



ENOGEN VALUE PRESERVATION STEWARDSHIP GUIDE

FOR ENOGEN CORN GROWERS



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TECHNOLOGY OVERVIEW

Enogen® corn features a unique enzyme technology exclusively from Syngenta. Compared to other commercially available corn hybrids, this technology creates a higher concentration of alpha-amylase within the endosperm of grain.

Alpha-amylase is crucial to ethanol production because it helps break down starch during the process. By providing a vital ingredient right in the kernel, Enogen corn improves overall efficiency and throughput.

Enogen technology also delivers a unique benefit in the form of a more digestible feed ration for beef and dairy cattle.

With all these unique properties, Enogen corn must be grown as an identity preserved crop. That's why participating in this program requires communication with your neighbors to ensure co-existence with all crops near your farm.

As long as you follow the proper stewardship requirements, you can still use your existing cultural farming practices including nutrient, insect and disease management programs.





STEWARDSHIP MISSION

Enogen corn is not commodity corn. It is a high-value specialty grain that must be grown as an identity-preserved crop. That's why growers like you are required to follow specific stewardship requirements.

Syngenta has developed the following stewardship program to simplify proper management of the crop, and to ensure it reaches the intended channels.

COMMUNICATION

Proactive communication with your neighbors is vital to the stewardship mission of Enogen corn.

You are expected to share your cropping intentions with your neighboring growers and understand their intentions as well. By doing so, you'll help to protect Enogen corn as an identity preserved crop and its grower premium programs.

If you need support in sharing the necessary information, please contact your grower account lead or Syngenta sales representative.



STEWARDSHIP OVERVIEW

- ▶ Read your contract
- ▶ Verify your destination requirements for Enogen production contracts (delivery months, pricing options, quality specs, etc.)
- ▶ Plant in fields* designated on your contract only
- ▶ Ensure 30 ft. border rows are adjacent to other annual crops unless separated by a physical border of 30 ft. or greater

Clean any equipment used during planting, harvest, storing and transport including the following:

- ▶ Seed tenders
- ▶ Planters
- ▶ Combines
- ▶ Choppers
- ▶ Trailers
- ▶ Wagons
- ▶ Grain carts
- ▶ Conveying equipment
- ▶ Grain bins

- ▶ Identify and segregate Enogen seed (visual aids will be provided for identification)
- ▶ Return all unplanted seed to your reseller or dispose of it properly
- ▶ Complete all necessary documentation

**(Field changes are acceptable, but you must first communicate with your neighbor, verify field location change with your Enogen account lead, and amend your contract.)*

As part of your contract, Syngenta reserves the right to enter your fields and ensure Enogen-related stewardship requirements including:

- ▶ Field signs
- ▶ Yield checks
- ▶ Sample collection
- ▶ Border row verification



GRAIN TRACKING

To more easily identify loads and simplify grain tracking, Enogen corn features a naturally derived colored tracer trait called the Enogen Value Tracker.

Up to 5% of seed in Enogen bags will contain the colored tracer. Once planted, the tracer will be expressed in random plants throughout the field.

Enogen Value Tracker grain is non-Enogen seed* to be used as a color tracer at planting time for quicker and easier identification of Enogen grain via the inclusion of purple or maroon kernels.

The goal of the Enogen Value Tracker is to ensure the grain is delivered to its intended destination.

**Enogen Value Tracker grain may contain the alpha amylase enzyme (event 3272) found in Enogen corn.*



Enogen Value Tracker Corn Plant (Purple)



Enogen Value Tracker Grain (Purple)



Enogen Value Tracker Corn Plant (Maroon)



Enogen Value Tracker Grain (Maroon)



CONTRACT AND MANAGEMENT SYSTEM

Enogen corn is contracted through an online contracting and management system that enables you to easily manage your stewardship obligations. An Agrisure® trait license is also required.

FEATURES

- ▶ GPS mapping tool for Enogen capacity, fields, border rows and storage systems
- ▶ Distribution plan to the destination
- ▶ Inventory management
- ▶ Stewardship documentation and end use requirements

REQUIRED INPUTS

Certain inputs are required at key stages to document your stewardship activities and ensure the end-use destination has a clear view of the projected Enogen corn inventory.

