

# 2024 4-H Special Agronomy Newsletter



## Sugar Beet Industry



Sugarbeets are a major contributor to the U.S. sweetener industry, and occur in a vast range of different food products. Of the current world production of more than 130 million metric tons of sugar, about 35% comes from sugarbeet and 65% from sugar cane. In the USA, about 50–55% of the domestic production of about 8.4 million metric tons derives from sugarbeet.

In North America, 11 states and two provinces are involved with sugar beet production, in regions as diverse as the upper Midwest (Minnesota and North Dakota), the far west (California, Idaho, Oregon and Washington), the Great Plains (Colorado, Nebraska, Montana, Wyoming, and Alberta), and the Great Lakes (Michigan and Ontario).

## In this issue...

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

Nebraska currently ranks 5th in the U.S. in production (USDA NASS, 2021) and generally ranges between 45,000–60,000 acres planted per year, with a high of 80,000 in 2000.



# Planting & Care

Typically, sugarbeets are planted as early in the spring as is feasible. Germination does not occur until soil temperature reaches 37 F and germination at such a low temperature requires the liberal presence of water. Plant Sugar Beets 1" inch apart if planted in rows and then thin the plants when they grow 4 to 6 leaves, spacing the plants 10 to 12 inches apart.

After sugarbeet germinates and emerges, seedling growth typically is very slow, mainly because leaves appear slowly under cool temperatures. At first, only two or three small leaves appear per week. Both the rate of leaf appearance and leaf size increase as temperatures warm. Once sugarbeet plants are well-established and have produced four to six true leaves, they enter the canopy growth phase. The canopy or row closure is important in sugar beet production because this canopy greatly reduces weed development as the season goes on. The greatest sugar beet root growth and sugar being deposited in the root occurs in the second half of the summer and even through the early fall.

*(Source, American Sugarbeet Growers Association)*

## Share pictures on social media:

Facebook: @UNLExtension211

Twitter: @UNLExtension

Instagram: @unl\_extension

When fully grown, a sugarbeet is about a foot long, weighs two-to-five pounds, and is about 18% sucrose. They are processed at 20 factories that are located near the fields, because beets are a perishable vegetable. Factories generally operate around the clock, seven days a week, from October through April.



## Insect Pests

### Seed/Seedling Attacking Insects

Spinach carrion beetle  
Cutworms  
Flea beetle  
Garden symphylan  
Wireworms

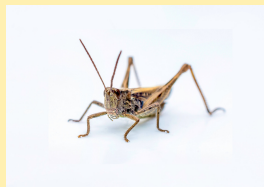
### Root Feeding Insects

Sugarbeet root aphid  
Sugarbeet root maggot  
White grub

*(Source, UNL Sugarbeet Production Guide)*

### Foliage Feeding Insects

Aphids  
Beet leafhopper  
Blister beetle  
False chinch bug  
Grasshoppers  
Spinach leafminer  
Lygus bug  
Spider mite Webworm  
Late season defoliators



Beet sugar represents about 54% of domestically produced sugar. There is no difference between beet and cane sugar.

Growth stages of sugarbeet and approximate duration of each stage.

Growth stage	Approximate weeks in stage
Germination and emergence	3-4
Canopy development	6
Storage root growth	9
Pre-harvest (preparation for winter)	5-6 (through winter)
Overwintering and vernalization	(second growing season)
Stem elongation, flowering, and seed set	

Source: UNL Sugarbeet Production Guide

Share pictures of your project to  
[brandy.vandewalle@unl.edu](mailto:brandy.vandewalle@unl.edu)





# Diseases

## Diseases Caused by Viruses

Beet curly top virus  
Beet mosaic virus  
Beet necrotic yellow vein virus (Rhizomania)  
Beet soilborne mosaic virus  
Beet Western yellows virus

## Diseases Caused by Bacteria

Bacterial leaf spot or leaf blight  
Beet vascular necrosis and rot

## Diseases Caused by Fungi Affecting Foliage

Alternaria leaf spot  
Cercospora leaf spot  
Phoma leaf spot  
Powdery mildew

## Wilt Diseases

Fusarium yellows  
Verticillium wilt

*(Source, UNL Sugarbeet Production Guide)*

## Diseases Caused by Nematodes

False root knot nematode  
Lesion nematodes  
Root knot nematodes  
Sugarbeet cyst nematode  
Stubby root nematodes

