

2022 Vermont Seed Report



Photo by J.M.G Chapleau Goss

**Vermont Agency of Agriculture, Food and Markets
Public Health & Agricultural Resource Management
116 State Street Montpelier, VT 05620-2901**

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Introduction

The Vermont Agency of Agriculture, Food & Markets' Seed Program is tasked with the registering and monitoring of businesses who sell seed within the state. The goal of the Seed Program is that consumer seed purchases from Vermont's registered distributors meet proper germination rates, purity standards and are free from weed seed as set forth in Vermont Seed Laws (a copy can be found [here](#)) and the Vermont Seed Rule (a copy can be found [here](#)). Vermont's Seed Program gathers information regarding the agricultural seeds¹ sold within the state from the following annual reporting required of all distributors² registered in Vermont:

- A Tonnage Report³ required to be filed no later than January 15th. (Tonnage Report)
- An Agricultural Treated⁴ Seed Report⁵ required to be filed no later than February 15th. (Treated Seed Report).
- A Genetically Engineered⁶ Seed Report⁷ required to be filed no later than February 15th. (GE Report)

This annual seed report is compiled to provide the public with access to the information collected through these three distributor reports on agricultural seed sales in Vermont.

¹6 V.S.A. § 641 "Agricultural seed" includes grass, forage, cereal, oil, fiber, and other kinds of crop seeds commonly recognized as agricultural seeds, lawn seeds, and combinations of such seeds, and may include noxious weed seeds used as agricultural seed.

²6 V.S.A. Chapter 35, subchapter 2, 642(b) and 644(b) "Distributor" means a person who purchases, repackages, and sells seeds.

³6 V.S.A. § 648 Inspections (c) For those seeds sold in containers of more than ten pounds, a report shall be filed annually on January 15 on forms supplied by the Secretary regarding sales during the previous calendar year, and fees based on the \$10.00 per ton rate shall accompany the report. Reporting periods are January 1-June 30 and July 1-December 31

⁴6 V.S.A. § 641 "Treated" means that the seed has received an application of a substance or process which substance or process is designed to reduce, control, or repel certain disease organisms, insects, or other pests from attacking such seeds or seedlings growing therefrom.

⁵6 V.S.A. § 648 For agricultural seeds sold in Vermont, the manufacturer or processor distributing the seed in Vermont shall report annually on or before February 15 to the Secretary on forms supplied by the Secretary regarding the quantity of treated article seed and the quantity of untreated seed sold in Vermont during the previous calendar year.

⁶6 V.S.A. § 641(9) "Genetically engineered (GE) seed" means seed produced using a variety of methods, as identified by the National Organic Program of the U.S. Department of Agriculture, used to modify genetically organisms, or influence their growth and development by means that are not possible under natural conditions or processes. Such methods include cell fusion, microencapsulation and macroencapsulation, and recombinant DNA technology (including gene deletion, gene doubling, introducing a foreign gene, and changing the positions of genes when achieved by recombinant DNA technology). Such methods do not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture.

⁷6 V.S.A. § 648 Inspections (g) For seeds sold in Vermont that contain genetically engineered material, the manufacturer or processor distributing such seed in Vermont shall report annually on or before February 15 to the Secretary on forms supplied by the Secretary regarding sales during the previous calendar year.

Summary

Tonnage Report

In 2022 there were 117 registered seed distributors in the state of Vermont with 92 of them reporting sales of 3,289.97 tons of agricultural seed sold in containers greater than 10 pounds. Reports are expected from all registered dealers regardless of whether they have sold agricultural seed or not, an unfiled report is not necessarily indicative of zero sales. Low reporting numbers historically may reflect a lack of clear understanding amongst distributors as to the reporting expected of them, a lack of agency time and manpower for follow up, and limited instruction of distributors upon initial registration. In January of 2023 the Vermont Agency of Agriculture, Farm & Markets appointed the first full-time Agriculture Resource Management Specialist whose focus is to staff the Seed Program. It is hoped that, with this resource addition, future compliance with reporting requirements by registered dealers will increase.

Due to the nature of the reporting requirements, there may be seed reports that reflect redundant capture of information as seeds pass between registered distributors, each of whom must report their individual sales. Previous reports compiled by various members of agency staff had attempted to cull duplicate reporting with uncertain accuracy. The following reporting will reflect all information as reported by each responsible dealer for their sales. In this reporting of treated seed and GE seed attempts were made to match corresponding product names from all distributors to accurately sort seed sales into categories for tracking active ingredients and GE traits.

Treated Seed Report

A total of 23 distributors responded reporting sales of treated and untreated seed totaling 2,232.65 tons. Of which 1604.41 tons were reported as treated and a total of 628.240 tons were reported as untreated. Out of the total 1604.41 tons of treated seed reported: 153.23025 tons were treated with non-neonicotinoid products: 253.53 tons are treated with unknown active ingredients pending distributor follow up reporting and 1197.66 tons were treated with a neonicotinoid. Neonicotinoid agents reported were: imidacloprid, clothianidin, and thiamethoxam.

GE Report

A total of 19 distributors reported sales of 975.6135 tons of genetically engineered seed. In reviewing data from reporting attempts were made to not duplicate trait packages that were reported by distributors. With this review there were 50 genetically engineered seed products reported in the following agricultural seed categories: Corn (38), Soybeans (10), Legume Forage and Pasture (1), and Turf (1) categories. These products conferred the following either singly or in combination: drought tolerance, heat tolerance, herbicide tolerance, insect resistance, and wear tolerance.