KEY STAGES

- ▶ Planting
- ▶ Harvest



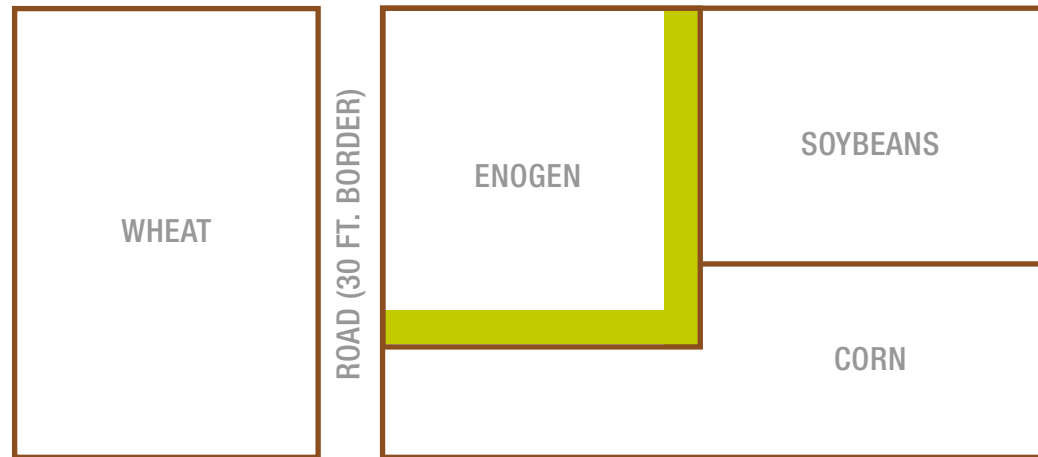
BORDER ROWS

Enogen stewardship requires you to plant 30 ft. border rows from any annual crop unless separated by a physical border of 30 ft. or greater (e.g., tree lines, roads, perennial crops, etc.).

KEY

 BORDER ROW REQUIRED

 GROWERS' LAND



SAMPLING

After planting, both Enogen corn rows and border rows will be audited and verified through sampling.

If you've made any changes* in planting from your contract, please advise your grower account lead or Syngenta sales representative.

**(Changes could be altered border rows, unclear planting patterns or overplanting due to planter turnaround and unspecified field edges.)*



PARTIAL BAG RETURN

Any unplanted Enogen seed is required to be returned to the seed reseller unless properly destroyed.

PROCESS

- ▶ You return partial paper bags or Q-Bits to your reseller
- ▶ Reseller inventories and consolidates seed in empty Q-Bits for return to Syngenta
- ▶ Reseller dumps all partial units into Q-Bit (partial Enogen units are acceptable to mix)
- ▶ Resellers maintain a list of growers and approximate seed weights to aid in reimbursement to growers

PACKETS

A packet will be provided with an optional tracking form, identification label and zip pouch for returning Enogen seed.

The identification label should be placed inside the pouch on the front of the partial bag or Q-Bit(s) to clearly identify it as Enogen Partial Bag Returns.

If you are returning pallets, the form should be placed on the pallet and shrink-wrapped with all partial bags.

RETURN DATES

All Enogen seed returns (full and partial units) must follow the same seed return dates as all other non-Enogen corn seed returns.



CLEANOUT CHECKLIST

Remove all visible seed from the following:

PLANTER

- ▶ Planter boxes
- ▶ Pneumatic system
- ▶ Seed plates

SEED TENDER

- ▶ Hopper
- ▶ Auger

COMBINE

- ▶ Header
- ▶ Feeder house
- ▶ Rock trap
- ▶ Grain tank
- ▶ Platforms and shields
- ▶ Engine compartments
- ▶ Monitor sensors
- ▶ Walkers

NON-GRAIN STORAGE FACILITIES

Clean to the best of your ability.

