# 2026 SMBSC

# Production Guide

The 2026 SMBSC Production Guide was assembled to provide sugar beet agronomic information specific to the SMBSC growing area. For specific questions, contact your SMBSC Agriculturist. The Production Guide is meant to be a reference. For specific pesticide application information, please refer to the product label.

**Author:**

Lynsey Lies

**Editors:**

Mark Bloomquist

David Mettler

Cody Bakker

Cody Groen

# Planting

## Spring Cover Crop

Sugar beet stand can be negatively impacted shortly after emergence due to wind. One way to prevent this loss of stand is planting a spring cover crop. Agronomic Practice Database data from 2015-2024 shows that a spring cover crop increased ESA by 542 lbs per acre. However, in the last several years, the number of fields with a cover crop has decreased. A contributing reason for this is incompatibility of ethofumesate pre-emergence herbicide at rates greater than 2 pts with a spring cover crop. To achieve a spring cover crop stand a small grain such as oats, wheat, or barley should be seeded at a rate of 0.5-1.0 bushels per acre. If you would like to consider doing both a spring cover crop and a pre-emergence herbicide, SMBSC would recommend 0.5-0.75 pts of Dual Magnum alone or in combination with 2 pts of ethofumesate.

SMBSC incentivizes growers who establish a spring cover crop. For more information about the current year's cover crop program, please contact your Agriculturist.

**Plant Population 22 inch Rows**

| Spacing (Inches) | 5.5 | 5.25 | 5 | 4.75 | 4.5 | 4.25 | 4 |
|---|---|---|---|---|---|---|---|
| Population | 51,840 | 54,309 | 57,024 | 60,025 | 63,360 | 67,087 | 71,280 |

**Plant Population Based on Seed Spacing**

| Spacing | Acres per 4 Unit Box of Seed | Seed Used | Seed Used | Beet Emergence per 100' of Row | | |
|---|---|---|---|---|---|---|
| (in) | (acres) | (seed per acre) | (Seeds / 100') | 90% | 80% | 70% |
| **4.5** | 6.3 | 63,360 | 267 | 240 | 213 | 187 |
| **4.75** | 6.7 | 60,025 | 253 | 227 | 202 | 177 |
| **5** | 7.0 | 57,024 | 240 | 216 | 192 | 168 |
| **5.25** | 7.4 | 54,309 | 229 | 206 | 183 | 160 |
| **5.5** | 7.7 | 51,840 | 218 | 196 | 175 | 153 |

*To convert a value in (plants / 100' of row) to plants per acre, multiply by 237.6.

**Planting Depth**

Recommended planting depth is 1-1.5 inches. Seed depth should be checked frequently and at the beginning of every field.

**Planter Maintenance**

Well maintained planters will help to establish the best possible stand. Every planter has various wear components. Prior to the beginning of the season check tires, wheels, hubs, bearings, bushings, planter bar structural steel, hydraulic cylinders and lines, pneumatic components, and other wear parts. The function of a planter and its row units running smoothly and level through the field is to guide the seed into a more perfect placement within the row. For additional information contact your Agriculturist or equipment dealer.

Vacuum and positive pressure meters perform their best when clean and calibrated. Run each meter on a test stand hosted by SMBSC or your equipment dealer at least every three years. Seed disks should be shimmed properly and checked for irregular wear and warping. Vacuum seals should be cleaned to maintain consistent contact and vacuum. John Deere Max Emerge meters should run a target vacuum of 3.5-5.5 inches of water vacuum. Case IH Early Riser meters should target 18-22 inches of vacuum. Precision planting vSet meters should target 12-20 inches of vacuum. Singulators should be set to make minimal contact with the seed cells. Meter baffles should be adjusted to lower positions to limit excess seed grinding.

**John Deere XP Row Units**

With their forward pushing gauge wheel arms, careful attention must be paid to clearance settings. The gauge wheel should lightly touch or have a very small gap to the opening disk in the up position. Opening disks should be shimmed according to planter manual specs. Every pair should be checked annually for wear and spacing. Opening disks that are worn below 14.75 inches should be replaced. Closing wheels should be spaced narrow with light down pressure for finely prepared seed beds. Row unit down pressure settings are highly dependent on field conditions.