If you have any questions regarding this report or Vermont's Seed Program, please contact the Public Health and Agriculture Resource Management Division; Vermont Agency of Agriculture, Food and Markets; 116 State Street; Montpelier, VT 05620-2901, or call (802) 828-5050.

Vermont Treated Article Seed* Reporting

For the reporting year January 1, 2022 through December 31, 2022, Agricultural Treated Seed Reports were received from 23 seed distributors. Data received by the agency from these reports is summarized below.

Year reported: 2022

Agricultural Seed Category	Tons - Treated	Tons - Not Treated
Cereal Grain	43.728	211.266
Corn	1395.008	0.902
Cover Crops	8.125	21.543
Flower & Vegetable	6.708	59.499
Forage-Other	0.093	0.657
Grass Forage, Fodder and Hay	4.250	1.275
Hemp	0.000	0.025
Legume Forage and Pasture	51.569	1.216
Oil Seed-No Soybean	0.275	0.000
Soybean	94.026	182.405
Specialty	0.246	9.298
Turf	0.384	140.155
Total	1604.411	628.240

Seed Category*

cereal grain

Examples of crops

millet, wheat, triticale, oats, barley, sorghum

corn

corn, all

cover crops

cover crop mixes, winter rye

flower and vegetable

vegetables mixes, potatoes

forage - not otherwise specified

forage mixes, forage sugar beet/peas etc.

grass forage, fodder, and hay

Sudan grass, Kentucky bluegrass, rye, orchard grass, timothy

hemp

hemp

legume forage and pasture

alfalfa, vetch, trefoil, clover

oil seed -no soy

rapeseed, sunflowers

soybean

soybean, all

*Except for corn and soybean, which are reported individually, seeds were classified based on the categories found in Food and Feed Crops of the United States by G.M. Markle, J.J. Baron and B.A. Schneider.

Chart 1. 2022 Treated to Untreated Volumes in the Corn, Legume Forage and Pasture, and Soybean Categories

The top three agricultural seed types reported sold were Corn, Legume Forage and Pasture, and Soybean. The table below breaks these categories into treated vs. untreated seeds as reported.

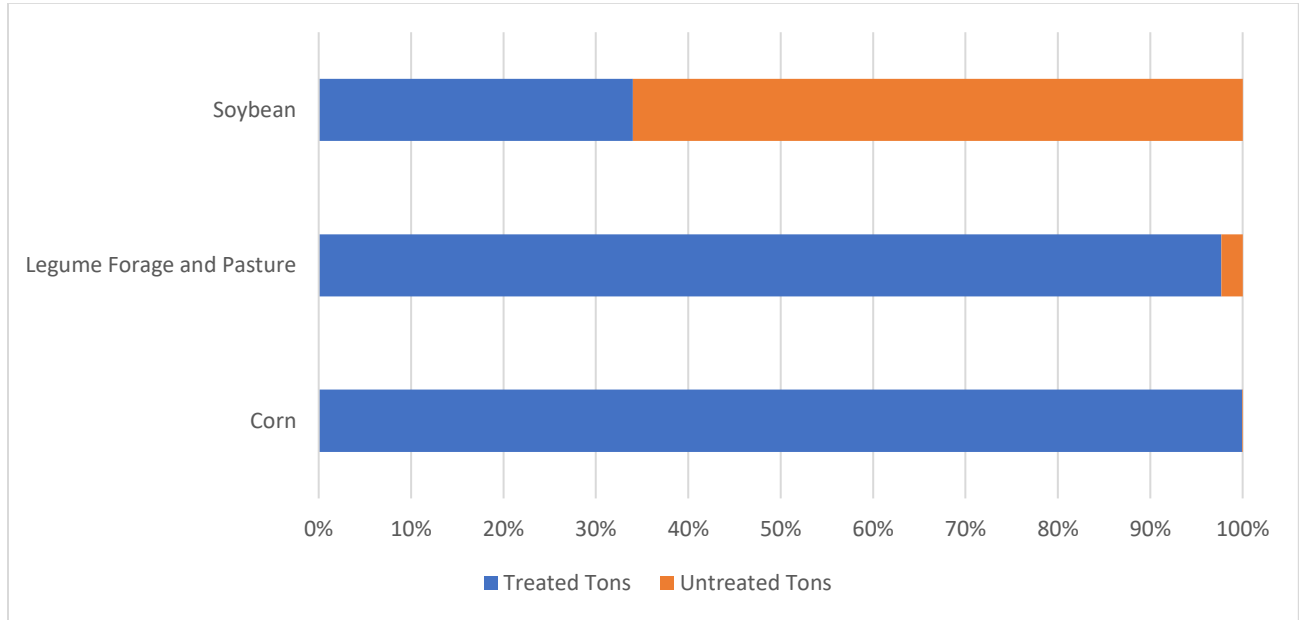


Chart 2. 2022 Treated and Untreated Seed Reported

This table illustrates the ratio of all treated to untreated seed reported by distributors.

