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Quick Facts: Sweet Corn

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- Sweet corn is grown in the southwestern and south-central regions of Idaho.
- Around 70% of the hybrid, temperate sweet corn produced worldwide comes from seeds developed in Canyon County, Idaho.

Planting to Harvesting

- Depending on the growing region, plant from mid-April to early June when soils are >50°F.
- Seeding rate and planting depth: 14,000 and 24,000 plants/ac at a depth of 1.5” to 2”.
- Seed treatments improve stand uniformity and protect a crop from pests.
- Harvest 65–85 days after planting, depending on the variety.
- Plant early maturing sweet corn (<85 days) consecutively every two weeks until early July in milder areas of western Idaho or mid-to late June in the region’s cooler climates to ensure a steady supply of sweet corn until the later summer months.
- Under favorable conditions, producers can reasonably expect to yield 140–220 CWT (7–12 tons) per acre in western Idaho.

Irrigation

- Sweet corn needs 20–35 acre-inches of water.
- Irrigate based on soil moisture depletion estimated by evapotranspiration. Consistent irrigation that minimizes water stress is essential, since irregular water availability negatively impacts corn growth and development, especially during the two weeks before and after tasseling (e.g., pollination and grain fill).

- The water-holding capacity (amount of water in the soil available for crop use) is >2" per foot in loamy soils, 1" –2" per foot in sandy loam soils, and <1" per foot on sandy soils.
- Base early season irrigation on crop demand and to build soil moisture reserves that will be needed midsummer, when irrigation cannot keep up with crop water demands. Irrigate until the root zone is full or until water has penetrated 2.5'–3' into the soil.
- Late-season irrigation should strive to maintain soil moisture levels above 50%. Apply 2" of irrigation per week from mid-June to late August.

Fertilization

- Soil testing is required to determine optimal nutrient management strategies. See University of Idaho Bulletins 915 and 970 for detailed descriptions of soil-sampling strategies.
- Collect preplant soil samples at 0"–12" and 12"–24" depths for testing ammonium, nitrate, and sulfate. Take a 0"–12" sample for all other nutrients.
- Sweet corn growth and nutrient accumulation divides into three stages:
  1. Planting to the five-leaf stage: Slow growth, limited root development, and low nutrient uptake. By the time the plant is 12" tall, all leaf and ear shoot initiation is complete and the plant is ready for rapid growth and reproduction. Although nitrogen (N) demand is low, adequate N availability is critical during this stage.
  2. Five-leaf stage to cob silk emergence: Lasts about 30 days, plant height and leaf number increase rapidly and N uptake is >5 lb/ac/day, with most N uptake occurring during this period.
  3. Silk emergence to harvest: Little additional N is taken up and the plant moves N and carbohydrates from lower leaves to the ears.
- Aboveground nutrient uptake (stalks, leaves, and ears) for full-season varieties are 150–200 lb N/ac, 70–90 lb P_2O_5/ac, and 240–360 lb K_2O/ac. The ears remove 70 lb N/ac, 30 lb P_2O_5/ac, and 60 lb K_2O/ac. Nutrient removal is approximately 25%–40% lower for early maturing varieties.
- Consider planting a cover crop after harvesting to reduce nutrient losses to the environment, since approximately 50% of the N remains in the stalks and leaves.

Nitrogen:

- A total N application of 100–180 lb/ac is likely sufficient. Apply 30–50 lb N/ac as a starter fertilizer at planting. Ammonia-based fertilizers (e.g., urea) banded closer than 2" to the seed may injure seedlings.
- Apply sidedress N at the 4- to 6-leaf growth stage based on a pre-sidedress nitrate test (PSNT).
- The PSNT is taken at the 4- to 6-leaf growth stage between corn rows to a depth of 12 inches. Analyze the soil sample for nitrate. The following calibration is for sweet corn grown in the Willamette Valley, Oregon, but may serve as a reference for Idaho producers.

PSNT Soil-Test Value (0" –12")	Recommended Sidedress N Fertilizer Rate (lb N/ac)
Soil test NO_3-N (ppm)	
3	165
9	145
14	125
20	105
26	85
30+	0

Source: Sullivan et al. 2020.

Phosphorus (P):

Use the Olsen-P phosphorus test for soils with pH>7. Use the Bray-P test for soils with pH<7.

Soil Test P (ppm)		
Olsen	Bray	Application Rate (lb P_2O_5 /ac)
0	0	120
5	8	80
10	16	40
15	24	0

Potassium (K):

Olsen	Acetate	Application Rate (lb P_2O_5 /ac)
0	0	240
50	60	160
100	120	80
150	180	0

- Apply 100–150 lb K_20/ac when the soil test K (using the ammonium acetate extractant) measures 0–100 ppm. Apply 50–100 lb/ac when the test measures 101–200 ppm and 0 lb/ac when the test is >200 ppm.