**Case IH**

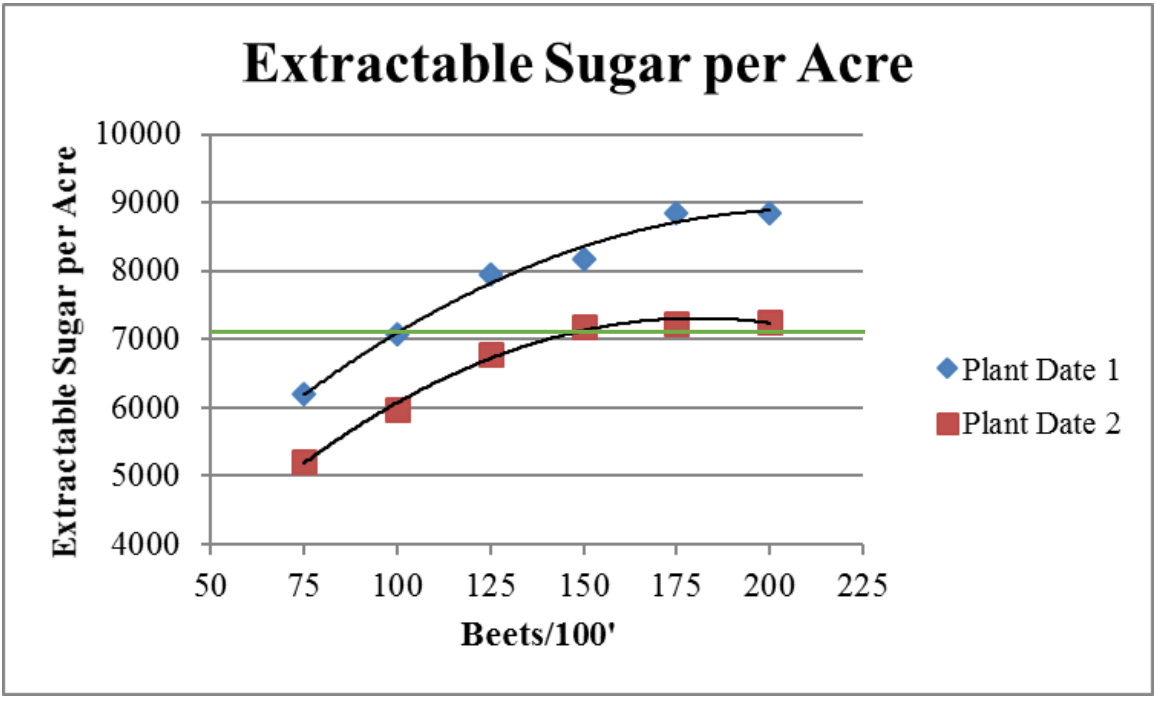
The rear trailing gauge wheel design allows for a slightly smoother and more consistently level ride through the field. The gauge wheels' arms should be checked for bushing wear and space wheel adjustment. Opening disks should be shimmed according to planter manual specs. Disks worn below 13.5 inches should be replaced. Closing disks and wheel down pressure should be adjusted according to field conditions.

**Planting Tolerance**

For up-to-date planting tolerance information please consult the Shareholder Messages page on the Shareholder Portal or ask your Agriculturist.

**Replanting**

There are some fields every year that have a lower stand than anticipated. Sugar beets often overcome the problem of low stand by growing larger. However, there are times when it may be beneficial to replant sugar beets. Trials performed in 2016 and 2017 showed that fields with a stand greater than 100 beets per 100 ft of row did not show an increase in ESA when replanted 20 days after the original planting date. The graph on the following page shows ESA by population for beets with each planting date. Plots with fewer than 100 beets per 100 ft of row did show an increase in ESA when the replanted population was greater than 125 beets per 100 ft of row. For additional information on replanting consult your Agriculturist or see the Replanting Guideline for SMBSC on the Agronomy page of the SMBSC website https://www.smbsc.com/agronomy/AgronomyDefault.


Extractable Sugar per Acre
Extractable Sugar per Acre
10000
9000
8000
7000
6000
5000
4000
50
75
100
125
150
175
200
225
Beets/100'
Plant Date 1
Plant Date 2

**2026 Approved Seed**

Below are the approved seed varieties for crop year 2026. Approval is based on the results of Official Variety Trials and disease nurseries. This list includes both fully approved varieties as well as specialty and test market varieties. Each test market variety can account for up to 10% of the cooperative's planted acres.

Please visit the Agronomy page on the SMBSC website for Variety Trial Data, Nursery Data, and other additional variety information.

| **Fully Approved Varieties** | **Test Market Varieties** | **Rhizoctonia Specialty Varieties** |
|---|---|---|
| Beta 9131 | Beta 9415 | Beta 9131 |
| Beta 9284 | Beta 9497 | Beta 9284 |
| Beta 9369 | Crystal M339 | Crystal M977 |
| Crystal M106 | Crystal M432 | **Last Year of Sales** |
| Crystal M168 | Crystal M445 | SESVanderhave 863 |
| | Hilleshog 2395 | |

**Seed Treatments**

All seed sold in the SMBSC growing area is treated with Kabina, Zeltera, or Vibrance to protect against Rhizoctonia and Tachigaren for Aphanomyces prevention.

**Seed Guide Notes**

*Calculations are based on the percent of mean for the 5 Fully Approved varieties.

**Variety also designated as a RHC Specialty.

***Variety also designated as a Test Market.

****CR+ varieties are indicated by blue font

All data in this guide is based on the two years of testing (2024 and 2025) except for the CLS ratings which are based on one year of data.