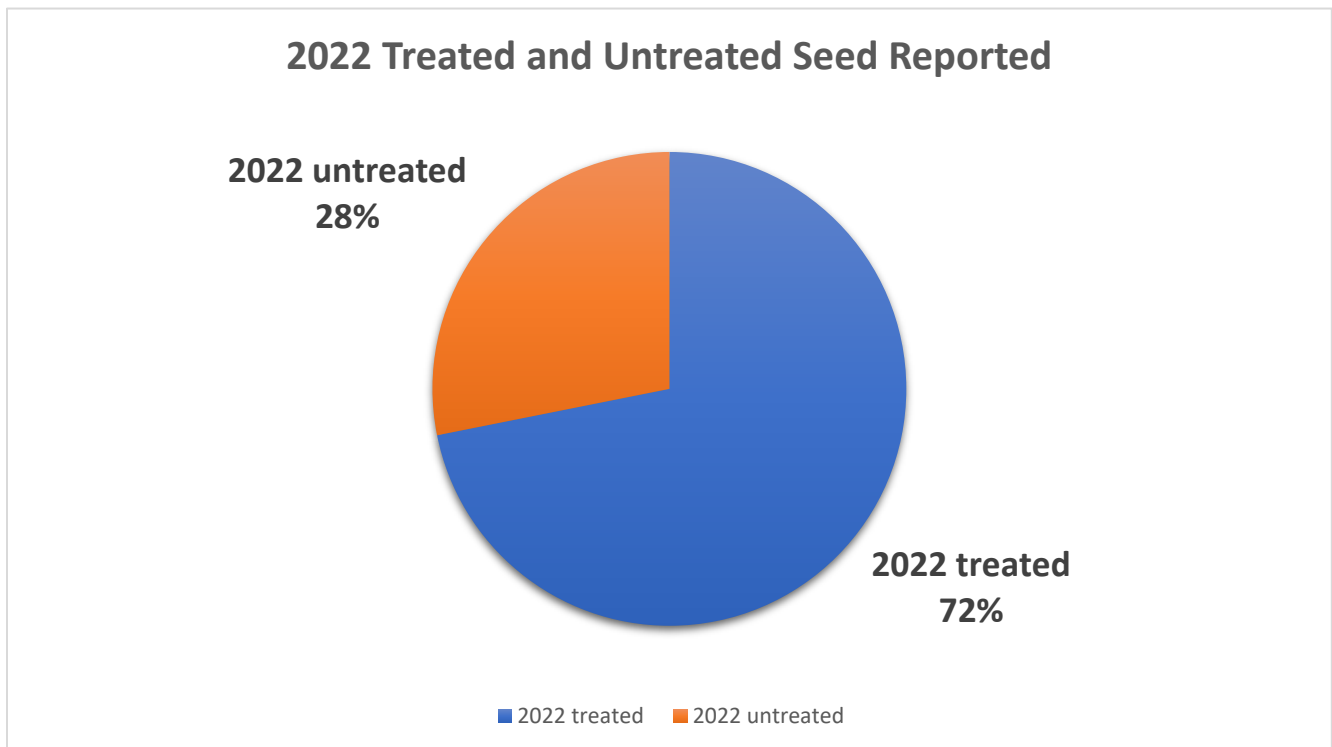


Chart 3. Treatment Types by Ton Reported for 2022

This table illustrates the different seed treatment types by percent reported.

