Nature & Nurture Seeds' Guide to Growing & Using Corn

Many Americans, when they think of growing corn, picture a yellow-kerneled cob with soft, green husks, or perhaps buttered and salted on a plate, freshly boiled, a side dish to a late-summer barbecue. But corn is so much more than that! In addition to sweet corn, there's also popcorn, flint corn, dent corn, and flour corn. Corn comes in all colors of the rainbow! And while sweet corn tastes great fresh, varieties of dent and flint corn can be dried and then used to make tortillas, hominy, porridges (like grits and polenta), and more.

Corn (latin name *Zea mays*) originated in Central America as a wild inedible plant named teosinte. Indigenous people, over centuries, domesticated it and then migrated both north and south, taking the grains with them and painstakingly breeding it to be the incredibly diverse plant that we know and love today. Indigenous Mayan people took teosinte (bottom left), and over the years, transformed it into nutritious, delicious, and beautiful; corn (bottom right). A truly a(maize)ing feat!

While the industrialization of hybrid dent corn (that is often highly processed and used to make ingredients found in a variety of junk "foods" or is used as animal feed to fatten cows and in the process also makes them sick) continues to be the dominant use of corn in the United States, corn is an incredibly diverse crop with rich and wide food traditions among indigenous people that should be celebrated and protected. Read on for more "corny" content.

Pictured: teosinte

Pictured: corn cobs

Pictured: the amazing diversity of corn! (Photo credit: Darich Peréz-Reyes).

Why Grow Corn?

1. It's easy! (as long as you have plenty of space to grow at least 16 plants - otherwise you have to hand-pollinate it)
2. Corn can be full of beneficial nutrients and vitamins!
3. There are so many different varieties to try!
4. It's incredibly versatile - you can eat it fresh, savory or sweet, make popcorn, process it into a flour, polenta, grits, hominy, use it as a decoration, and so much more!

Planting Corn

1. **Planting:** Corn is wind pollinated so you should grow at least 16 corn plants (plant in a block – not in a row) so that enough pollen from the tassels will land on the silks to pollinate all of the kernels to produce full ears of corn. Not enough space for 16 plants? You can hand pollinate your corn (look online for instructions).
    a. Plant corn seeds after the soil has warmed to at least 65° (5/20-6/15).
    b. Plant seeds 6" apart in rows 36" apart (thin plants to 12" apart).
    c. Plant at least 4 rows of 4 plants in a block.
    d. Days to germination: 3-12.
    e. See variety instructions for the specific type of corn you are growing. All our varieties have detailed growing instructions on the product page on our website for your reference.

2. **Planting Using the Three Sisters Method:**
    a. Plant corn, beans, and squash in “patches” that are 4 feet apart. In each patch plant:
        i. Week one: plant corn (5-6 seeds, 2-3” apart)
        ii. Weeks 2-3 (when corn is at least 5” tall): plant pole beans (4-5 seeds encircling corn)
        iii. Week 3: plant winter squash (5-6 seeds encircling beans).
    b. Thin seedlings to:
        i. 2-3 corn plants
        ii. 2 pole beans
        iii. 3-4 squash plants per patch
3. **Soil:** Corn is a heavy feeder, so plant in fertile, well-drained soil rich in organic matter and nutrients.
4. **Light:** Plant corn in full sun.
5. **Water:** Corn will benefit from regular watering (at least 1” of water per week).

Maintenance & Troubleshooting

1. Nitrogen deficiency: If you see older leaves turning yellow, your crop likely has a nitrogen deficiency.
    a. To prevent this from happening:
        i. Plant pole beans a couple inches away from each corn stalk. Beans are nitrogen-fixers and may provide nitrogen to the corn.
        ii. Plant your corn in rich soil, with lots of organic matter - either make your own compost or buy some with good quality.
        iii. Add nitrogen directly to the soil - we recommend Neptune’s Harvest or some other liquid fertilizer for the seedlings, and for big plants that have already been planted in the field, using a dry, organic fertilizer that contains nitrogen. You can also use chicken manure, which is high in nitrogen.
2. Phosphorus deficiency: If you see older leaves turning purple, your crop likely has a phosphorus deficiency.
    a. To prevent this from happening:
        i. Plant your corn in rich soil, with lots of organic matter - either make your own compost or buy some with good quality.
        ii. Add phosphorus directly to the soil. We recommend Neptune’s Harvest or some other liquid fertilizer for the seedlings, and for big plants that have already been planted in the field, using a dry, organic fertilizer that contains phosphorus. Check the bag label for phosphorus content.
3. If leaves start to roll up lengthwise, it usually means that your corn isn’t getting enough water. Water that corn!

4. Corn smut: One of the most funky fungi we encounter in our crops, corn smut is actually edible! Mike likes cooking it in roasts and stir fries. Once your corn has smut, there's not much that can be done, other than make the most of it and cook up the smut for your next meal! Be sure to harvest it before the fungal sacs are open and eat a small amount the first time. Even if you're not gonna eat it, you should prune it out so that when the fungal sacs open they don't infect other plants. Prune off the smut (cut the entire cob and husk off of the stalk) before the fungal sacs open up and send out their spores.

Pictured: corn smut

How to Harvest

Sweet Corn:

Harvest corn when silks are brown and kernels are fully filled out but still tender.