## 2026 Seed Guide

| Approval | Variety | Percent Revenue/Ton* | Percent Revenue/Acre* | Aphanomyces Root Rot | Cercospora Leaf Spot*** | Rhizoctonia Root Rot |
|---|---|---|---|---|---|---|
| Fully Approved | Beta 9131** | 98.0 | 99.3 | 3.6 | 3.7 | 3.6 |
| | Beta 9284** | 99.8 | 101.4 | 3.1 | 3.7 | 3.8 |
| | Beta 9369 | 106.0 | 108.3 | 3.7 | 3.1 | 4.0 |
| | Crystal M106 | 99.0 | 98.9 | 3.5 | 3.6 | 3.8 |
| | Crystal M168 | 96.0 | 91.4 | 3.7 | 4.0 | 4.6 |
| RHC Specialty | Crystal M977 | 92.5 | 97.0 | 3.6 | 3.9 | 3.3 |
| Test Market | Beta 9415 | 98.4 | 99.4 | 3.9 | 4.3 | 3.4 |
| | Beta 9497 | 104.3 | 109.0 | 3.7 | 3.4 | 3.6 |
| | Crystal M339 | 97.7 | 99.6 | 3.4 | 3.4 | 4.0 |
| | Crystal M432 | 103.6 | 103.4 | 3.5 | 4.0 | 4.0 |
| | Crystal M445 | 101.1 | 104.5 | 3.6 | 2.8 | 3.4 |
| | Hilleshog 2395 | 90.8 | 91.5 | 4.4 | 4.0 | 4.3 |
| Last Year | SV 863 | 96.3 | 86.9 | 4.8 | 3.9 | 3.9 |

# Nutrient Management

## Soil Sampling

The first step in a good sugar beet nutrient management program is knowing what is already in your soil. Soil sampling should be used both to determine fertility programs and to select fields for growing beets. For organic matter, pH, phosphorus, and potassium a 6-inch soil sample is required. For nitrogen, a 36-48 deep inch sample is a recommended best management practice.

SMBSC incentivizes soil sampling to encourage proper nutrient management. For details on the crop year 2026 Soil Fertility Analysis Program visit the Other Fertilizer section of the Fertility tab on the Agronomy page of the SMBSC website.

**Nitrogen**

In sugar beet production nitrogen rates are one of the most important considerations for yield and quality. The current nitrogen recommendation for the SMBSC growing area is dependent on previous crop. For sugar beets following field corn use a rate of 150-170 lbs/A of total nitrogen in a 4 ft soil sample. For sugar beets following all other crops the recommended total N is 130 lbs/A. Utilize soil organic matter and manure history when considering an adjustment to the nitrogen rate for your fields. Over application of nitrogen can result in a reduction of quality without the benefit of increasing yield.

Nitrogen applications can be applied in the fall or spring. In heavier textured soils, a single nitrogen application can be applied. For sandy textured soils, it is beneficial to split applications between a pre-plant and a 6-8 leaf application. Spring urea applications may lead to a reduction in sugar beet stand, especially at higher rates. Nitrogen applications late in the season can reduce sugar beet quality.

For additional information on all nutrient recommendations please visit Agronomy Quicksheets at https://www.smbsc.com/agronomy/AgronomyDefault.

**Phosphorus**

Use the following table for phosphorus application recommendations. For soils with a pH higher than 7.4 use the Olsen test and for soils lower than 7.4 the Bray P1 test should be used. If the Olsen test shows results under 10 ppm (or Bray under 7 ppm) consider applying 3 gallons of a liquid starter fertilizer containing phosphorus. The use of a starter fertilizer in-furrow at planting has shown to be advantageous. In-furrow fertilizer application rates above 3 gallon per acre can reduce sugar beet emergence.

| Soil Test Results – Bray P | Soil Test Results – Olsen P | P2O5 Application Rate |
|---|---|---|
| 0-5 ppm | 0-3 ppm | 80 lbs/A |
| 6-10 ppm | 4-7 ppm | 55 lbs/A |
| 11-15 ppm | 8-11 ppm | 35 lbs/A |
| 16-20 ppm | 12-15 ppm | 10 lbs/A |
| 21+ ppm | 16+ ppm | 0 lbs/A |

University of Minnesota Phosphorus guidelines for sugar beet production.

**Potassium**

Potassium is the final macro-nutrient needed for a fertility program. Generally, if potassium levels in the soil are already above 150 ppm potassium applications are unnecessary. The table shows University of Minnesota potassium guidelines for sugar beets.

| Soil Test Results | K2O Application Rate |
|---|---|
| 0-40 ppm | 110 lbs |
| 41-80 ppm | 80 lbs |
| 81-120 ppm | 50 lbs |
| 121-160 ppm | 15 lbs |
| 161+ ppm | 0 lbs |

**Boron**

There are few micronutrient applications that have shown to positively impact a sugar beet crop. A boron application may be beneficial on sandy soils but is not needed on heavier soils. Boron deficiency symptoms include a blackening of new leaves at the center of the beet and wilting of older leaves. These symptoms are often exacerbated by drought. If there is reason to believe boron deficiency could be an issue in a field, an application of 2 lbs/A preplant may be made. Consult your Agriculturist if you suspect there may be a deficiency in your field.

