Delaware Cooperative Extension

UNIVERSITY OF DELAWARE | DSU DELAWARE STATE UNIVERSITY

This is a section from the

2024/2025
Mid-Atlantic Commercial Vegetable Production Recommendations

The recommendations are **NOT** for home gardener use.

The full recommendations are available online at:
https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/commercial-crops/vegetable-crops/midatlantic-vegetable-recommendations/

Printed copies of the recommendations are available for purchase at the New Castle, Kent and Sussex County Extension Offices in Delaware.

This publication will be revised biennially. In January 2025, a Critical Update with important updates for this publication will be communicated through the above website.

These recommendations were prepared and reviewed by individuals from Cornell University, University of Delaware, Delaware State University, University of Maryland, Penn State, Rutgers University, Virginia Tech, and West Virginia University with the purpose of providing up to date information for commercial vegetable growers in the Mid-Atlantic states of **Delaware, Maryland, New Jersey, Pennsylvania, Virginia,** and **West Virginia**.

Disclaimer

- The label is a legally-binding contract between the pesticide user and the manufacturer.
- The user MUST follow all rates and restrictions as per label directions.
- The use of any pesticide inconsistent with the label directions is a violation of Federal law.

F. Commodity Recommendations

Pesticide Use Disclaimer

THE LABEL IS THE LAW

A pesticide applicator is legally bound by the labeling found on and with the pesticide container in their possession. Before using a pesticide, check and always follow the labeling distributed with the product at the point of sale for legally enforceable rates and use restrictions and precautions.
Although labels are available on the Internet from electronic label services such as Proagrica's CDMS (*https://www.cdms.net/*), Greenbook (*https://www.greenbook.net*), or Agworld DBX powered by Agrian (*https://www.agrian.com/labelcenter/results.cfm)* the information contained in these electronic labels may not be identical to the labeling distributed with the product. **Please be advised that these electronic label services provide use disclaimers, and in some cases legally binding *User Agreements* assigning ALL liability to user of service. (**See section D 3.1. Labels and Labeling for more detail.)

Guide to the Recommended Pesticide Tables in the Following Crop Sections:

1. Pesticides are listed by **group number or code based on chemical structure and mechanism of action**, as classified by the Herbicide Resistance Action Committee (**HRAC**, *https://hracglobal.com*) for herbicides, the Insecticide Resistance Action Committee (**IRAC**, *https://irac-online.org*) for insecticides, and the Fungicide Resistance Action Committee (**FRAC,** *https://www.frac.info/*) for fungicides. **In this guide, if the group number or code is in bold font, there are resistance concerns for the product.**
2. **Restricted use pesticides** are marked with a * in the Tables. These products may only be used by certified and/or licensed pesticide applicators, and when stated on the label, those making applications under their direct supervision. Some labels may restrict use solely to certified and/or licensed applicators. (See section D 3.2.1 Restricted Use Classification Statement for more detail).
3. **In addition to the pesticide products listed in the Commodity Recommendations below, other formulations or brands with the same active ingredient(s) may be commercially available. ALWAYS CHECK THE LABELING ON THE PRODUCT CONTAINER ITSELF:**
   a) to ensure a pesticide is labeled for the same intended use,
   b) to ensure the pesticide is labeled for the desired crop,
   c) for differences in application rates and % active ingredient(s), and
   d) additional restrictions.
4. All pesticide recommendations contained in this document are prescribed for spray applications to a **broadcast area of 1 acre** (43,560 square feet). **Adjust the rate accordingly for banded applications** (See section E 1.3. Calibrating Granular Applicators) **or for chemigation** (check labels for amounts per 1,000 feet).
5. Check the physical product label for and do not exceed the maximum amount of pesticide *per application* and the maximum number of applications *per year*.
6. **Bee Toxicity Rating (Bee TR)**: N=nontoxic; L=minimum impact on bees; M=moderately toxic, can be used if dosage, timing, and method of application are correct, but should NOT be applied directly to the crop if bees are present; H=highly toxic, severe losses expected, -- = data not available.
7. In accordance with the USDA National Organic Program, the Organic Materials Research Institute (OMRI) maintains a directory of all products that OMRI has determined are allowed for use in organic production, processing, and handling. These products are catalogued online in the **OMRI Products List** (see *https://www.omri.org/omri-lists*).