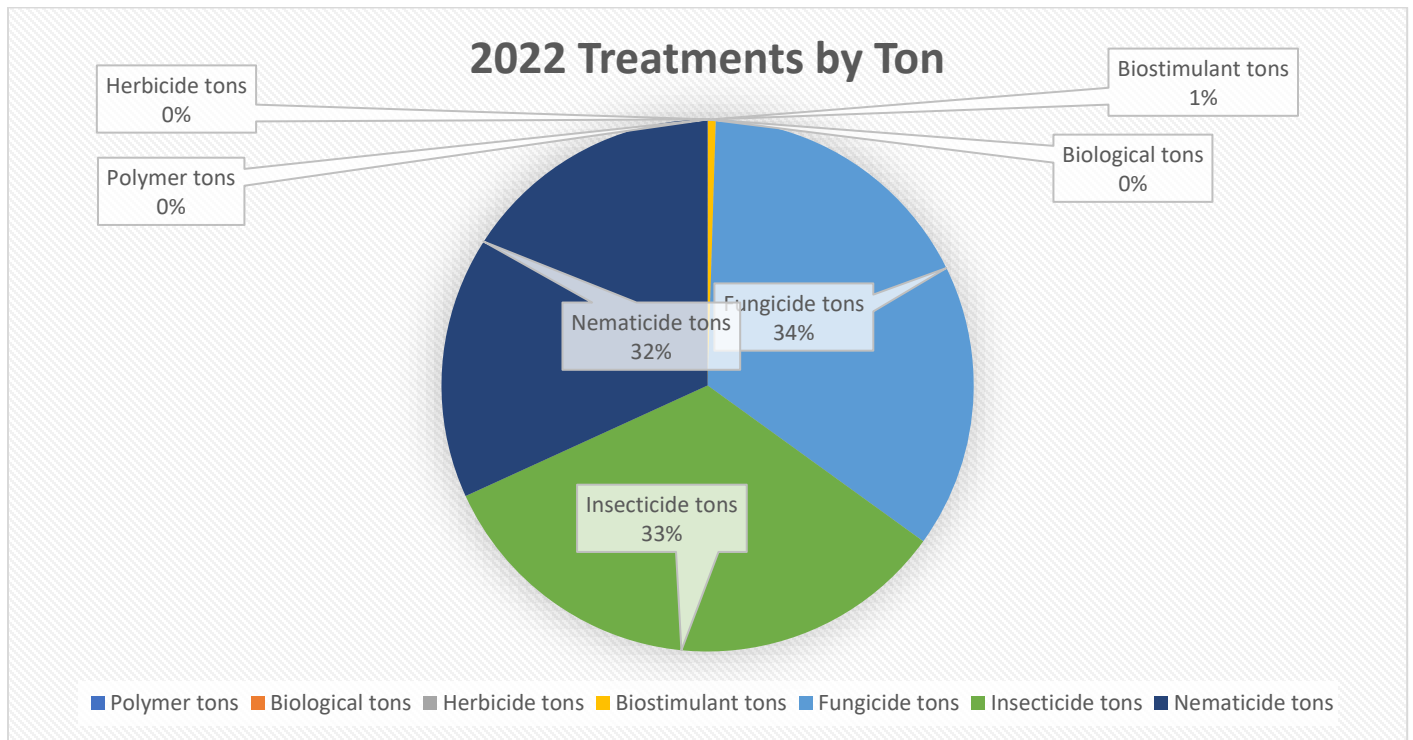


Chart 4. Reported Treatments Applied Individually vs. Applied in Combinations

This table illustrates the ratio of seeds sold with a single treatment applied in comparison to those seeds sold with multiple treatments applied. Nearly all treated seed reported had multiple treatment types applied.

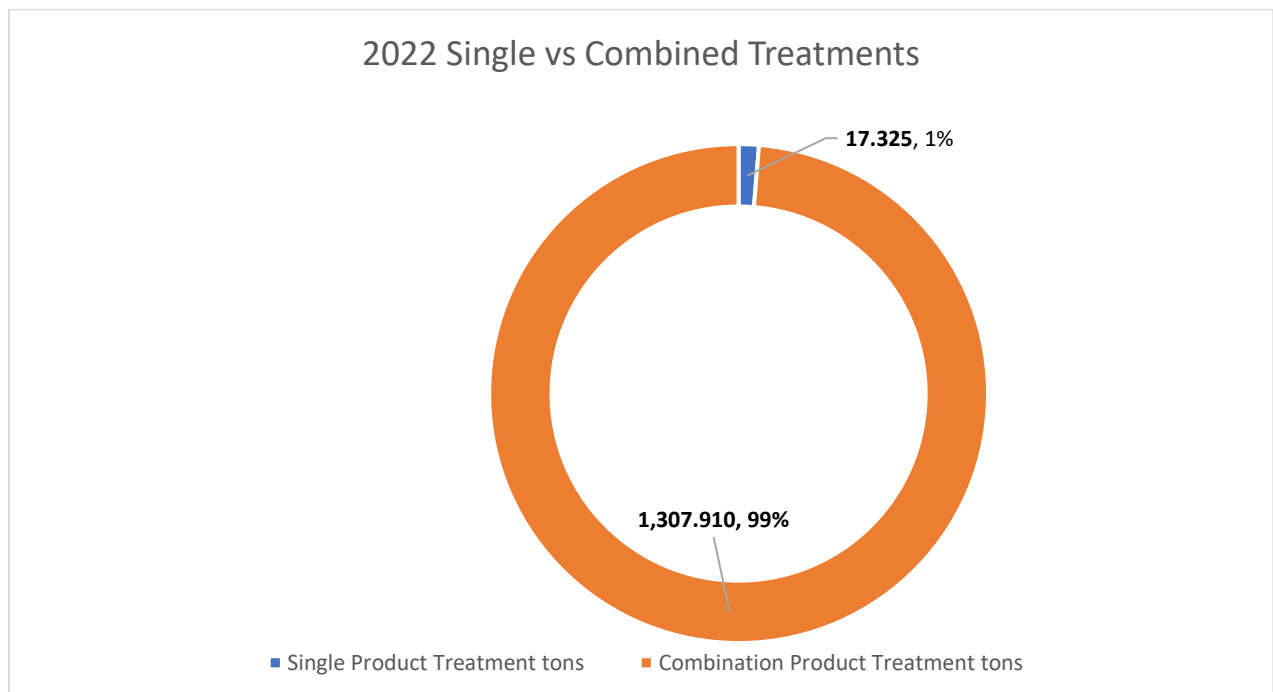


Chart 5. Neonicotinoid to Non-neonicotinoid Treatments Reported for 2022

Out of the total 1604.41 Tons of treated seed reported for 2022:

153.23 tons were treated with non-neonicotinoid products

253.53 tons are unknown currently awaiting distributors' amended reporting with missing information