**Sulfur**

A response to sulfur is possible on sandy soils with less than 3% organic matter. Consider a sulfur application of 10-25 lbs of sulfate sulfur on these sandy soils.

**Manure**

The use of manure in a sugar beet rotation is a practice that has been increasing in recent years. Research trials and the SMBSC Agronomic Practice Database have shown favorable results for manure use in a sugar beet rotation. The over-application of manure can lead to a decrease in sugar content and purity, so careful management is required when manure is used in a sugar beet rotation.

**Liming**

Sugar beets grow best in a soil with a neutral pH (7.0) or above. If your soil pH is more acidic (<6.5) the addition of lime or PCC (precipitated calcium carbonate) could benefit sugar beet production on that field. The addition of lime or PCC at rates greater than 3 tons per acre have also been shown to reduce Aphanomyces root rot of sugar beets. The general recommendation is to apply the lime or PCC one or two season before the sugar beet crop.

## Pesticide Application Best Management Practices

The practices used to apply products can be just as important as the products being applied. The following are practices that should be utilized to improve your pesticide applications.

### Scouting

Scouting your fields for weeds, insects, and diseases helps to assess the problems in your field and stay on top of any issues. Scouting done early will allow you to take advantage of brief spraying windows. Never spray pesticides without scouting your field first.

### Nozzles

Nozzles wear over time. Make sure to check the spray pattern and replace worn out nozzles. Consult a nozzle catalog to determine the correct nozzle, boom height, nozzle spacing, pressure, and speed.

### Read The Label

Always read and follow the pesticide label when making an application. The label will have important information about PPE, application rates, tank mix partners, and controlled pests. Remember that information in this booklet is just a guide, always consult and follow the product label.

**Water Testing**

Water quality can have a large impact on the effectiveness of pesticides. Some pesticides can bond with organic materials, minerals, or sediment in water. This can inactivate or prevent the pesticides from being taken up by the plant. Testing water for hardness, iron, and pH allows you to make informed decisions about pesticide applications.

Some pesticide labels have specific requirements for the parameters of the water used as a carrier. Conditioning water with AMS or a buffering agent when required can ensure that an application is both on label and effective.

**Spray Volume**

Water volume can make a large impact on the efficacy of a pesticide application. For systemic herbicides use 10-12 gallons of water per acre. For contact herbicides use at least 15 gallons per acre. The CLS fungicide recommendation is 20 to 25 gallons of water to ensure good coverage. Spray volume for insecticides depends on the product being applied. Always follow the labeled requirements.

**Adjuvants**

When choosing adjuvants make sure they are tested and come from a reputable source. Choose the correct type of adjuvant for the pesticide you are applying. The pesticide label should designate the type of adjuvant recommended for each particular pesticide.

**Mixing Order**

Unless otherwise specified on the label, use A.P.P.L.E.S. to determine the mixing order. Fill the tank halfway with water then follow these steps:

Agitate
Powders soluble (dry fertilizers, SG, SP)
Powders dry (DF, WDG, WP)
Liquid flowables and suspensions (ASC, F, ME, SC, SE)
Emulsifiable concentrates (EC, EW, OD)
Solutions (S, SL)

**Tank Cleaning**

Proper clean out of your equipment when switching between products will ensure that all of the remaining pesticide residue from the previous application has been removed from the sprayer and will not cause damage to your sugar beet crop. Use water, a tank cleaner, or a cleaning agent specified by the product label. Always follow cleaning instructions on the pesticide label.

**Check Surrounding Areas**

Be aware of sensitive crops and bees that may be harmed by pesticide applications. Many growers of these crops use FieldWatch to make others aware that they are near a pesticide sensitive area. To view FieldWatch maps visit: https://www.mda.state.mn.us/plants-insects/fieldwatch. Additionally, it is important to know when pesticide applications are limited due to endangered species in the area. If you are spraying a pesticide with an Endangered Species Protection Bulletin check the Bulletins Live! Two tool for current information on where the pesticide is limited. This map can be found at: https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins.

## Weed Control

### Pre-Emerge Herbicides

Pre-emergence herbicides are an important weed control tool in sugar beets as the number of post-emerge options are limited. The use of a pre-emergence application has been shown to help set the stage for quality weed control. Pre-emergence options include the following:

- Dual Magnum can be applied at 0.5-0.75 pt/A depending on organic matter. It is compatible with cover crops but does require 0.5 inches of rain to be activated. Dual Magnum requires each user to agree to the indemnified label at: https://www.syngenta-us.com/labels/indemnified-label-login
- Ethofumesate can be applied up to 7.5 pt/A or 2 pt/A with a cover crop. Rates above 2 pt/A can be harmful to cover crop stands.
- Eptam has a rate of 2.3-3.4 pt/A. Eptam must be immediately mechanically incorporated and can cause injury to both sugar beets and cover crops, especially on lighter textured soils.
- Ro-Neet SB has a rate of 4-5.3 pt/A. It does require immediate mechanical incorporation and may stunt cover crops.

