

Commercial Production of Striped Klondike Watermelons

Prepared by HERMAN E. BIERMAN
Umatilla County Extension Agent, OSU Extension Service

Watermelons are a specialty crop in the Hermiston area. With the development of desert lands under sprinkler irrigation, the potential is equal to the markets which can be reached economically.

Land selection

Well-drained, nonalkaline soil is required, and loamy sand to sandy loam is favored. However, good crops have been grown on very fine sandy loam and loam soils. A field free from the soil-borne disease, Fusarium wilt, helps assure a crop. A soil depth of at least 4 feet is desirable. Melons utilize soil moisture to a depth of 4 feet or more.

Varieties

Striped Klondike watermelons are preferred for Pacific Northwest markets. SK No. 11 is a favored variety, but it is susceptible to Fusarium wilt.

Substitute varieties—SK Blue Ribbon and the striped, roundish Crimson Sweet—are classed as tolerant to Fusarium wilt. Crimson Sweet matures seven days earlier than SK No. 11. SK Blue Ribbons are somewhat earlier maturing than SK No. 11.

Windbreaks

Grain-row windbreaks are established to reduce wind problems that can be very serious. Windbreaks also help to provide a warmer soil and ward off leafhoppers.

Winter wheat varieties, Moro or Wanzer, or ryegrain should be seeded in the fall after irrigation and fertilization. Spring barley is popular for February plantings.

Make a thick planting with three kernels of grain an inch. For one acre, this takes around 10 pounds of barley, 9 pounds of wheat, or 8 pounds of rye to seed rows every 12 feet.

Windbreaks should be cultivated after they are well established. They should be cut off or rototilled around

June 25. Do this job early enough so the tractor wheels will not ruin the vines.

Planting date

April 10 to May 5 has been found to be a favorable planting period. However, the best date to plant depends upon climatic conditions which affect soil temperature. Soil temperature of 55 to 60 degrees average for 48 hours at the 4-inch soil depth is desirable. Soil temperature is recorded at the Umatilla Experiment Station near Hermiston.

Row spacing

Growers plant rows 10, 11, or 12 feet apart. Select the interval that fits your operations. Closer row spacings are possible under conditions of excellent management when very close attention is given to fertility, weed control, and irrigation.

Planting rates and depth

According to research studies by Tom Davidson, superintendent, Umatilla Experiment Station, there is no significant yield difference in plant spacing 12, 18, 24, or 36 inches in the row. However, the closer spacing helps tie vines together to prevent wind damage.

It is popular to plant six to eight seeds every 24 inches. It takes around 1.25 pounds of seed to plant an acre. Hills are thinned to two plants in May. Then in early June (second hoeing) leave one plant every 24 inches.

Andy Duncan, OSU Extension vegetable production specialist, reports that spacings of 16 to 24 square feet per plant have been found to suit the varieties recommended. Spacing arrangements approaching a square such as 4 x 4, 4 x 5, or 4 x 6 should be tried on a small scale.

Using the depth control gauges on your planter, place the seed about 1 inch deep.

Soil management

It is desirable to have your soil firm, moist, and fertile to promote uniform germination and early growth.

Wind erosion can cause severe loss. Leave your soil surface in a cloddy, trashy condition. To form clods, till your soil when it is wet. It is not necessary to keep all of the area between your windbreaks weed free until just prior to occupation by vine growth.

Tillage by rod weeders, spring tooth, and subsurface sweeps has been found desirable.

Fertility management

On virgin desert or grain stubble land, fertilizer requirements for an acre range from 90 to 120 pounds actual nitrogen, 50 to 80 pounds P_2O_5 (depending upon soil tests), and 30 to 50 pounds sulfur.

Following fall irrigation, broadcast 300 pounds of ammonium sulfate or inject 60 pounds actual nitrogen in the ammonia form.

Place 16-20 (Ammo-phos) 5 to 6 inches deep with shanks spaced 8 to 12 inches apart prior to or at time of planting.

An alternative method under sprinkler irrigation is to broadcast and incorporate a 30-inch band of 16-20. The popular rate of 16-20-0-14 (ammonium-phosphate-sulfate) fertilizer is 300 pounds per acre. Some farmers mix their granulated aldrin with 16-20. A July application of additional nitrogen can be applied through irrigation water.

Irrigation management

Under sprinkler irrigation, watermelons have a low requirement. They need about 26 inches in 8 to 10 irrigations on loamy sand to sandy loam soils. Irrigation starts in the fall to assure establishment of grain windbreaks. Apply an irrigation to moisten 3 feet of soil. The 4-foot profile should be at field



This is one of a series of *Fact Sheets* reporting Cooperative Extension work in agriculture and home economics, Gene M. Lear, director. Printed and distributed in furtherance of Acts of Congress of May 8 and June 30, 1914. Oregon State University, Oregon counties, and U. S. Department of Agriculture cooperating.

capacity by June 20. September 1 winds up the irrigation season.

In 1967, Darrell Maxwell, county Extension agent, using tensiometers to measure soil moisture, found it took 27 inches (including fall irrigations) in 10 sprinkler irrigations. This amount was adequate during the extensive drouth and hot summer of 1967.

