

Corn

General Information

Corn (*Zea mays*) has been grown in the northeast for generations, and is a demanding crop but one that is highly-valued for its use as animal feed, silage, and as a grain for human consumption. Corn's energy production per acre is higher than any other crop, and it is a durable grain that is relatively easy to process.

There are a few different types of corn. Flint (or Indian), silage, flour, sweet, pop, and ornamental varieties exist, but flint and flour corn are the types most commonly grown for human consumption in the northeast. Popcorn is relatively simple to grow, germinating and growing more quickly than other varieties, but is difficult to properly process.



Preparation & Planting

Corn requires a high level of nitrogen in order to do well, and will grow well in well-drained loam with a pH of between 5.6 and 7.5. To prepare the seed-bed, chisel-plow a sod field in the fall and apply manure if needed, then till the seedbed 2-3 times before planting in late spring. Pulverizing the spring soil as soon as it dries out will build up a mulch layer and prevent the soil from becoming too hard to plant into. Corn can be planted after a cereal or legume crop if nitrogen levels are high enough, but should be cultivated with enough time before planting to eliminate annual weeds.

If corn is planted later than mid-May, yields generally decrease. However, planting too early (in soil temperatures lower than 60°F) may lead to slow corn emergence and greater weed competition. Growers are advised to use desired plant density (24,000-26,000 plants per acre) to calculate their seeding rate, which should ideally be about 10% higher than the plant density. (Use the following calculation if germination rates or low seed weights are a concern.) Very high seeding rates can lead to lodging once ears have formed.

$$\text{SEEDING RATE} = \frac{(\# \text{ plants per acre}) / (\# \text{ seeds per lb})}{(\text{germination})}$$

Growers may be interested in selecting hybrid varieties, which often have higher yields and offer resistance to certain pests and diseases. Corn planters should be maintained properly and adjusted for both the seeding rate and the size of the seed. Plant seeds about 1 inch deep. Row spacing should be 20-24 inches where weeds are not very problematic and closer to 30-36 inches where cultivation will be necessary to knock weeds back.



Cultural Practices

Weed management is time-consuming with corn, since it is a row crop and will need to be cultivated with blind harrows or an inter-row cultivator at least once or twice during the growing season (recommended when corn is 4-6 inches tall and 12-18 inches tall, at minimum). Because a cornfield needs to be high in nitrogen, many nitrogen-loving weeds (including pigweed, lambsquarters, and quackgrass) will thrive in the same location. Avoid planting corn where perennial weeds are a problem. Some growers choose to interseed their corn with another crop (such as clover, ryegrass, or alfalfa) once the corn reaches a height of about 12 inches; this will help shade out weeds. Scout fields regularly and gauge what weeds may be problematic. Herbicides are available to help control weeds, but should be used carefully and in accordance with their labeling.

For disease and pest control, practice good crop rotation and avoid planting corn in the same location two years in a row. Corn borers and rootworms can present problems for growers in the northeast, damaging plants and decreasing yields. Corn smut is a fungus that makes its appearance on the plant any time during the growing season and can severely damage a crop. Northern corn leaf blight (caused by the fungus *Exserohilum turcicu*) has been an increasing problem in the recent past, reducing yields and remaining in soils for multiple seasons. More information on specific pests and diseases is available through the Northern Grain Growers Association or the UVM Extension's Crops & Soils Program. Disease-resistant varieties (if available) should be chosen when planting, and crop rotation practiced to minimize infection.

Growers may have problems with wild animals—specifically deer, turkeys, raccoons, and geese. Fencing, netting, and/or scare tactics such as air cannons, balloons, and decoys can be employed to protect the crop. Such scare tactics should be regularly moved around the field so that pests do not become accustomed to them.

Harvesting & Storing

Corn harvested for grain is usually combined in late October or early November in the northeast, when the corn has about 24-26% moisture. Corn for silage is harvested with a higher moisture level (30-32%), and then immediately chopped and packed; in both cases, the stover (or leaves and stalks left in the field after harvesting) can be grazed directly or dried down and used for animal feed. Grain corn can yield as high as 85-100 bushels (4700-5600 lbs) per acre. Sheller-picker combines can separate both the ears from the plant and the kernels from the cob while harvesting.



Grain corn should be cleaned and dried to below 14% moisture and kept free of rodents and insects for safe long-term storage. Use low temperatures (below 110°F) to dry; drying can be done with portable dryers or in-bin, with forced hot air and the use of perforated floors and/or augers. If saving seed for next year's crop, select open-pollinated varieties and then separate the largest and plumpest kernels after harvesting and clean well to eliminate contamination. Corn can then be ground into cornmeal using a grain mill; coarser-ground corn is often sold as cereal or polenta, and finer cornmeal used for baking. Popcorn reaches its maximum popping volume at moisture levels between 13 and 14.5%, and can be dried at low temperatures (90-100°F) to avoid stress cracking and other damage. If popcorn is to be stored for longer than 6 months, it should have 12.5-13.5% moisture. Both cornmeal and popcorn are very nutritious and common foods, high in protein and iron.

References:

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