2026 4-H Special Agronomy Newsletter

EXTENSION

TWO varieties this year!

Popcorn Industry

Everyone seems to love popcorn. It has become a mainstay at movie theaters, sporting events, amusement parks, and nearly everywhere else people gather. Although Americans are now such avid consumers of popcorn, and its agricultural history is long, its commercial history is comparatively short. Popcorn was not mentioned in early farm papers and seed trade catalogs until around 1880, but once the American public discovered it, popcorn's popularity quickly grew.

Nearly all of the world's popcorn production is in the United States, with 25 states growing the crop. Nebraska & Indiana are the 2 biggest popcorn growing states with smaller amounts in Illinois, Ohio, and Missouri.

In this issue...

- Origin, History & Fun Facts
- Planting & Care
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- Exhibiting for Fair
- Evaluation

Approximately 34 percent of the U.S. popcorn supply is produced in the state. NE usually ranks among the top 3 popcorn producing states.

Nebraska Red Heirloom

Robust 997

photo credits: Johnny Seeds & Giving Ground Seeds

Planting & Care

This year, we have 2 varieties of the special agronomy project. You will be planting, Robust 997 which is a commercial variety and a Nebraska Red heirloom variety. This will give you the opportunity to do a comparison of a hybrid & a variety and predict which one will yield the most.

For best pollination, plant in a grid rather than long rows. Plant the seed about 1-2 inches deep in the soil, 8-10 inches apart in the row, spaced about 20-30 inches apart. Popcorn should be planted around mid-May or when the soil temperature is 60 F. Timely planting of popcorn is very important because of its slow germination and seedling growth and because it must reach harvest maturity (defined in section on harvesting) for maximum popping expansion. Careful seedbed preparation is also important because seed size is so small.

Popcorn seed germinates more slowly than dent corn, and the seedlings grow more slowly; thus, medium- to coarse-textured soils, which warm slightly faster than fine-textured soils, should improve germination, emergence and seedling establishment. Popcorn requires adequate nitrogen and should be fertilized accordingly. https://extension.umn.edu/vegetables/growing-popcorn

It is recommended not to plant sweet corn and popcorn in the same garden; if they happen to shed pollen at the same time, the sweet corn quality might be reduced.

Sources: Popcorn Production and Marketing (NCH-5) Purdue University Cooperative Extension Service &
Growing popcorn in home gardens, University of Minnesota

Share pictures on social media:

Facebook: @UNLExtension211

Twitter: @UNLExtension

Instagram: @unl_extension

Compare the varieties:

- **Nebraska Red**: 100 days. Mid-season maturing, deep red popcorn with 1-2 ears per plant. Plants about 7.5 feet tall. Walter Bumgarner states this was discovered & developed by a farmer in eastern Nebraska!
- **Robust 997**: 112 days. 7-8" ears with glossy deep yellow kernels. A high percentage of kernels pop producing tender popcorn. 8-9' plants

Insect Pests

Key Insect Pests

- **Soil Insects**: northern & western corn rootworms, wireworms, grubs and cutworms
- **Foliar & Stem**: aphids, earworms, armyworms, leaf beetles, mites, corn borers & grasshoppers

(Source, Purdue University)

Photo Credit: The Popcorn Board

The oldest ears of popcorn ever found were discovered in a Bat Cave of west central New Mexico in 1948 and 1950.

Share pictures of your project to brandy.vandewalle@unl.edu

Diseases

Disease Control
As with weeds and insects, popcorn is likewise subject to the diseases common to dent corn. Fortunately, not all of these diseases are of economic importance and may pass from year-to-year without notice. A few, however, are widespread and can substantially reduce yield and quality if conditions are optimum for infection.

- Seed rots & seedling diseases (Our seed is not treated with fungicide so you might see this if soils are wet at planting.)
- Stalk & root rots
- Leaf spots & blights
- Rusts & smuts
- Ear & kernel rots
- Nematodes

(Source: Purdue University)

Types of Popcorn

Popcorn moves through commercial channels primarily in three kernel types: white, small yellow and large yellow.

White popcorn characteristically has a rice-shaped kernel, while yellow popcorn kernels are pearl-shaped. The three kernel types meet different needs within the industry, and growers and/or processors must take that into consideration when selecting hybrids.

Kernel color of specialty popcorn may also be blue, red, black, or brown.

The popped appearance may resemble either a butterfly or a mushroom. The butterfly type is preferred for eating; while the mushroom type is used in confectionery products.

Water Use

Popcorn requires 18-24 inches of water during the growing season. If the planting does not receive one inch of rain each week, soak the soil thoroughly at least once a week. If your soil is sandy, it is important to water more often than once a week.

In general, if irrigation is needed to grow dent corn, then it will also be needed for profitable popcorn production. As with dent corn, water deficiency during any period of the popcorn plant's growth can reduce yield; however, drought and high temperatures during tasseling and silking are the most detrimental. Thus, supplemental moisture at this stage of plant development usually offers the greatest return.

go.unl.edu/specialagronomy

Harvest

Much popcorn acreage today is harvested by combine, despite the fact that there is likely to be more kernel damage, and thus a reduction in popping volume. Processors who want maximum popping volume may contract with farmers to harvest their popcorn on the ear. While this usually increases production costs, it also usually results in a higher quality popcorn having higher potential popping volume. Combined popcorn can give satisfactory popping volumes if it is harvested at the correct moisture content by a properly adjusted combine

(Source, Purdue University)

Hand harvesting. You can achieve maximum popping potential only if the corn reaches full maturity. Mature ears of popcorn have plump, hard, shiny kernels and dry husks. Let popcorn remain in the garden as long as possible, to allow the kernels to dry on the stalks.