Please see the chemical labels or talk to your Agriculturist for more information.

**Lay-by Herbicides**

Studies have shown that pairing a pre-emerge herbicide application with a split lay-by program provides the best chance of good weed control. Splitting the lay-by into two applications also reduces the risk of injury to the sugar beets.

Lay-by options include Dual Magnum (or generic formulations), Outlook, and Warrant. Unfortunately, all of these options do require moisture for activation and are therefore less effective in dry seasons. For specific information on single and split application rates review the Weed Control Quicksheet on the Agronomy page of the SMBSC website or consult the pesticide label.

**Post Emergence Herbicides**

There are few post emergence herbicide options in sugar beets. The products that are available are mostly ineffective when it comes to controlling waterhemp. For information on specific herbicide products and rates please view the Weed Control Quicksheet on the Agronomy page of the SMBSC website, talk to your Agriculturist, or consult the product labels. https://www.smbsc.com/agronomy/AgronomyDefault

## Control of Waterhemp Escapes

For waterhemp that has not been controlled by your herbicide program there are few options. These include interrow cultivation, electric weeders, applying Ultra Blazer*, and hand weeding.

*In the 2022-2025 seasons Ultra Blazer had Section 18 approval. As of the time of this publication Ultra Blazer is not labeled for use in 2026. Applying products that are not labeled for use in sugar beets is illegal.

**Electric Weeding**

Electric weeding can control weeds that are taller than the sugar beet canopy. A study done by NDSU in 2020 showed that electric weeding can control 80% of waterhemp 14 days after treatment. Electric weeders can also help to reduce weeds in future seasons by reducing the viability of weed seed. However, electric weeding should not replace your weed control program as weeds that are tall enough to be controlled will have already affected yield due to competition with the sugar beet crop.

**Cultivation**

Interrow cultivation can be a useful tool for controlling weeds. Cultivation will not prevent the emergence of new weeds but based on an NDSU study from 2017 and 2018 cultivation can result in up to 12% greater control of existing waterhemp. Cultivation should ideally be timed close to row closure, and it provides the best control when weeds are less than 6 inches tall.

When cultivating, set the cultivator depth and tractor speed to prevent dirt from being thrown into the crown of the beet. Rhizoctonia root rot can be a concern when dirt is thrown into the beet crown. Based on information from the 2021 and 2022 SMBSC Ag Practice Database in season cultivation for weed control actually increases ESA.

## Herbicide Safety

**Herbicide Drift**

If you suspect that herbicide has drifted into your sugar beet field contact your Agriculturist.

**Herbicide Carryover**

One of the key ways to control weeds in sugar beets is to control weeds throughout the rest of your crop rotation. Other crops within a rotation will likely have more options for weed control products. One important thing to consider when applying these products is herbicide carryover.

Some herbicides can stay active in the soil for an extended period of time. A primary factor that can increase carryover crop injury is dry weather. The lack of moisture can reduce chemical and microbial processes that break down active ingredients in pesticides. Another factor that can affect the breakdown of herbicides is soil pH. Some herbicides degrade slower in low pH soils and others in high pH soils, which is why it is always important to read the pesticide label for crop rotation information and know your soil pH.

The guide on the following pages contains information on the rotation restriction to sugar beets of common herbicides. This is not a complete guide, so remember to always follow the label.

**Rotation Restrictions (Months)**

| | | | | | |
|---|---|---|---|---|---|
| Acuron/Flexi/GT | 18 | Boundary | 18 | First Rate | 30b |
| Anthem/Maxx/Flex | 12-15 | BroadAxe XC | 24-36b | Flexstar/GT | 18 |
| Armezon/Pro | 18 | Capreno | 18 | Halex | 18 |
| Atrazine | 2CS* | Callisto/GT/Xtra | 18 | Harness | NCS** |
| Authority Assist | 40b | Clarity | 4-6 | Impact | 9-18 |
| Authority Elite/MTZ | 24-36b | Corvus | 17 | Instigate | 18 |
| Authority First | 30b | Diflexx Duo | 10 | Laudis | 10 |
| Authority Supreme | 24 | Engenia | 4 | Liberty | 0 |
| Autumn Super | 18-24 | Extreme | 40b | Lumax EZ | 18 |
| Balance Flexx | 18 | Fierce EZ | 12 | Matrix | 18 |
| Beyond Xtra/Raptor | 18-26 | Fierce MTZ/Kyber | 18 | Metribuzin | 18 |