1197.66 tons were treated with a neonicotinoid product

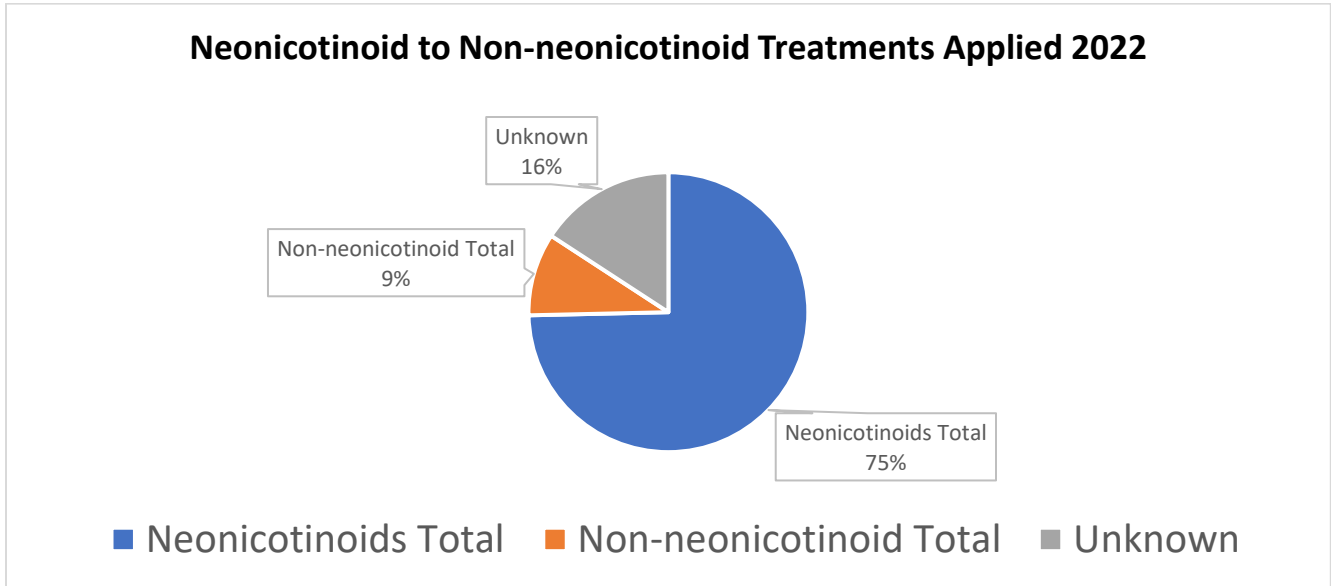


Table 1. Reported Treatment Agents (Chemical)

Below are the chemical names of the active ingredients of the reported brand-named treatments. Neonicotinoids include: imidacloprid, acetamiprid, clothianidin, dinotefuran, nithiazine, thiacloprid and thiamethoxam.



- Abamectin
- Clothianidin
- Azoxystrobin
- Clorantraniliprole
- Ethaboxam
- Fludioxonil
- Imidacloprid
- Ipconazole
- Mefenoxam
- Oxathiapiprolin
- Penflufen
- Picarbutratox
- Prothioconazole
- Pyraclostrobin
- Tebuconazole
- Thiamethoxam
- Trifloxystrobin

Table 2. Reported Treatment Agents (Biological)

Below are the scientific names of the biological treatments of the reported brand-named treatments.



- Bacillus amyloliquefacien strain PTA-4838 viceae and phaseoli and bradyrhizobium biovar
- Bacillus amyloliquefaciens strain MBI 600
- Selected strains of rhizobia bacteria
- SinoRhizobium meliloti
- Bacillus firmus I-1582
- Bacillus pumilus strain BU F-33
- Bradyrhizobium japonicum
- Rhizobium leguminosarum

Table 3. Reported Treatment Agents (Miscellaneous)

Below are listed miscellaneous treatment agents contained in reported brand-named treatments.



- Alkoxyated polyols
- Lipo-chitooligosaccharides
- Micronutrient Package
- Mixed minerals
- Zinc

Vermont Genetically Engineered Seed Reporting

For the reporting year January 1, 2022 through December 31, 2022, Genetically Engineered Seed Reports were received from 19 seed distributors. Data received by the agency from these reports is summarized below.

2022 Seed Category	Weight (tons)
Cereal Grain	0
Corn	784.5125
Cover Crops	0
Flower & Vegetable	0
Forage-Other	0
Grass Forage, Fodder and Hay	0
Hemp	0
Legume Forage and Pasture	1.389
Oil Seed-No Soybean	0
Soybean	189.696
Specialty	0
Turf	0.016
2022 GE Seed	975.6135

Chart 6. Tons of GE Seed Reported by Year

This chart displays a comparison of the amount of GE Seed in tons as reported to the agency from 2004 through 2022.