GRAIN CART

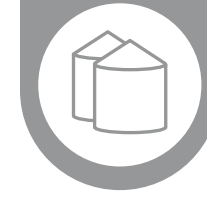
- ▶ Hopper
- ▶ Auger

TRAILER

- ▶ Storage area
- ▶ Gates
- ▶ Sides
- ▶ Tarp

GRAIN STORAGE FACILITIES

- ▶ Augers
- ▶ Legs
- ▶ Sweeps
- ▶ Bin
- ▶ Dryers



STORAGE REQUIREMENTS

GRAIN STORAGE FACILITIES

- ▶ Clearly display magnetic Enogen signs or stickers for identification
- ▶ Mark auger and leg switches
- ▶ Check the corn on a monthly basis for quality
- ▶ Aerate the bin as needed

NON-GRAIN STORAGE FACILITIES

- ▶ Check for quality specifications
- ▶ Clearly display magnetic Enogen signs or stickers for identification





SILAGE TESTING

When sending silage samples to your lab of choice, please clearly identify your sample as Enogen corn. This identification will notify the lab to take extra precaution to avoid cross-contamination of non-Enogen samples.

If you have specific questions regarding Enogen corn testing, please contact your lab, Syngenta sales representative or grower account lead.



TRANSPORTATION REQUIREMENTS

- ▶ Trailer must be tarped at all times during movement
- ▶ Trailer must be cleaned of any spilled grain prior to leaving loading site
- ▶ A bill of lading must be completed with estimated weights and a signature of the carrier at the loading site
- ▶ An Enogen placard must be in place and highly visible

If an incident occurs while hauling or any grain is spilled, please call 1-800-888-8372





GRAIN TESTING

All Enogen grain must undergo a verification test. If any grain fails the test, please consult with an on-site Enogen representative.

Enogen grain should not be delivered to any unspecified location. You may only deliver to an alternate location if directed by an Enogen representative.

Remember, your local destination discount schedule still applies. Please keep your placards and hopper tags for future use after delivery.



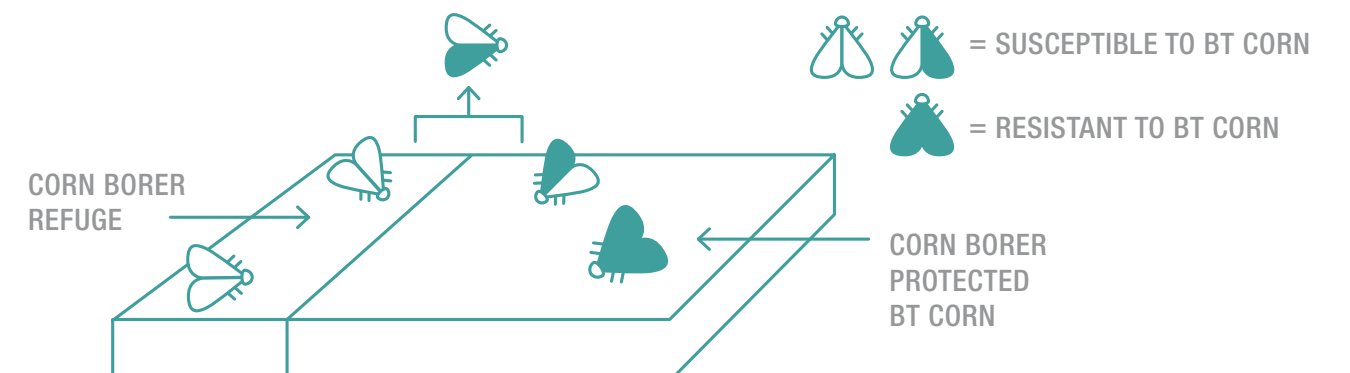
REFUGE ACRES

Corn engineered to express *Bacillus thuringiensis* (Bt) proteins is toxic to specific pests such as European corn borer (ECB or CB) and corn rootworm (CRW or RW). As the number of acres planted with Bt corn increases, so does the potential for target insect pests to develop a resistance to it.

Bt corn must have an insect resistance management plan. This is a requirement set by the Environmental Protection Agency (EPA) and the Canadian Food Inspection Agency (CFIA). Syngenta is committed to following, supporting, and providing growers with relevant information to help them implement the IRM requirements set by the EPA and CFIA. Therefore, all growers must sign a Syngenta Stewardship Agreement before ordering any Agrisure insect protected corn. Doing so will, in part, demonstrate their commitment to supporting the best management practices to reduce the potential risk of insects developing resistance to the Bt traits. It is important to recognize that different products may have different insect resistance management requirements.