**Rotation Restrictions (Months) Continued**

| | | | | | |
|---|---|---|---|---|---|
| Nortron/Ethofumesate | 0 | Sharpen | 4-9 | Tavium | 6 |
| Permit | 24-36 | Shieldex | 18 | Treflan | 12-14 |
| Prequel | 18 | Sinate | 18 | TripleFlex II | 26b |
| Prowl | 12-20 | Sonalan | 8-13 | Valor | 4-8 |
| Pursuit | 40b | Spartan Flex/Elite | 24-36b | Varisto | 18 |
| Realm Q | 18 | Starane | 9 | Varro | 9 |
| Reflex | 18 | Status | 4 | Widematch | 4 |
| Require Q | 10-18 | Stinger/HL | 0 | Xtendimax | 1.5-6 |
| Resicore | 18 | SureStart II | 26b | Zidua | 12-15 |
| Revulin Q | 18 | Surpass | NCS** | Zidua Pro | 40b |

*2CS: Two Crop Seasons **NCS: Next Crop Season b: Restriction plus successful bioassay

## Insect Control

### Cutworm

Cutworms are generally a late spring pest. While some species overwinter in Minnesota, others migrate here each year. As their name implies, cutworm damage involves cutting leaves or the entire beet plant. The economic threshold depends on plant population. Please consult your Agriculturist for recommendations.

### Lygus Bug

Lygus tend to move into sugar beet fields from other crops (alfalfa) in mid to late summer. Both adults and nymphs can feed on the plants causing scarring on petioles and yellowing of leaf tips. Lygus bug will often leave a black, sooty substance on the new leaves of the sugar beet plant. The economic threshold of lygus can depend on several variables in the field. Please contact your Agriculturist for recommendations.

### Minor Insect Pests

Some years other insects can economically impact fields in the SMBSC growing area. Some of those possible insects are shown on the following pages.

**Insect Identification**

**Cutworm**

Cutworms are usually smooth, approximately 1-2 inches long, and can be grey, brown, or black. They are often found curled up at the base of the plant or beneath the soil as in the photo below.

Photo Credit: David Mettler

**Lygus Bug**

Lygus can be found in beet fields as both nymphs and adults. Nymphs are bright green with a spot on their back. Adults tend to be brown with a V shaped marking. Pictured is an adult lygus bug.

Photo Credit: https://extension.missouri.edu/programs /cotton-extension/cotton-pests/lygus-tarnished-plant-bugs

**Flea Beetle**

Flea beetles are small, black beetles. They can cause small round holes in leaves that can look similar to CLS.

Photo Credit: David Mettler

**Root Aphid**

The most common sign of root aphids is their white, waxy secretions that can give the beet root a moldy look.

Photo Credit: Margaret M. Rekoske

**Blister Beetle**

The blister beetles that feed on beets are usually either black or striped. They can be up to 3/4 inch long.

Photo Credit: David Mettler

**White Grub**

White grubs are C-shaped larvae that are found in the soil. They have large legs and chewing mouthparts.

Photo Credit: David Mettler

**Armyworm**

Armyworm larvae can grow to 1 1/4 inches long and have 3 pairs of legs as well as 5 pairs of proto legs.

Photo Credit: https://extension.umn.edu/news/armyworm

**Cabbage Looper**

The larvae are bright green and can grow up to 1 1/2 inches long. They leave ragged holes in beet leaves.

Photo Credit: S.J. Wold-Burkness

## Insecticide

There are few products labeled for use in sugar beets to control insect pests. Asana XL, Mustang Maxx, and Dibrom 8 Emulsive are some of the products that are available. Always consult the label before making a pesticide application. A pest's economic threshold should be considered on a case-by-case basis. Please contact your Agriculturist for additional information on insecticide applications.

- Asana XL has an application rate of 5.8-9.6 oz/A. It is effective against cutworm and can have activity against lygus bug at the highest labeled rate. Asana is a Restricted Use Pesticide with a PHI of 21 days.
- Mustang Maxx can be applied at a rate of 2.24-4.0 oz/A. It is effective against both lygus bug and cutworm. Mustang Maxx has a 50 day PHI, so be aware of this restriction if used later in the season for lygus control. Mustang Maxx is a Restricted Use Pesticide.
- Dibrom 8 Emsulive has a rate of 1 pt/A and effectively controls lygus bug. This insecticide is a Restricted Use Pesticide with a PHI of 2 days.

- Chlorpyrifos is effective against both lygus bug and cutworm. For cutworm broadcast 2 pt/A and for lygus bug apply 1 pt/A. As of the time of this publication, the only chlorpyrifos product that can be legally applied on sugar beets in Minnesota in 2026 is Pilot 4E with the new labeling. Product with old labeling may not be applied on crops being utilized for food or feed purposes. For additional information on chlorpyrifos registration please visit the MDA website at https://www.mda.state.mn.us/pesticide-fertilizer/chlorpyrifos-insecticide.

## Diseases

### Cercospora Leaf Spot

Cercospora Leaf Spot (CLS) is the foliar fungal disease that has the most impact on the SMBSC growing area. The disease can significantly reduce yields if not managed correctly. Planting cercospora tolerant varieties, managing infected residues, and utilizing a rotation of 3 or more years can help to reduce the severity of disease. However, following the recommended CLS fungicide program and using best management practices while making applications are critical for successful control of the disease.