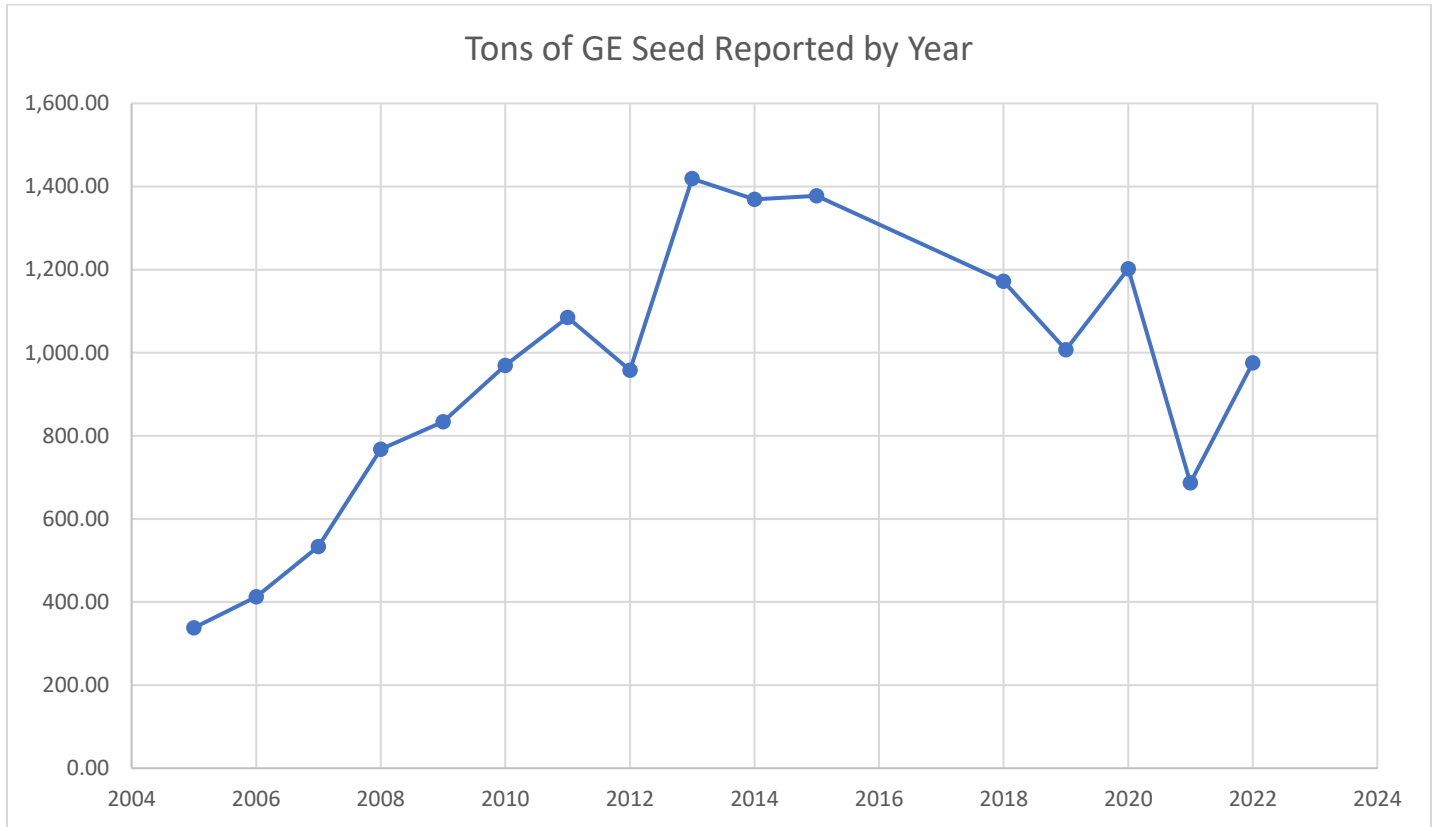


Chart 7. 2022 Tons of GE Seed Reported by Category

This chart illustrates the GE Seed reported by seed type.