Sweet Corn

Recommended Varieties

Type	Variety[1]	Relative Maturity	Kernel Type[2]	Disease Resistance[3]					Bt Insect Resistance[4]
				Et	Pst	Ps	MDMV	Bm	
Fresh Market Bicolor	Temptation	72	Sugary Enhanced						
	Temptation II (GMO)	72	Sugary Enhanced						Performance
	Awesome XR	74	Synergistic		I	R			
	Nirvana	74	Augmented Shrunken						
	BSS0977(GMO)	78	Supersweet	I	I	R			Attribute
	Xtra-Tender 278A	78	Augmented Shrunken	I	I			I	
	Montauk	79	Synergistic	I	I				
	Obsession	79	Augmented Shrunken	I	I	R			
	Obsession II (GMO)	79	Augmented Shrunken	I	I	R			Performance
	BC0805 (GMO)	82	Synergistic			I		I	Attribute
	Providence	82	Synergistic			R		I	
	Serendipity	82	Synergistic					I	
	Delectable	84	Sugary Enhanced	I	I	R	R		
Fresh Market White	Natalie	72	Supersweet			R			
	Nicole	72	Supersweet			R	R		
	Eden RMN	75	Augmented Shrunken	I		R	R		
	XTH 3174	76	Augmented Shrunken	I					
	Diamond Mine	76	Synergistic	I					
	Coronado	77	Supersweet			R			
	Xtra-Tender 378A	78	Augmented Shrunken		I			I	
	SV1580SC	80	Supersweet	I		R			
	Mattapoisett	80	Synergistic	I	I	I			
	Devotion	82	Augmented Shrunken		I				
	Silver King	82	Sugary Enhanced	I	I	I		I	
	Argent	83	Sugary Enhanced	I	R	I			
Fresh Market Yellow	Vision MXR	73	Augmented Shrunken		I	R		I	
	Incredible	82	Sugary Enhanced		I	R	R		
Processing Yellow[5]	Protégé	77	Supersweet	R	I	R		R	
	GH 9597	83	Sugary Normal	I	R	R	R		
	GSS 1453	84	Supersweet	R		R			
	Overland	84	Supersweet	R	R	R		I	

[1]Listed by relative maturity.
[2]See also: "Sweet Corn Genetics and Isolation Requirements" below.
[3]R=resistance; I=intermediate/partial resistance. Et=Northern Corn Leaf Blight caused by *Exserohilum turcicum,* Pst=Stewart's Wilt caused by *Pantoea stewartii*, Ps=Common Rust caused by *Puccinia sorghi*, MDMV=Maize Dwarf Mosaic Virus, Bm=Southern Corn Leaf Blight caused by *Bipolaris maydis*.
[4]Insect resistance from *Bacillus thuringiensis* transgenes is available in some varieties. Attribute varieties have the Cry1Ab gene for corn earworm and European corn borer resistance. Performance Series varieties have the Cry1A.105 and Cry2AB genes for corn earworm, European corn borer and fall armyworm resistance, as well as the transgenes conferring glyphosate resistance.
[5]Processors requirements must be considered. Consult the DE Extension Vegetable and Small Fruits Program for variety trial results at: *http://extension.udel.edu/ag/vegetable-fruit-resources/vegetable-small-fruits-program/variety-trial-results/*.

Recommended Nutrients Based on Soil Tests

In addition to using the table below, check the suggestions on rate, timing, and placement of nutrients in your soil test report and chapter B Soil and Nutrient Management. Your state's soil test report recommendations and/or your farm's nutrient management plan supersede recommendations found below. *(continued on next page)*

Recommended Nutrients Based on Soil Tests - continued

Sweet Corn[1,2]		Soil Phosphorus Level				Soil Potassium Level				
		Low	Med	High (Opt)	Very High	Low	Med	High (Opt)	Very High	
	N (lb/A)	P_2O_5 (lb/A)				K_2O (lb/A)				Nutrient Timing and Method
Fresh Market	125-175	160	120	80	0[3,4]	160	120	80	0[3,4]	Total nutrient recommended
	40-60[5]	120	100	60	0[3]	120	100	60	0[3]	Broadcast and disk-in
	20	40	20	20	0[3,4]	40	20	20	0[3,4]	Band-place with planter
	50-100[5]	0	0	0	0	0	0	0	0	Sidedress when corn is 12 inches tall
Processing	150-200	160	120	80	0[3,4]	160	120	80	0[3,4]	Total nutrient recommended
	55-80	120	100	60	0[3]	120	100	60	0[3]	Broadcast and disk-in
	20	40	20	20	0[3,4]	40	20	20	0[3,4]	Band-place with planter
	50-100	0	0	0	0	0	0	0	0	Sidedress 2 weeks after emergence