If the weather turns rainy while the plants are drying in the garden, harvest the ears and bring them inside to continue drying. Remove the husks and put the cobs in mesh bags. Hang the bags in a warm, well-ventilated area.

The ideal moisture content for popcorn is between 13% and 14%. If the kernels get too dry, they will not pop as well.

Most gardeners have no way to measure kernel moisture except by popping performance. At least once a week, try popping 20 kernels. While the corn is still too moist, the kernels will pop, but may not be fluffy or crisp. If the popped kernels are chewy or tough, with hard edges, they are still too moist. With each sample, the corn should produce better quality popcorn. When most of the kernels in the sample pop up crisp and fluffy, it is time to store the whole crop.

For a video on harvesting and storing your popcorn: go.unl.edu/eqvr

Fair Exhibits

Be eligible to enter an exhibit at both the County and/or State Fair in the agronomy project area:

G750011 Special Agronomy Project - Educational Exhibit (SF259) - Educational exhibit based on what was learned from the project. Present information on a poster 14 inches x 22 inches either vertical or horizontal arrangement or in a clear plastic report cover. The 4-H member's name, age, and county must be on the back of the poster or report cover. Refer to Scoresheet SF259 Each display must have a one-page essay (minimum) explaining why the exhibitor chose the area of display and what they learned from their project. Include any references used.

G750012 Special Agronomy Project - Video Presentation - 4-H exhibitor designs a multimedia presentation related to the crop. This could include narration of the growing process, presenting facts about the crop or any other innovative multimedia practices. The presentation should be at least 2 minutes in length and no more than 5 minutes in length, appropriate graphics, sound and either a video clip, animation or voice over and/or original video clip. Presentations are to be uploaded to a video streaming application and 4-H member must provide a hard copy QR code for viewing. 4-H members are encouraged to test their codes or link on several devices to check for appropriate permissions for public viewing.

G750013 Special Agronomy Project (Freshly Harvested Crop) - Plant exhibits must be the result of the current year's project. Supporting documentation (½ to 1-page in length) must accompany this which has details outlined in the fairbook.

For 2026: (**Two** popcorn plants or ears - can be one of each variety or 2 of the same variety)

https://4hfairbook.unl.edu/fairbookview.php/exhibits

Resources & Fun Activities

EXTENSION

It's hard to believe a snack food that tastes so good can actually be good for you, but it's true! Popcorn is a whole grain that is 100 percent unprocessed with no additional additives, hidden ingredients, or GMOs.

Air-popped popcorn has only 30 calories per cup; oil-popped popcorn has only 35 calories per cup.

Popcorn Recipes & Nutrition Information

Recipes for fun
https://popcorn.org/Recipes/All-Recipes

NE Extension's Food Webpage Recipe
https://go.unl.edu/zeum

Fifty Ways to Flavor Popcorn
https://go.unl.edu/y0os

Popcorn is naturally low in fat and calories, plus it is high in fiber. Be careful when adding butter, oil, and/or salt.
Choose air-popped popcorn without added fat (31 calories per cup), oil-popped (35 calories per cup) or lightly buttered popcorn (about 80 calories per cup).

Resources:

The Popcorn Board
popcorn.org

Popcorn Production and Marketing (NCH-5) Purdue University Cooperative Extension Service

Growing popcorn in home gardens, University of Minnesota

See how commercial popcorn harvest is done...

https://go.unl.edu/h87y

Note: NE Extension does not endorse any organization in the video.

Fun Fact:

The world's largest popcorn ball was created by hundreds of volunteers in Sac City, Iowa on June 18, 2016. The ball weighed 9,370 pounds—made up of almost 5 tons of popcorn—and was 12 feet in diameter.

EXTENSION

Name:_____

County:_____4-H Age_____

2026 Special Agronomy Project
Popcorn

Because I enrolled in the Special Agronomy Project about Popcorn: (please check all that apply):
_____I took a 4-H agronomy project for the first time
_____I grew Popcorn for the first time
_____I grew popcorn for the first time
_____I learned new information about agronomy

Please list three new things you learned by taking this project:
1.

2.

3.

Because I enrolled in the Popcorn project this year, next year I plan to: (please check all that apply)
_____enroll in a regular 4-H agronomy, weed or range project
_____grow popcorn again
_____try a new cultivar of a plant I currently grow
_____amend garden soil with organic matter
_____change an agronomy method I used or use a new method

What change/s do you plan to make or new methods do you plan to use?

Because I enrolled in the Special Agronomy Project this year: (please check all that apply)
_____I am learning skills that can be used in the future
_____I can think of ways this project could be a business
_____I found a connection between my interests and a career
_____I learned about a new career

Would you enroll in the Special Agronomy Project again? Yes No Maybe

If yes, what plant would you like to grow and learn more about?

Complete online or send to Fillmore County Extension at 1340 G Street – Geneva, NE 68361.

University of Nebraska Lincoln