CLS infection can be greatly impacted by environmental conditions. Temperatures of 60-85°F and high relative humidity will cause the disease to spread faster. For current disease index values (DIVs) graphs please visit: https://www.smbsc.com/agronomy/AgronomyDefault.

Photo Credit: Lynsey Lies

**2026 SMBSC CLS Fungicide Program**

## CLS Fungicide Program

**Start when leaves are ~4" apart or 1500 GDU**
**Applications on 10-day intervals**

1. Proline* + EBDC
2. Tin + Topsin*
3. QoI (strobi) + EBDC
4. Tin + EBDC
5. Inspire XT** + EBDC
6. Tin + EBDC
7. DMI Group 1*** + EBDC

*Or generic

**DMI Group 2: Inspire XT and Provysol. Or generic. Regev and Luna Flex have a 7-day PHI compared to Inspire XT 21-day PHI.

***DMI Group 1: Domark/Minerva, Lucento/Topguard, Enable, and Proline.

**CLS Fungicide Resistance**

For the past 10 years there has been high fall resistance levels to QoIs such as Headline, Gem, and Priaxor. However, data from the past few years has shown that CLS is more susceptible to QoIs earlier in the season. In 2025 there was a low number of fields with tin resistance. Resistance levels for triazoles have remained relatively stable over the last few years. These products fall into two resistance groups. When spraying triazoles, do not repeat individual products within a single season and alternate resistance groups with each triazole application. The groups are as follows:

1. Proline (Phobos, Prozio) Domark/Minerva, Topguard, and Enable
2. Inspire XT (Esquire XT, Regev, Luna Flex) and Provysol

CLS resistance to fungicides is one of the biggest challenges for controlling the disease. A primary reason for creating a specific CLS fungicide program is to mitigate further resistance issues. Following the program will not only maintain the best possible control of CLS, but it will also make sure that multiple modes of action are being utilized to help ensure fungicides will remain effective for seasons to come.

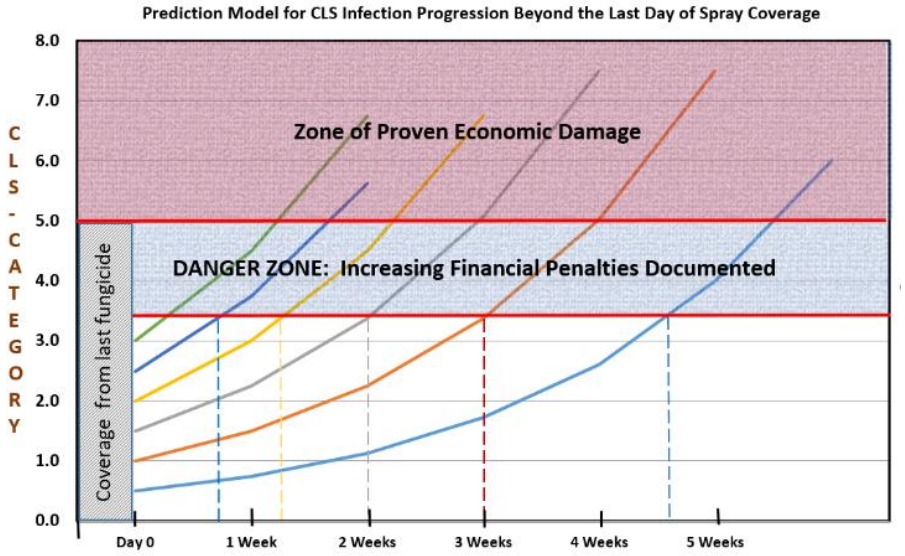
**CLS Fungicide Application Best Management Practices**

- **ALL VARIETIES REQUIRE THE USE OF A FUNGICIDE PROGRAM.**
- Begin your fungicide program around June 21. CLS is much easier to manage when control begins prior to symptom development.
- Generally, use a 10 day spray interval, but always scout fields and consider weather and DIVs when determining application timing.
- Choose a spray nozzle that can produce a medium droplet size and use an appropriate spray pressure. Spraying above the recommended pressure can reduce the effectiveness of an application by creating additional spray fines.
- Use a spray volume of 20 to 25 gpa.
- Utilize tested adjuvants from reputable sources in your application.
- Do not mix fungicides with glyphosate.
- Always read the fungicide label.

**CLS Rating Guide**

**CLS Progression Prediction**

The graph to the right shows the progression of CLS when a sugar beet field is left unsprayed at the end of the season. It can be used to help determine the timing of the last CLS fungicide application for the season. Ratings are based on the 1-9 scale.



**Aphanomyces**

Aphanomyces can cause damping off in the spring and also chronic root rot symptoms throughout the rest of the season. Aphanomyces tends to favor warm, wet soils and can remain in the soil for many years. A soil index for Aphanomyces can be performed to determine the amount of disease potential within a field.