[1]Apply 1 to 2 lb/A of boron (B) with broadcast fertilizer; see also Table B-7. in chapter B Soil and Nutrient Management. [2]Apply 20-30 lb/A of sulfur (S) for most soils. [3]In VA, crop replacement values of 40 lb/A of P_2O_5 and 40 lb/A of K_2O are recommended on soils testing Very High. [4]For early planting when soil temperatures are low, band 20 lb/A P_2O_5 and 20 lb/A K_2O when soil tests are Very High to facilitate early growth. [5]On very sandy soils, reduce the amount of N applied via broadcast application and disked-in. Instead, split N applications to include an additional split when corn is 6 in. tall of 40 lb/A of N. So, N is applied with the broadcast fertilizer, at-planting in a band, when corn is 6 in. tall, and again when corn is 12 in. tall. In NJ, consult your Extension Agent for information on the approved pre-sidedress nitrate test.

Plant Tissue Testing

Plant tissue testing can be a valuable tool to assess crop nutrient status during the growing season to aid with in-season fertility programs or to evaluate potential deficiencies or toxicities. Critical sweet corn tissue test values for most recently matured leaves at the 30-inch growth stage are: N 2.5-4 %, P 0.2-0.4 %, K 2.5-4 %, 0.5-0.8 %, Mg 0.2-0.4 % and S 0.2-0.4 %. For additional nutrients and other growth stages consult with a tissue testing laboratory or this web link at the University of Florida: *https://edis.ifas.ufl.edu/publication/ep081*.

Pre-Sidedress Soil Nitrogen Test (PSNT)

The PSNT was developed to determine the need for sidedress nitrogen (N) on corn. The PSNT is effective for soils with loamy-texture and high organic matter or where manure has been applied. Sandy soils with low organic matter are already known to have low N availability. Contact your county Extension Agent/Educator for information on sampling and using the PSNT (**NJ and PA only**).

Sweet Corn Genetics and Isolation Requirements

The tenderness of corn kernels is determined by the silk parent. However, kernel sweetness is determined by both the tassel and silk parents. If sweet corn is pollinated by field corn, popcorn or by certain other sweet corn varieties starchy kernels will form on the sweet corn ear. To isolate sweet corn from incompatible corn types or varieties plant at least 500 ft away from incompatible corn or time plantings so that there is at least a 12-day difference in silking time. All sweet corn must be isolated from field corn and popcorn. Among sweet corn varieties, Sugary Isolation Group varieties must be isolated from Supersweet Isolation Group varieties to prevent the formation of starchy kernels. Within the isolation groups, varieties of different types can be isolated to maximize the quality attributes of the variety (*i.e.*, isolate sugary enhanced from synergistic within the Sugary Isolation Group) The table below includes types and common brands in each isolation group.

Sugary Isolation Group (SU_1)	Supersweet Isolation Group (SH_2)
normal (sugary)	supersweet or shrunken
sugary enhanced/sugary enhancer	augmented or augmented shrunken
synergistic	Multisweet™
Sweet Breed™	Xtra-Tender
Triple Sweet™	
Quadsweet™	

Seed Treatment

Request that seed be treated with fungicides, see Disease Control below. For seed corn maggot and wireworm control, see Insect Control below. Super sweet (sh_2) varieties are more difficult to establish than other types. Handle

seeds gently and use plateless planters to prevent seed damage. Soil temperature and soil moisture should be optimal to reduce seed decay and obtain good stands.

Seeding and Spacing

Sow in rows 30-36 inches apart and at a depth of 1-1.5 inches. First sowing is as early as late March for warmer regions of the Mid-Atlantic, and on sandy soils, and as late as early May in cooler regions. Fresh market growers often plant successively through July to ensure continuity of supply. Use varieties that are resistant to frost and chilling injury for early plantings.