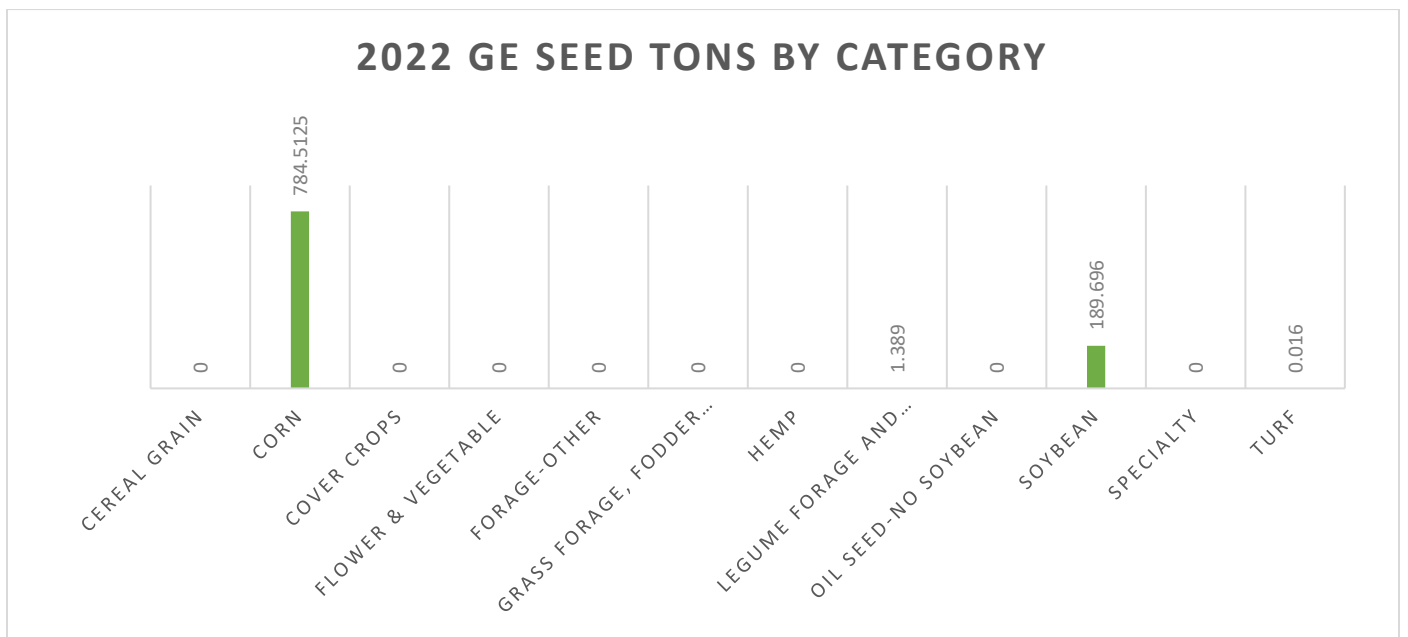
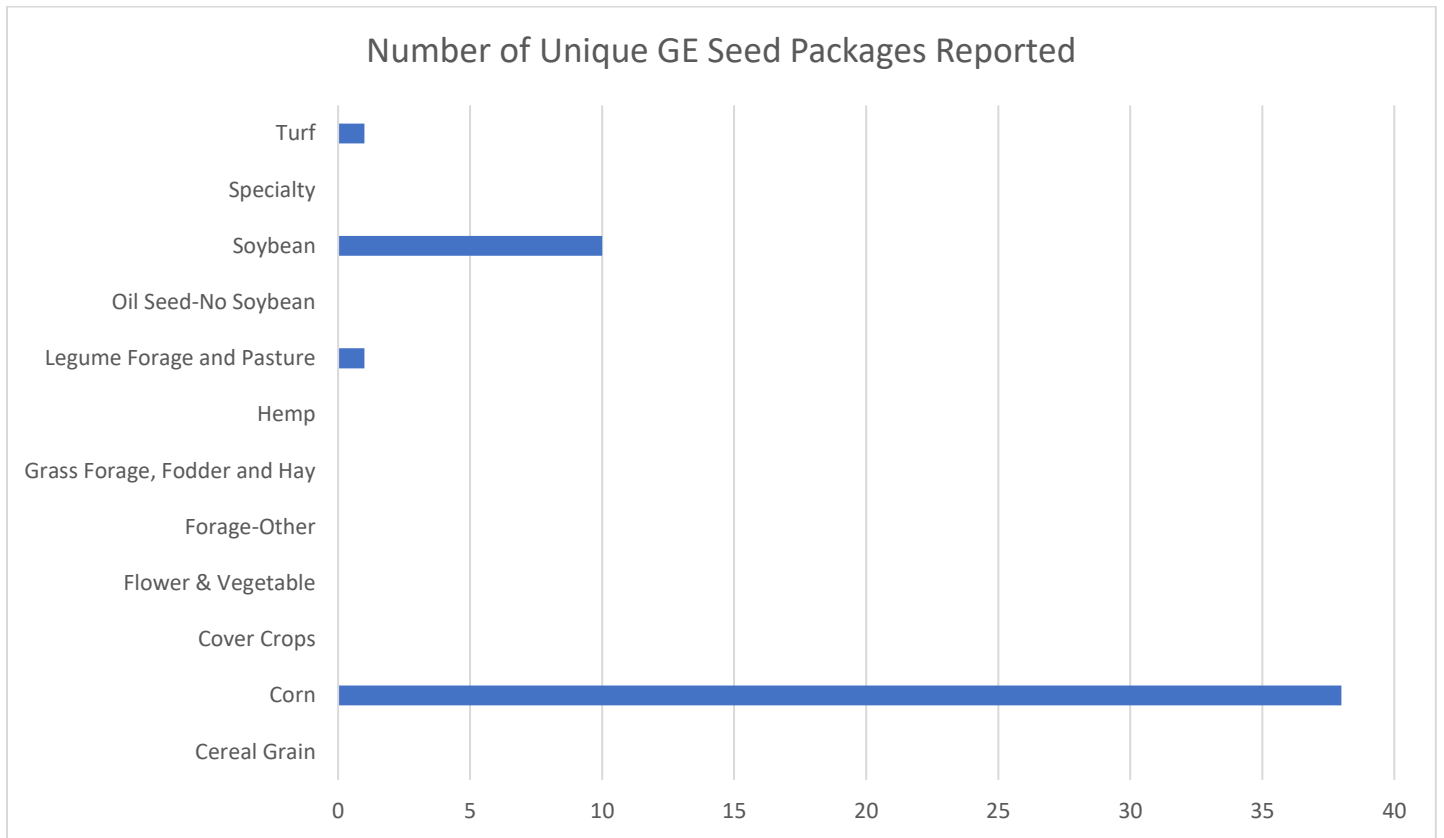


Chart 8. Number of Unique GE Seed Packages Reported by Category

This chart presents the number of unique GE seed packages offered broken down by seed type.



2022 Registered Seed Dealers

Business Name	City	State
802 Seeds LLC	Manchester Center	VT
Aerogrow International Inc	Boulder	CO
AgReliant Genetics LLC dba AgriGold Hybrids	Westfield	IN
American Meadows Inc	Shelburne	VT
America's Alfalfa	Nampa	ID
Amturf Enterprises LLC	Jefferson	OR
Ani-Logics Outdoors LLC	Worthington	MN
Antler King Trophy Products Inc co Kalmbach Feeds	Upper Sandusky	OH
Applewood Seed Co	Arvada	CO
Artistic Gardens/le Jardin Du Gourmet	St Johnsbury Ctr	VT
Atlantic Golf and Turf	Turners Falls	MA
Axis Seeds LLC	Adel	IA
Back to the Roots Inc	Oakland	CA
Barenbrug USA Inc	Tangent	OR
Barrett Stinmetz CSS Consulting LLC	Broomfield	CO
Bayer CropScience LP	St. Louis	MO
Bentley Seeds Inc	Cambridge	NY
Bomar Agra Estates LLC	Monte Vista	CO
Bonide Products LLC	Oriskany	NY
Bonnie Plants LLC	Opelika	AL
Botanical Interests Inc	Broomfield	CO
Bradley Caldwell Inc	Hazleton	PA
Burpee Garden Products	Warminster	PA
Buzzy Inc	Pottsville	PA
Carrier Organic Farm	Washington	VT
Channel Bio Llc	St Louis	MO
Charles (The) C Hart Seed Co	Wethersfield	CT
Corteva Agriscience MCS LLC	Johnston	IA
Davis Farms of Oregon	Bend	OR
DLF Pickseed USA, Inc DBA DLF Pickseed	Halsey	OR
DLF USA INC dba LaCrosse Seed	LaCrosse	WI
Domain Outdoor LLC	Hudson	WI
Eagle Eye Marketing Inc	Santa Barbara	CA
Earthbeat Seeds	Worcester	VT
Emerald Rose Farms dba Emerald Rose Grows	Bristol	VT
Enroot Products LLC	Cromwell	CT
Farmer Bailey INC	Derby	VT
FBN INPUTS LLC	San Carlos	CA
Fedco Seeds Inc	Waterville	ME