In the SMBSC growing area all seed is treated with Tachigaren to prevent early season damping off. Additional management practices to reduce Aphanomyces include: planting tolerant varieties, tiling to reduce saturated field conditions, and application of lime or PCC. PCC applications are generally in the 3-4 ton per acre range and should be applied 1-2 seasons ahead of the beet crop. Applying lime at a rate of 10 tons per acre has been shown to reduce incidence of Aphanomyces for up to 12 years. Photo Credit: Lynsey Lies

**Fusarium Yellows**

Fusarium yellows is caused by a soil borne fungus. It favors warm temperatures and poorly drained soil. Fusarium can live in the soil for several years and can be introduced to new fields through contaminated equipment. Cleaning equipment and planting resistant varieties are the most effective ways of preventing Fusarium.

Fusarium can impact sugar beets early in the spring, but it is more likely to appear with warmer temperatures later in the season. The first symptom of Fusarium is a yellowing of older leaves followed by that of newer leaves. Eventually the leaves may become necrotic. The root's surface may appear normal on the outside, but a cross section of the root may show brown or gray discoloration of the vascular rings in the root.

Photo Credit: https://www.ag.ndsu.edu/PUBLICATIONS/crops/fusarium-yellows-of-sugar-beet

**Rhizoctonia**

Rhizoctonia root rot is a soil-borne fungal disease that can cause damping off in the spring as well as root rot later in the season. Rhizoctonia is known to significantly reduce yield and be harmful to the long-term storage of sugar beets. There are several management options to help prevent the disease.

First, choose a resistant variety. All varieties sold in the SMBSC growing area are treated with Kabina, Vibrance, or Zeltara to provide early season protection. In-furrow, post-emerge banded, and post-emerge broadcast fungicide applications can be made for further protection. For specific information on fungicides see the pesticide labels and Rhizoctonia Quicksheet on the Agronomy page of the SMBSC website. https://www.smbsc.com/agronomy/AgronomyDefault

Photo Credit: Lynsey Lies

**Rhizomania**

Rhizomania is caused by beet necrotic yellow vein virus (BNYVV), which is spread through a soil borne fungus that prefers warm, wet conditions and can survive for years in the soil. Rhizomania can have a wide range of symptoms. It can cause multiple lateral roots or a stunted wineglass shaped root. Rhizomania can also cause a fluorescent yellowing of leaves.

Rhizomania control is largely achieved through variety resistance. However, cultural practices can reduce the effect of the disease. Practices that promote soil drainage such as tiling, tillage, and managed irrigation timings can help to prevent the disease. Additionally, early planting and establishing a good stand before soil temperatures become favorable for the disease can help to mitigate its effects.

Photo Credit: Mark Bloomquist

**Alternaria**

In 2024 the SMBSC growing area saw an increase in the number of fields with Alternaria leaf spot. Until recently, this foliar fungal disease was not known to cause serious economic damage in the United States. As this disease becomes a greater issue, more research is being done on it's prevention. Alternaria is generally a secondary infection that infects leaves that have been compromised by environmental factors such as bacterial leaf spot.

Alternaria produces leaf spots that tend to be larger and more irregular than Cercospora. Eventually the spots may turn black to brown as the fungus begins to produce spores. While not all Cercospora fungicides are equally effective at preventing Alternaria, typically following the recommended Cercospora fungicide program will prevent Alternaria as well. There may be some differences in variety tolerance to Alternaria, but there are obstacles to screening varieties for this disease at this time.

Photo Credit: Lynsey Lies

## Directory

| | |
|---|---|
| Paul Wallert | 320-894-0917 |
| Cody Bakker | 320-905-5759 |
| **Agriculturists** | |
| Andrew Docter | 320-522-6702 |
| Bill Luepke | 320-522-0004 |
| Charles Tvedt | 320-522-4887 |
| Dylan Swanson | 320-522-4962 |
| Gavin Johnson | 320-522-4992 |
| Jared Kelm | 320-894-6797 |
| **Other** | |
| Harvest Hotline | 320-524-2345 |
| **Research Staff** | |
| Mark Bloomquist | 320-905-1185 |
| Cody Groen | 320-979-0670 |
| David Mettler | 320-522-3836 |
| Lynsey Lies | 320-522-6224 |
| **Shareholder Accounting** | |
| Linda Foss | 320-522-3865 |
| Jamie Van Lengen | 320-329-4190 |
| **Office Staff** | |
| Jody Steffel | 320-894-3196 |
| Liza Fagen | 320-329-4143 |

**Pile Site Scalehouse**

| | | | |
|---|---|---|---|
| Belgrade | 320-329-7523 | | |
| Benson | 320-329-7505 | Maynard | 320-329-7541 |
| Bird Island | 320-329-8851 (in)/ 7502 (out) | Murdock | 320-329-7504 (in) / 7503 (out) |
| Buffalo Lake | 320-329-8850 | Raymond | 320-967-4171 |
| Clara City West | 320-329-7540 | Redwood Falls | 320-329-7542 |
| Clontarf | 320-329-7501 | Renville North | 320-329-8861(in) / 8862 (out) |
| Hector | 320-329-7500 | Renville South | Ext 250 (in) / 320-329-4139 (out) |