INSECT BREEDING

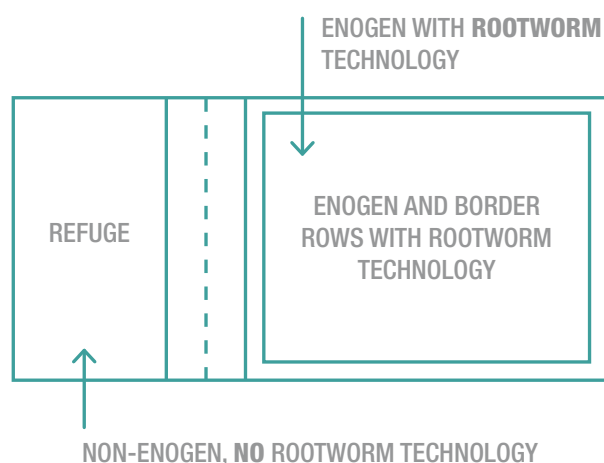
Refuge acres maintain a population of insects that are susceptible to Bt corn. When these insects breed with others that are resistant to the Bt proteins, their susceptibility is passed on to the offspring. This continuation of susceptibility helps preserve the long-term effectiveness of insect-protected Bt corn.





REFUGE ACRES

ADJACENT TO A FIELD



$$\begin{aligned} & \text{Total acres (refuge + Enogen)} = 100 \text{ acres} \\ + & \text{100\% Enogen + border rows} = 80 \text{ acres} \\ & \text{20\% IRM, adjacent field} = 20 \text{ acres} \end{aligned}$$

WITHIN A FIELD



$$\begin{aligned} - & \text{Total field size} = 80 \text{ acres} \\ & \text{20\% IRM, in field} = 16 \text{ acres} \\ \hline = & \text{80\% remaining} = 64 \text{ acres} \\ - & \text{10\% border rows of 64 acres} = 6.4 \text{ acres} \\ \hline = & \text{90\% Enogen of 64 acres} = 57.6 \text{ acres} \end{aligned}$$



INSECT RESISTANCE MANAGEMENT

COMPLIANCE ASSURANCE PROGRAM

Syngenta and other industry registrants have cooperatively developed an EPA and CFIA mandated insect resistance management (IRM) Compliance Assurance Program.

This program requires corn seed companies evaluate the extent to which growers are adhering to the IRM requirements and ensures that those who do not are brought back into compliance.

Growers who do not meet IRM requirements for two years within a five-year period may be denied access to hybrids with Agrisure insect-protected traits in the third year as mandated by the EPA and CFIA.

You are encouraged to scout your fields for unexpected damage. If any damage is observed, please contact your seed reseller or company representative.





INSECT RESISTANCE MANAGEMENT

ON-FARM ASSESSMENTS (US ONLY)

As part of the product registration with the EPA, Syngenta and other seed companies are required to conduct IRM assessments to ensure growers are planting the correct refuge on their farms.

All trait providers are required to participate and contract a third-party company to complete all assessments during the growing season from May through September.

Growers are selected using a set of risk-based criteria and assessed with a series of questions that must be conducted in person with the growers or their representative.

Following each on-farm assessment, it will be determined if the grower is within compliance.

Growers found to be out of compliance with the refuge requirements may jeopardize their access to Bt corn products. These growers will receive a letter that informs them of their compliance infraction, reminds them of their compliance obligations and outlines the consequences of not adhering to the requirements. Included in each letter will be further information on how to develop and implement a suitable IRM program for their farm.

Additionally, any grower found to be out of compliance will receive a follow-up IRM assessment the next growing season.

QUESTIONS

If you have any seed stewardship questions, please visit EnogenCorn.com

FURTHER ASSISTANCE

US

General Info

Fuel – EnogenCorn.com

Feed – EnogenFeed.com

Contract and Management System

enogen.growmore360.com

Contract Support

support@agconnections.com

270-435-4369

IP360 - Enogen Field Locations

ip360.agconnections.com

General Support

1-866-SYNGENTA

Stewardship Compliance Hotline

1-800-888-8372

CANADA

General Info

Feed – Syngenta.ca/Enogen

Customer Interaction Centre

1-87-SYNGENTA (1-877-964-3682)