Business Name	City	State
Flowering Lawn INC dba Flawn Seed Kits	Eau Claire	WI
Forage Genetics International	Nampa	ID
Gardens Alive! Inc	Lewisburg	OH
Gates Hill Farm LLC	Franklin	VT
GCI Turf Services INC	Reidsville	NC
Green Garden Products	Norton	MA
Growmark Inc	Bloomington	IL
GTR Seeds LLC	Independence	OR
GTX TURF FARMS LP	Goleta	CA
Gualdi LLC dba Fortuna	Grand Junction	CO
Hamama INC	West Sacramento	CA
Harris Seeds	Rochester	NY
Heartland Farms DBA Solstice Seeds	Hartland	VT
Helena Agri Enterprises LLC dba Helena Chemical Co	Collierville	TN
High Mowing Organic Seeds	Wolcott	VT
Hudson Valley Seed Library LLC dba Hudson Valley Seed Company	Accord	NY
International Hemp LLC	Lakeworth	FL
Jack Hempicine LLC	Independence	OR
Johnny's Selected Seeds	Winslow	ME
Jonathan Green Inc	Farmingdale	NJ
Kent Nutrition Group Inc	Muscatine	IA
Lake Valley Seed Co	Boulder	CO
Lakeview Organic Grain Llc	Penn Yan	NY
Lawes Agricultural Service Inc	Brandon	VT
Lawrence D Oliver Seed Co Inc	Milton	VT
Lebanon Seaboard Corp	Lebanon	PA
Lesco Inc	Cleveland	OH
LOCAL SEED COMPANY LLC	Memphis	TN
Loveland Products Inc	Greeley	CO
M&G B.V.	Lisserbroek	Netherlands
MERCHSOURCE LLC	IRVINE	CA
Meristem Farms, LLC	Morristown	VT
Miracle-Gro Lawn Products Inc	Marysville	OH
Monsanto Co	St Louis	MO
Moonshot Growth LLC dba Hamama	West Sacramento	CA
More Wildlife	Barre	VT
Mountain View Seeds Ltd	Salem	OR
Nativearth Seed LLC	North Clarendon	VT
New England Seed Co dba NE Seed	East Hartford	CT
North Country Organics	Bradford	VT
Northern Nurseries	Windsor Locks	CT

Business Name	City	State
Ollie's Bargain Outlet	Springfield	VT
Pennington Seed Inc/Missouri Division	Greenfield	MO
Pioneer Hi-Bred International Inc	Tipton	IN
Premier Horticulture Inc	Quakertown	PA
Ragan & Massey LLC	Ponchatoula	LA
Revere Seed LLC	Memphis	TN
Rhino Seed & Landscape Supply Co	Wayland	MI
Rohrer Seeds & Supplies	Lancaster	PA
Rose Agri-Seed INC dba Pure Seed	Canby	OR
ROUNDSTONE NATIVE SEED LLC	Upton	KS
S&W Seed Company	New Deal	TX
Scott Magnan's Custom Service	St. Albans	VT
Scotts Company	Marysville	OH
Seeds of Satori	Brattleboro	VT
Seedway Inc	Hall	NY
Semican International Inc	Plessisville	QC
Seminis Vegetable Seeds Inc	Oxnard	CA
Seven Leaf Genetics	North Hyde Park	VT
Skyline Encap Holdings LLC	Green Bay	WI
Sureseed LLC	Dayton	OR
Swiss Farms Products Inc	Las Vegas	NV
Syngenta Seeds LLC-Field Crops-NAFTA	Research Triangle	NC
Taliesin Farm LLC	Middletown Springs	VT
TARGET SPECIALTY PRODUCTS LLC	Santa Fe Springs	CA
Tesoro Genetics, LLC	Denver	CO
The Page Seed Co	Greene	NY
This Land Inc	Boulder	CO
TotalGreen Holland Inc	Wilmington	DE
Vermont Wetland Plant Supply Llc	Orwell	VT
Vindara Inc	Orlando	FL
Walters Seed Company LLC	Holland	MI
Whitetail Institute Of Na Inc	Pintala	AL
Wildgame Innovations Inc	Baton Rouge	LA
Winfield Solutions Llc	St Paul	MN
W-L Research	Nampa	ID
Worldwise Inc	Novato	CA



Photo by J.M.G. Chapleau Goss