Fresh Market:

Small-eared early varieties are sown at an in-row spacing of 8-10 inches. Larger-eared mid- and late-season varieties are planted at an in-row spacing of 10-12 inches. This equates to planting densities ranging from 14,500-22,000/A.

Processing:

The recommended planting density is usually 22,000-24,000/A, though some varieties may be planted at densities of up to 30,000/A. Consult the seed company for the target density that best maximizes crop yield and quality.

Mulching

Using clear plastic mulch as a row cover can improve stands, conserve moisture, and result in earlier maturity. Corn is seeded in the usual manner except 10-20 days earlier in double rows 14 inches apart and on 5-6 ft centers. Apply herbicide and then cover with clear plastic. Using ridges between double rows or wire hoops allows space for corn seedlings to grow vertically. Allow plastic to remain over plants for 30 days after emergence, then cut and remove plastic from the field. Plants can then be grown out in the usual manner. It is recommended that the soil is tested for nematodes. If present, control measures are necessary before the above procedure can be used. Clear plastic will allow weeds to germinate and grow quickly, and preemergence herbicides should be used under the plastic. Otherwise, weeds become too large to be effectively controlled with herbicides after the plastic is removed. Use a cold-tolerant variety to avoid uneven stand and uneven vigor. Sweet corn can also be grown by planting as seed or transplants through black plastic or IRT mulch in early plantings using plastic mulch planters.

Harvest and Handling

Fresh Market:

Harvesting sweet corn at the proper stage is critical for its sweetness and tenderness. In the field, sweet corn stays in prime condition for only 1-2 days. As the ear reaches prime condition the silks begin to dry down, the husk fills out with plump kernels, and the kernels exude a milky liquid when punctured with the thumbnail. Ear tips should be filled. Sweet corn approaches maturity 18-22 days after silking and should be picked daily, preferably early in the morning at low field heat. After prime harvest time, sugars in the kernel convert to starch and the hull becomes tough. Supersweet varieties maintain sweetness longer than other varieties and extra tender varieties maintain eating quality for a longer period.

Sweet corn may be harvested by hand or mechanically. Handpicking is done by grasping the ear near the base and sharply twisting it downward. Mechanical harvesters are more efficient; however, the entire crop is picked when primary ears are ready, and any secondary ears will not be marketable.

Corn is normally piled on a wagon in the field or is put in baskets or bins and then graded/packed at a nearby packing area. Sweet corn should be trimmed uniformly to eliminate flag leaves and long shanks. If left on the ear, they will cause packaging problems and induce further moisture loss. Objectionable kernel denting may occur from a moisture loss of 2% or less. Only first-quality sweet corn devoid of defects and of uniform maturity, color, shape, and size should be selected and packed. Any ears exhibiting signs of disease or mechanical or insect damage should be discarded along with any ears that lack adequate shuck coverage.

For optimum sweetness and tenderness, sweet corn should be cooled immediately after harvest and kept near 32°F (0°C). Hydrocooling is the most efficient and effective cooling method. Corn is immersed in ice cold water, which quickly removes all field heat. Hydrocooling is recommended for sweet corn that is shipped long distance. For smaller growers and short distance shippers, ice can be added to the crate (or burlap bags) during packing; 1 lb ice/5 lb corn is usually sufficient. Ice can also be blown on top of the crates when placed in a cooler or refrigerated truck. Sweet corn placed in cold storage before being pre-cooled will not retain freshness for nearly as long as hydrocooled or iced sweet corn.

Sweet corn for shipping is most commonly packaged in wire bound crates or perforated wax boxes. Pallet or bin boxes are sometimes used, however, corn packed in this manner will be hard to cool completely and ears will heat up in the center of the bin from respiration. Burlap bags may be used for local shipments.

Processing Sweet Corn:
Harvest of standard sugary (su) and sugary-extender (se) varieties begins when kernels reach 70-75% moisture. Supersweet (sh_2) varieties have a much higher sugar content than su or se varieties and maintain their sugar content longer after harvest. They are usually harvested at 77-78% moisture. Harvest timing will be determined by the processing companies.

Weed Control

THE LABEL IS THE LAW-see the Pesticide Use Disclaimer on the first page of Chapter F.

Recommended Herbicides

1. Identify the weeds in each field and select recommended herbicides. More information is available in the "Herbicide Effectiveness on Common Weeds in Vegetables" (Table E-3) in Chapter E Pest Management.

