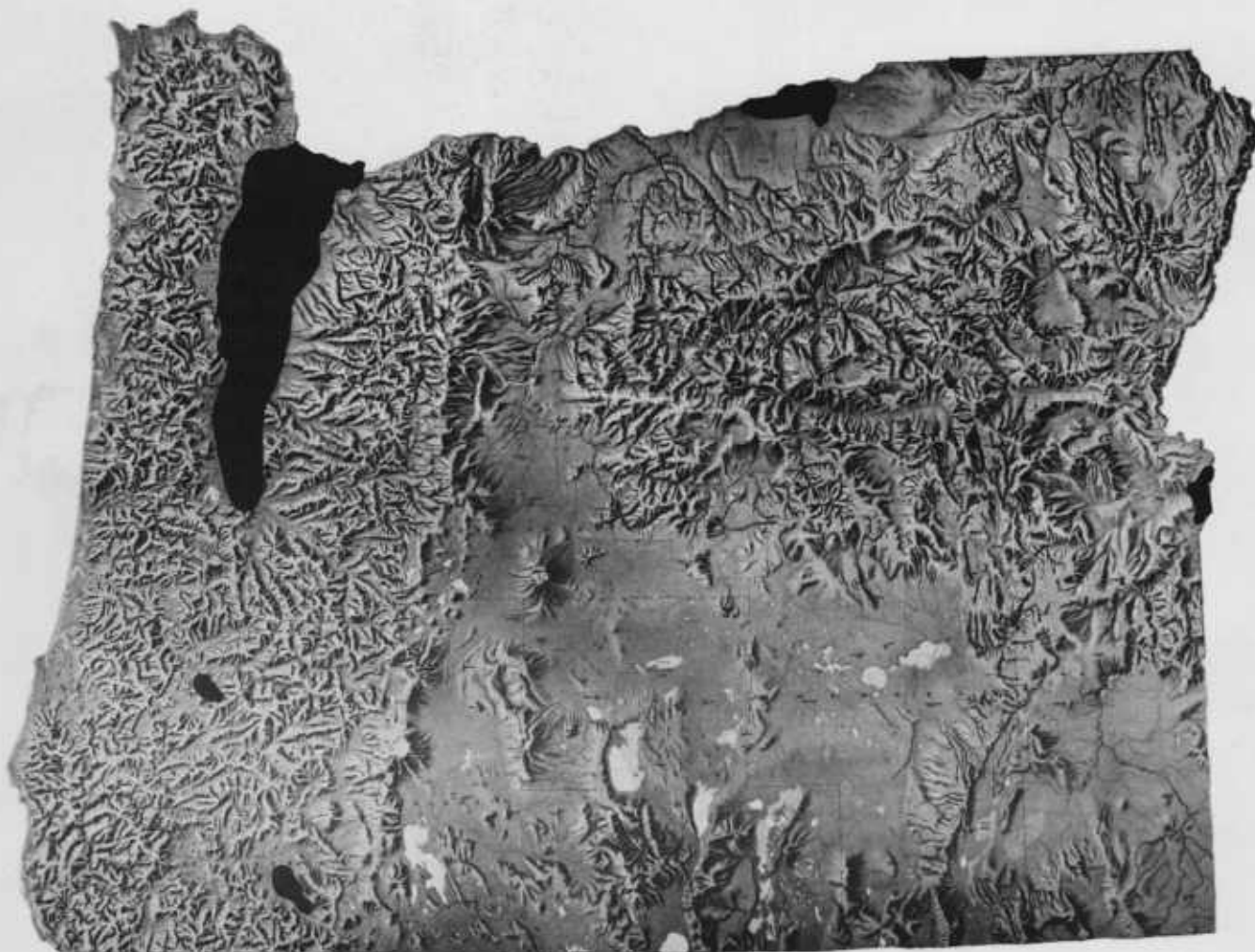


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Commercial Production of Sweet Corn for Processing in Oregon

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Commercial Sweet Corn Production Areas

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Production

		1971-1973 average	1974
Sweet Corn	Acreage	38,900	42,100
	yield T/A	6.92	7.23
	value \$/Ton	\$32.73	\$71.20

Soil requirements

Sweet corn grows on a wide range of soil types. For early plantings and late plantings, choose coarse-textured soils such as Chehalis and Newberg series. Main season soil series are the Willamette, Woodburn, and Malabon. Avoid planting on heavy, poorly drained soils such as Dayton, Amity, and Concord. Amity soils can prove satisfactory if tile drained.