Around March 25, apply a light irrigation after soil insecticide has been incorporated. This firms the soil and brings wireworms to the treated zone. After planting, April 10 to 25, one or two light irrigations establish melons. Manage a warm moist soil, not one that is wet and cold.

Approximate summer irrigation needs are: May—3.5 inches, June—5.0, July—7.5, and August—7.0 inches by sprinkler. In all cases enough water should be applied to replace soil moisture removed from the root zone.

Soil moisture and irrigation management can be improved by the use of line meters which measure all water delivered to your fields. Tensiometers indicate soil moisture levels. Darrell Maxwell suggests three tensiometer readings as a guide to what is happening in moisture levels of 9, 18, and 36 inches. Soil moisture at the 9-inch level should not be depleted to more than a reading of 50 on the tensiometer. To evaluate your irrigation application, make your soil moisture probings or tensiometer readings 48 hours after irrigation.

Pollinization

Melons require pollination by bees. As bees search for nectar, they carry pollen from male blossoms to female blossoms. In areas where bees are scarce, set a hive of honey bees for every 6 acres before blossoms appear. Exercise extreme care with insecticides while bees are in the fields.

Insects

Cutworms and wireworms. Cutworms and wireworms can be controlled by incorporating aldrin at 2 to 3 pounds per acre, using spray or granular forms. Farmers treat one fourth of their fields in 2.5- to 3-foot strips. This takes $\frac{1}{2}$ to $\frac{3}{4}$ pounds actual aldrin per field acre.

Apply a light irrigation following soil incorporation of the insecticide. This provides a better chance to control soil pests.

Melon aphid. Melon aphids required control in one field in 1966. Diazinon was effective when applied by airplane. Follow the instructions on the labels.

Mites. Spider mites can be a problem. Control should be applied before loss has occurred. Use Kelthane (Miticide) in accordance with the registered label.

Leafhoppers. In 1967, the sugarbeet leafhopper transmitted curly top virus, which caused severe economic loss in some cases. Our watermelon varieties are moderately susceptible to this virus disease, according to Iain MacSwan, OSU Extension plant pathologist.

Observations in 1967 indicate that vigorous windbreaks (grain rows) help cut down on leafhopper invasion in May and June. Leafhoppers are native to the desert area. They are sucking insects that can transmit virus before an insecticide on the foliage can kill them. Additional research on leafhopper control is in progress.

Wildlife pest damage

Kangaroo rats (mice), pheasants, coyotes, and rabbits can damage your melon crop. Kangaroo rats dig up and pack off melon seed. Zinc-phosphide treated grain bait should be placed around your fields before and after planting. Apply the bait in accordance with established practices developed by OSU and the U. S. Fish and Wildlife Service.

An asphalt emulsion applied as a spray 4 inches wide over the row after planting prevents loss caused by mice and pheasants. It also prevents crusting and speeds emergence and early growth.

Disease control

Seedling blight. This soil-borne disease can be held to a minimum if you plant in a firm, moist, warm soil (average 60 degrees F for 48 hours at a 4-inch depth).

Altenaria early blight. This foliar fungus disease can cause severe loss if it spreads in June and July. You can help prevent losses from Altenaria early blight with spray applications of Maneb or Zineb fungicides from June 15 to August 15. Early sprays can be applied with a ground rig. After the vines have

covered the area, applications can be made by airplane.

Sunny, windy weather helps dry the foliage and cuts down spread. However, once this fungus disease has invaded the vine, there is no control. Fungicide sprays must be applied before infection takes place.

Curly top virus. Curly top virus is spread by the sugarbeet leafhopper. Our melon varieties are moderately susceptible and this virus was a critical problem in 1967. Vigorous windbreak rows hold down early infection.

It is hoped that a systemic insecticide program can be developed which will control sugarbeet leafhoppers. However, a new insecticide program must first be demonstrated before any recommendations can be made.

Fusarium wilt. Fusarium wilt is a soil-borne disease that lasts for many years once the soil has been infested. Wilt-tolerant varieties, SK Blue Ribbon and Crimson Sweet, should be planted on the second go-around in 8-year rotations. Wilt fungus spores can be spread by irrigation water from infested fields or by dust blowing from infested to clean land.

Harvest season

With good summer weather and favorable field conditions, harvest can start on July 25. August 1 to 5 is the usual full-swing harvest period. The Crimson Sweet variety matures seven days earlier than Striped Klondikes.

Marketing

Only vine-ripened U. S. No. 1 quality melons should be marketed. Smash your culls in the field. Shipping a quality product assures the satisfaction and buyer confidence on which your business depends.

Marketing is usually organized through brokerage concerns or the headquarters of supermarkets. Farmers truck their crops directly to their destinations. Distant shipments have been made by motor freight and railroad.

Yield production

Our area's annual average yields (marketed) have ranged from 6 to 12 tons an acre. In recent years, farmers report yields ranging from 3 to 23 tons an acre. A good crop is 15 tons an acre; the potential is 25 tons.