*(Source, UNL Sugarbeet Production Guide)*



# Irrigation

Sugarbeet is a biennial crop that uses first-year growth to maximize root yield and sugar accumulation and second-year growth to produce seeds. The water requirements for sugarbeet are similar to corn. Peak water use by sugarbeets generally occurs in late July and early August at approximately 0.25 inches of water per day. Day-to-day variation in crop water use can be extreme. Cool days at this time may result in water use of only 0.1 inch per day while crop water use on hot, dry days can climb to 0.4 to 0.5 inch per day. As air temperatures decline in late August and September, plant water use declines and irrigation schedules should be adjusted to reflect less crop water use.

*(Source, American Sugarbeet Growers Association)*



[go.unl.edu/specialagronomy](http://go.unl.edu/specialagronomy)



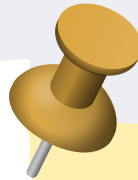
# Harvest

In most years, the crop is still growing and adding yield during the first and second week of October. A general rule is that if the crop is still actively growing during September and early October, sugar content will increase by 0.1 percent per day. A killing freeze can be anticipated in most years by the third week of October, stopping plant growth, making tops difficult to defoliate, and perhaps initiating regrowth and reducing sugar content. Most growers cannot count on harvesting their entire crop during the second week of October and will need to estimate the best time to start harvest.



*((Source, UNL Sugarbeet Production Guide))*

## 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. Any of the following file formats will be accepted: mp4, .mov, .ppt, or .avi. Email a link of the video to the superintendents to anygren2@unl.edu or brandy.vandewalle@unl.edu by August 10th.

**G750013 Special Agronomy Project (Freshly Harvested Crop)** - Plant exhibits must be the result of the current year's project. Supporting documentation (1/2 to 1-page in length) must accompany this which has details outlined in the fairbook. (**Three** sugar beet plants)

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



# Resources & Fun Activities



The sugar beet industry is strategically important to the United States because it produces 1.1 million acres of beets which are processed in 20 factories that are farm owned, and provide enough sugar for 140,000 people.

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## Processing Sugar Beets at Home...

Some beet sugar brands you might recognize are: Crystal Sugar, Western Sugar, Pioneer Sugar, White Satin, and Spreckels Sugar.

Making Sugar Beet Syrup from Sugar Beets Video:  
<https://go.unl.edu/0xcm>



Making Sugar From Sugar Beets Video:  
<https://go.unl.edu/hmg>

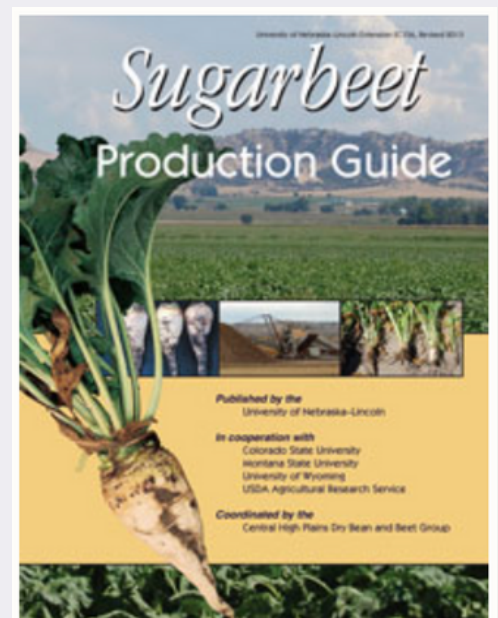


## Resources:

<https://cropwatch.unl.edu/sugarbeets>

Sugarbeet Production Guide available on the CropWatch website →

American Sugarbeet Growers Association  
<https://americansugarbeet.org/>







Name: \_\_\_\_\_

County: \_\_\_\_\_ 4-H Age \_\_\_\_\_



2024 Special Agronomy Project  
Sugar Beets

Because I enrolled in the Special Agronomy Project about Sugar Beets: (please check all that apply):

- \_\_\_\_\_ I took a 4-H agronomy project for the first time
- \_\_\_\_\_ I grew Sugar Beets for the first time
- \_\_\_\_\_ I grew beans 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 Sugar Beet 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 sugar beets 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.