In the lower Columbia Basin of north central Oregon, sweet corn is produced on Winchester coarse sand, Quincy fine sand and loamy sand, and Ephrata fine sandy loam. High wind erosion hazard, and low moisture holding capacities are the principle limitations of these soils.

Sweet corn is produced on the Greenleaf, Nyssa, Nyssaton, and Malheur series in the Malheur-Owyhee irrigated area. Water infiltration problems on the Malheur series lead to water management difficulties.

Planting and harvest dates

Soil temperatures should have warmed to above 60°F. The optimum temperature range for germination is between 60 and 95°F. Select rectangular level fields with good air and water drainage characteristics and which are away from frost pockets.

Plant after reasonable danger of frost is past. Approximate planting and harvesting dates for various areas are:

Area	Planting dates	Harvesting dates
Willamette Valley	5/ 1-6/20	9/10-10/15
Roseburg	5/ 1-6/20	9/ 1-10/15
Medford-Grants Pass	4/20-6/25	8/25-10/15
Hermiston	5/15-6/15	8/25- 9/20
Ontario	5/15-6/15	8/25- 9/20

Approximately 95 days are required for sweet corn to reach harvest stage in the Hermiston, Ontario, and Medford areas, and about 105 days are required in the Willamette Valley.

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Plant into moisture whenever possible. Late fields may have to be pre-irrigated before final fitting and planting.

Sweet corn planting and harvesting is scheduled by the use of heat units (degree days). In general, a 50° baseline is used, with varieties such as Jubilee requiring approximately 1600 degree days to reach harvest.

Fertilizing

Detailed information on fertilizer can be found in Oregon State University Fertilizer Guide 11.

Western Oregon: Fertilizer application should be based on soil tests of individual fields. Fertilizer rates are dependent on field fertility levels, plant population, planting date, and variety. In general, the following amounts of fertilizer should be used:

Row Spacing	Total pounds of nutrient per acre			
	N	P ₂ O ₅	K ₂ O	S
30	200-220	80-200	200	15-20
36	175-200	70-160	180	15-20
42	150-175	60-140	150	15-20
48	125-150	50-120	0-125	15-20

No more than 90 pounds per acre of N plus K₂O is normally banded at planting time. If the fields were previously in red or crimson clover or alfalfa the rate of N application can be reduced 20 percent, or by 40 percent following a legume green crop plowed under. Approximately 100 to 150 pounds of the N applied should be applied in the form of a sidedress application. This could be after emergence, but prior to silking. All of the phosphorus should be banded at planting two inches to the side and two inches below the seed for best starter effect. Zinc may be necessary in some areas, particularly gravelly soils in the Stayton area. Magnesium may be necessary and is usually applied as dolomite lime during the preceding fall.

Eastern Oregon: Increase N rates by 30 percent. N rate to include soil test NO₃-N (total NO₃-N to five-foot soil depth).

Varieties

One variety predominates the processing sweet corn acreage. This variety is Jubilee. Other varieties that have shown good performance in commercial trial plantings include: Style Pak, Fanfare, Rapid Pak, and Commander.

Planting

From 11 to 20 pounds of seed is usually planted per acre depending on seed size and germination.

Corn is planted in row spacings of 30, 36, or 42 inches. Recommended stands would be 26,000 to 27,000 plants per acre. This generally means seven to nine inches between plants in the row. Currently stands range from 18,000 to 24,000 plants per acre.

