Nakagawa & Richard Sakuoka\*

Tomatoes can be grown the year around at most localities in Hawaii by choosing the best adapted varieties and following a few proven cultural practices. The success of a crop of tomatoes will depend largely on the choice of the varieties in relation to the location and type of culture—pruned and staked, unpruned and unstaked, or pot culture in 3- to 5-gallon containers.

#### Varieties to Plant

The F<sub>1</sub> hybrids: N-5, N-52, N-65 and N-69, and varieties Anahu, Healani, Kalohi and Puunui were developed for resistance to the common root-knot nematode and resistance and tolerance to several other common tomato diseases by the College of Tropical Agriculture, University of Hawaii. All hybrids and varieties are adapted to the growing conditions throughout the state, but the F<sub>1</sub> hybrids are better suited for prune-and-stake culture. The Florida varieties, Tropic and Floradel, are also adapted but are not resistant to the common strain of root-knot nematode prevalent in Hawaii soils.

#### Type of Culture

Prune-and-stake culture should be the most practical for the home garden since it affords the greatest number of plants in a given area, with the fruits kept off the ground to prevent soil rot problems.

Seedlings raised in flats or peat pots are transplanted to the garden 3- to 5-weeks after seeding. Space plants 15-inches apart in rows spaced 24- to 30-inches apart. As the plants grow, remove all side shoots arising from the leaf axils, leaving only the central shoot. Place support stakes, 4- to 5-foot long, next to the seedlings and tie the vines to the stakes at 12- to 15-inch intervals with twistems, raffia or other tying material.

Plants also may be grown in circular cages made of 6 x 6-inch hog or construction wire netting, 3½- to 4-feet high with a 16- to 18-inch diameter. With

this method the plants are left unpruned and unstaked.

Plastic planting containers (3- to 5-gallon size) could also be used for growing one plant per pot of the special "bush" type tomato varieties such as Pixie hybrid, Tiny Tim, and Healani. Even with this type of culture, it is best to support the plants by short stakes or wire netting.

#### Soil & Fertilizer Requirements

Tomatoes will do best on well drained soils with a pH of 5.5 to 7.0. Soils with a pH below 5.5 or those in high rainfall areas usually will require pre-plant application of agricultural lime or hydrated lime to correct the pH and increase the calcium content of the soil.

Apply well-rotted manure (preferably fumigated) or compost at the rate of 10- to 20-pounds per 100 square feet of garden area, and work into the soil before planting.

Make a second fertilizer application after first fruit set, using 10-30-10 or 10-20-20, fertilizer. Apply ¼-cupful of fertilizer in a circle 6- to 8-inches from the base of the plants and 3- to 4-inches deep. Apply additional fertilizer once every two weeks after harvest begins. Sulfate of ammonia 21-0-0 could be applied as a top dressing, using 1- to 2-tablespoons per plant, applied 8- to 10-inches from the base of the plants and watered into the soil.

#### Irrigation

Irrigate an average of 1- to 2-times per week during periods of little or no rainfall before fruit set. After fruit set, 2- to 3-irrigations per week with heavy soaking (not light sprinkling) will be necessary for most soils and localities. Plants grown in containers will need watering at least once a day after plants set fruit. Lack of soil moisture or root damage will produce fruits with blackened dried spots on the

bottoms of the developing fruits (blossom end rot).

#### **Pest Management**

Tomato plants and fruits are commonly attacked by numerous insects and diseases; therefore, some control measure must be taken to raise a successful crop. A general purpose tomato spray, available under various trade names at garden shops can be used according to the direction on the labels. For the persistent pests, such as white flies and leaf-miners, diazinon and/or dimethoate (Cygon) may be applied according to the label directions. Bagging of the developing fruit clusters with cloth bags or paper sacks (not plastic bags) may be necessary to protect the fruits from melon flies in some area. The use of fungicides, such as maneb, zineb, folpet, basic copper or Bravo, may be necessary during wet weather to control foliar disease such as late blight.

**CAUTION:** In applying pesticide chemicals, read the label carefully and follow the direc-

tions for use, storage and disposal and all other precautionary measures to prevent poisoning and environmental contamination.

#### **Harvesting**

The fruits should be harvested no sooner than the pink or breaker stage when pink color appears on the bottom of the fruits. Fruits picked three-fourths to fully ripe will taste better than those picked less ripe. On the average, 2- to 3-harvests per week will be necessary.

\*Horticulturist, Specialist in Horticulture, and Seed Specialist, respectively.

**NOTE:** The use of trade names is for the convenience of the readers only and does not constitute an endorsement of these products by the University of Hawaii, College of Tropical Agriculture, Cooperative Extension Service, or its employees.

March, 1978 (revised)