Sulfur (S)

- With soil test levels (0'–2') of <10 ppm sulfate-S and low-S irrigation water, apply 20–40 lb/ac of sulfate-S.
- Irrigation water derived from the Snake River or its aquifer can supply 30–70 lb sulfate-S/acre foot of water.
- Apply supplemental S in the fall before planting. Annually, 33% of the elemental S becomes plant-available.
- Like nitrate, sulfate-S can leach and should be applied near the time of planting.

Zinc (Zn)

- Soils testing below 1 ppm (DTPA [diethylenetriaminepentaacetic acid] extraction method) may benefit from 3–4 lb Zn/ac banded at planting or 10 lb/ac broadcast applied.

Diseases

Fungal and Fungal-Like Pathogens

- Corn smut (*Ustilago maydis*); head smut (*Sphacelotheca reiliana*); seed, root rot, and seedling diseases (*Pythium* and *Fusarium* species); crown and stalk node rot (*Fusarium* spp.); ear rots (*Fusarium verticillioides, F. graminearum, F. temperatum, Penicillium oxalicum, Rhizopus stolonifer* and *Aspergillus* spp.); northern corn leaf blight (*Exserohilum turcicum*); northern corn leaf spot (*Bipolaris zeicola*); and stalk rots (*Fusarium verticillioides* and *Pythium* spp.)

Bacteria

- stalk rot (*Dickeya zeae*)

Viruses

- High plains disease (high plains wheat mosaic virus), maize dwarf mosaic (maize dwarf mosaic virus), and wheat streak mosaic (wheat streak mosaic virus)

Nematodes

- root knot (*Meloidogyne hapla*)

Insect Pests

- Aphids, corn earworm (*Helicoverpa zea*), cutworms (*Agotis ipsilon, Peridroma saucia*), seed-corn maggot (*Delia platura*), spider mites (*Tetranychus urticae*), wireworms (*Ctenicera* spp. and *Limonius* spp.), and European corn borer (*Ostrinia nubilalis*)
- Some sweet corn varieties contain Bt technology that help corn to resist insect predation

Weeds

Broadleaf Weeds

- Lamb's quarters (*Chenopodium album*), kochia (*Bassia scoparia*), pigweed (*Amaranthus* spp.) nightshade (*Solanum* spp.), smartweed (*Polygonum* spp.), common purslane (*Portulaca oleracea*), and wild buckwheat (*Polygonum convolvulus*)

Annual Grasses

- Barnyard grass (*Echinochloa crus-galli*), crabgrass (*Digitaria* spp.), foxtails (*Setaria* spp.), wild proso millet (*Panicum miliaceum*), and witchgrass (*Panicum capillare*)

Perennial Weeds

- Yellow nutsedge (*Cyperus esculentus*), Canada thistle (*Cirsium arvense*), quack grass (*Elymus repens*), and johnsongrass (*Sorghum halepense*)
- Volunteer wheat and potato can be weed problems if sweet corn follows any of these crops

Further Reading

Brown, B., J. Hart, D. Horneck, and A. Moore. 2010. *Nutrient Management for Field Corn Silage and Grain* (PNW 615). Moscow, ID: University of Idaho Extension. 9 p. https://www.uidaho.edu/extension/publications/publication-detail?id=pnw0615.

Kaur, N., ed. 2023. Pacific Northwest Insect Management Handbook [online]. Corvallis, OR: Oregon State University. https://pnwhandbooks.org/insect (accessed 30 April 2024).

Munkhold, G. P., and D. G. White. 2016. *Compendium of Corn Diseases*. 4th ed. St. Paul, MN: The American Phytopathological Society.

Peachey, E., ed. 2022. Pacific Northwest Weed Management Handbook [online]. Corvallis, OR: Oregon State University. https://pnwhandbooks.org/weed (accessed 1 May 2024).

Pscheidt, J. W., and C. M. Ocamb, ed. 2024. Pacific Northwest Plant Disease Management Handbook [online]. Corvallis, OR: Oregon State University. https://pnwhandbooks.org/plantdisease (accessed 24 April 2024).

Rogers, C. W., B. Dari, and O. Walsh. 2020. *Soil-Testing Procedures for Southern Idaho Soils* (BUL 970). Moscow, ID: University of Idaho Extension Publishing. https://www.uidaho.edu/extension/publications/bul/bul970.

Sullivan, D. M., E. Peachey, A. Heinrich, and L. J. Brewer. 2020. Nutrient and Soil Health Management for Sweet Corn (Western Oregon). EM 9272. Oregon State University. https://extension.oregonstate.edu/sites/default/files/documents/em9272.pdf.

Walsh, O. S., R. L. Mahler, and T. A. Tindall. 2023. *Soil Testing to Guide Fertilizer Management* (BUL 915). Moscow, ID: University of Idaho Extension. 5 p. https://www.uidaho.edu/extension/publications/bul/bul915.

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