Conventional plate-type planters are most common. Recently the International Cyclo air planter, the Jumbo Stanhay planter, the White Air planter, and John Deere plateless planter have become available. Although research has shown that total yields and yields of cut corn can be increased in row spacings of 20 inches, harvesters are not now available to harvest corn planted at this row spacing, but harvester manufacturers have indicated their capability of custom-designing harvesters for this spacing. At this row spacing, plants would need to be spaced further (10 to 12 inches) within the row. Because ear size tends to be reduced at the higher plant populations, growers should consult with their processing company fieldmen before major changes in row spacing and population are planned.

Weed Control

Detailed weed control measures are contained in the current Extension Circular 746, "Oregon Weed Control Recommendations for Commercial Vegetable Crops."

Several excellent herbicides are available for selective weed control in sweet corn. Preplant chemicals include Eradicane, Lasso, Bladex, Atrazine, and Sutan. A program providing broad-spectrum weed control is a combination of atrazine and alachlor. The atrazine + oil or surfactant combination post-emergence is also very popular for the control of annual grasses and many broad-leaf weeds. For perennial grasses, Eradicane (Eptam plus Safener) is very effective. It may be used alone where grass control is the principal objective. In addition to a preplant chemical program, pre-emerge applications of dinoseb (dinitro amine) or post-emerge applications of atrazine and oil have been used with good results. This combination makes possible reduced rates of atrazine and eliminates the danger of atrazine carryover into subsequent crops. The rates for these materials are as follows:

<i>Chemical</i>	<i>Active ingredient per acre</i>	<i>Remarks</i>
Dinoseb Amine	6 pounds or 1½ to 3 pounds	Preemergence or post-emergence when corn is 1 to 2 inches tall
Atrazine + alachlor (Lasso)	1 to 2½ pounds	Preemergence
Atrazine (Aatrex) + oil or surfactant	1 to 1.6 pounds active Atrazine + 1 to 2 gallons oil or 0.5 to 1 percent surfactant	Post-emergence when weeds are small
EPTC + safener (Eradicane)	2 to 4 pounds	Preplant. Work into the soil immediately after application



Irrigation

Approximately 15 inches of water are required for sweet corn production in the Willamette Valley. Eighteen inches of water are required in north-central and eastern Oregon. Approximately four to six irrigations are required per crop. For best use of fertilizer and maximum yields, corn should be irrigated once before it is 12 to 18 inches tall. Corn is especially sensitive to water stress during silking and earfill.

Due to the difficulty in moving irrigation pipes through sweet corn fields, big gun and Vermeer irrigation systems are frequently used.

To facilitate irrigation with hand-moved lines and to reduce the incidence of lodging at harvest time, corn may be topped when some dried silks become evident. The corn is topped two to three leaves above the ear. No significant reduction in yield from topping has been demonstrated.

Insects and Disease

Consult OSU Extension publications or call your county Extension agent for current insect and disease control information.



Harvesting

The most common sweet corn harvesters are self-propelled two-row harvesters set for 36 to 42 inches. Several companies are now manufacturing self-propelled four-row sweet corn harvesters designed to harvest 30-inch rows. Tractor-

towed single-row harvesters are also available. Sweet corn is harvested on a schedule determined by the processor. Ideally, sweet corn for canning is harvested at about 72 percent moisture. Sweet corn with higher moisture percentage is usually used for freezing and that of a lower moisture percentage is usually used for cream-style packs.

Economics of Production

Current costs of production are estimated to range from \$300 to \$400 per acre for Willamette Valley growers. Because of the variability from farm to farm, each grower is encouraged to budget his own costs. The Enterprise Data Sheets prepared by the Extension farm management staff of Oregon State University can be used as a detailed guide for preparing this budget.

Willamette Valley fields averaged 7.23 tons per acre in 1974. Yields of 10 to 12 tons per acre are not uncommon. The value of the corn crop in 1974 was \$71.20 per ton delivered to the cannery.

In some cases, growers are paid on the basis of the cut corn obtained. The cut corn generally runs 25 percent of the delivered weight depending on the maturity of the corn, depth of kernel, ear size uniformity, and fill.