Corn for Flour, Meal, Polenta, etc.:

1. For flint, popcorn, and dent corn, you may wish to dry out the varieties once you've harvested. Once the tassels have browned and the husks have become brown and papery, harvest the corn.
2. Carefully peel away the husk from the cob, making sure it stays intact, as this will help with the drying process.
3. You can then either place the cobs on a rack to dry, or hang them. The goal is to get as much airflow as possible. Let them dry for at least a week, or until you are able to press on the kernels and there is no denting that occurs.

Types of Corn and How to Use Them

There are thousands of different varieties of corn which can more or less be grouped into the following categories: Sweet, dent, flour, flint, and popcorn. The type of corn depends on the internal kernel structure and amount of starch present. Sweet corn, for example, is the softest kernel, soft enough for humans to eat raw, whereas popcorn has the hardest kernels. As is usual in life, however, some corn exhibits characteristics of more than one of these categories, making corn characterization more a spectrum than mutually exclusive categories. Read on for more on each type of corn and its

culinary uses! Also, check out this awesome blog post by Native Seeds SEARCH where we sourced some of this information to learn more (support the amazing work they are doing here!).

Sweet corn

Sweet corn varieties of corn are, well, sweet! You can eat 'em fresh off the cob if ya like. High in sugar, this is the corn most people are familiar with, that you can easily find at the grocery store. Actually "sweet corn" is really just corn that is eaten when the kernels are immature (called the "milk" or "green" stage). There are many more delicious varieties of heirloom sweet corn that you've likely never tried before, like Painted Hill, or Soltera Morado! So get experimental with your sweet corn.

Uses:

- Fresh off the cob! (prepared as "sweet corn" or as Elote)
- Roasted
- Chicos (dried, cooked corn on the cob)
- Pinole (a type of roasted corn flour)

Dent corn

Dent corn is one level harder than sweet corn. It can be easily distinguished from flint corn, which is of a similar hardness, by a tiny indentation in each of the kernels. Dent corn has low sugar and high starch content. It's harvested later in the season, so that the dented kernels have a chance to dry out completely. It can be processed into things that require "soft" starch, like chips and masa.

There are some traditional dent corn, but all of the corn you see growing in vast cornfields is junky, GMO hybrid dent corn. This is used to make products like high fructose corn syrup, and is fed to animals which makes them sick. It's a real shame that this incredible indigenous crop continues to be used for such terrible purposes.

However, if non-GMO, heirloom varieties of dent corn are planted instead, they can be used for a variety of much healthier and more delicious products!

Uses:

- Chips
- Masa (a corn flour used to make tortillas)
- Bourbon
- Moonshine
- Cornmeal
- Elote
- Hominy (used to make tortillas and tamales)

Flour corn

Flour corn is made up mainly of soft starch, which means that it is perfectly suited for making really fine cornmeal/corn flour.

Uses:

- Mainly dried and made into cornmeal
- Can be roasted, steamed, or barbecued at earlier stages
- Piki (A labor-intensive blue cornmeal from the Hopi that is baked into very thin sheets)
- Atole (a sweet, hot corn beverage)
- Hominy (for tamales and tortillas)
- Posole (a light pork or chicken stew, made starchy with added cornmeal)
- Chicos (dried, cooked corn on the cob)
- Elote
- Grits and polenta (made from flour corn, these cornmeals are more fine than when they are made from flint corn)

Flint corn

The kernels of flint corn are mainly made up of a hard outer layer, which protect the small, soft endosperm inside. Varieties of flint corn often store well, as they are more resistant to rodents and insects because of their hardness.

Uses:

- Hominy (for tortilla masa or posole)
- Grits and polenta (these are essentially the same thing, but grits are made with white corn and polenta is made with yellow)

Popcorn

Popcorn has the hardest of all types of corn kernels. The kernels will grow dry on the stalk, but are usually dried further after harvest to make for the best popping corn possible.

Popcorn is made when the corn is heated. When the moisture in the middle of the kernel is heated and enough pressure builds, the kernel “pops” and becomes that delicious treat that we all know and love! Try our favorite popping corn, Dakota Black.

Uses:

- Popcorn
- Hominy (for tamales and tortillas) - requires nixtamalization
- Can be ground into coarse cornmeal to make things like grits, polenta, and atole

Nixtamalization

Nixtamalization is an ingenious process created by indigenous peoples to make corn more nutritious and edible in its “flour” form. It’s utilized to make the hominy used in tamales and tortillas and gives these corn products a unique, rich flavor.

Essentially, nixtamalization is the process of soaking and cooking corn in water that is mixed with some sort of alkaline solution (traditionally wood ash is used; modern methods include using sodium hydroxide (“lye”), calcium hydroxide, pickled lime, etc.), and then hulled to remove the outer shell and soften the kernel. This process vastly improves the nutritional quality of the corn, as well as its digestibility, through a series of physical and chemical changes.

Sylvia of Pilar’s Tamales uses the nixtamalized corn to make her tamales! See our Seeds of Our Ancestors article to learn more about Sylvia’s restaurant, her journey, and her ancestral foods.

Seed Saving Instructions

1. Corn is a difficult seed saving crop. Corn suffers from inbreeding depression if seed is saved from too few plants.
2. Minimum population size: 100 plants.
3. Corn is cross pollinated and will cross with all other corn varieties. It is wind pollinated which can carry pollen for several miles so corn seed can be contaminated by GMO field corn. Isolate corn from other varieties by at least 2 miles.
4. Harvest seed from the interior (as opposed to the outer rows) to help minimize crossing.
5. Store seeds in a cool, dry area. See our How to Store Your Seeds resource for further instruction.

Happy Growing!