2. Minimize herbicide resistance development. Identify the herbicide mode of action group number and follow recommended good management practices; **bolded group numbers in tables below are herbicides at higher risk for selecting resistant weed populations.** Include non-chemical weed control whenever possible.

1. Non-Selective or Burndown

Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
9	Roundup PowerMax 4.5L "Generic" glyphosate 3L	16 to 32 fl oz/A 24 to 48 fl oz/A	**glyphosate**	0.75 to 1.13 lb acid equivalent/A	--	4
-Apply before or after seeding but before crop emergence. (Ensure planter slits are fully closed if applying after planting.) -Tank mix with other herbicides (see table below) for enhanced burndown and/or residual weed control. -Glyphosate controls many perennial weeds as well as annuals if applied when the weed is actively growing and has reached the stage of growth listed on the label. -Glyphosate may be applied in clear liquid nitrogen fertilizers and clear liquid complete-analysis fertilizers, but it may be less effective on certain annual grasses and perennials. **Do not** use glyphosate with suspension-type liquid fertilizers. -Repeat applications are allowed, with maximum application of 5.3 qt/A per year.						
22	Gramoxone SL 2.0* Gramoxone SL 3.0*	2.5 to 4 pt/A 1.7 to 2.7 pt/A	**paraquat**	0.6 to 1 lb/A	--	24
-Apply before or after seeding but before crop emergence. (Ensure planter slits are fully closed if applying after planting.). Tank mix with other herbicides (see table below) for enhanced burndown and/or residual weed control. Paraquat may not control established grasses. -Apply in 20 to 60 gal/A for control of emerged annual weeds. Spray coverage is essential for optimum control. -Add 16 to 32 oz non-ionic surfactant/100 gal of spray. -Phosphate-containing liquid fertilizer solutions diminish paraquat activity if used as a carrier. -Use appropriate precautions when handling paraquat to minimize exposure to the herbicide. **Do not** use flood jet tips larger than size 20 or spacing greater than 40 inches. -Rainfastness 30 min. -A maximum of 3 applications per year are allowed. -***Restricted-use pesticide***. Only certified applicators, who successfully complete the paraquat-specific training, can mix, load, or apply paraquat. Application of paraquat "under the direct supervision" of a certified applicator is no longer allowed. Required training link (*https://campus.extension.org/enrol/index.php?id=2201*); certified applicators must repeat training every three years.						

2a. Soil-Applied (Preplant Incorporated or Preemergence)

Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
3	Prowl 3.3EC Prowl H2O 3.8CS	1.8 to 4 pt/A 2 to 4 pt/A	**pendimethalin**	0.75 to 1.65 lb/A 0.95 to 1.9 lb/A	--	24
-Controls several common annual grasses and broadleaves but does not control yellow nutsedge and ragweed. -Plant corn at least 1.5 inches deep to avoid Prowl injury; however most sweet corn seeds need to be seeded less than 1 inch for optimum emergence. -**Do not** incorporate. Must be applied after planting up until corn reaches 30 inches tall. -Preemergence applications can injure corn. Delaying application until spike stage helps maximize crop safety. -Prowl H2O and Satellite HydroCap are water-based capsule suspension formulations that provides similar weed control as the older 3.3EC product but causes less staining and odor. Other generic pendimethalin products are available.						

2a. Soil-Applied (Preplant Incorporated or Preemergence) - continued next page

2a. Soil-Applied (Preplant Incorporated or Preemergence) - continued

5	Atrazine 4L*	1.0 to 1.5 qt/A	**atrazine**	1.0 to 1.5 lb/A	--	12
-Primarily controls broadleaf weeds and provides some suppression of annual grasses. Mostly used in combination with other herbicides, especially acetamides. Some prepackaged mixture examples include Bicep II Magnum*, Harness Xtra*, and Keystone NXT*. **Atrazine Use Restrictions** -**Preplant or Preemergence:** On highly erodible soils (as defined by the U.S. Natural Resources Conservation Service): -Fields where **more** than 30% of the soil surface is covered with plant residue at planting, apply a maximum of 2 lb/A of active ingredient as a broadcast spray. Fields where **less** than 30% of the soil surface is covered with plant residue at planting, apply a maximum of 1.6 lb/A of active ingredient as a broadcast spray. -**Postemergence:** If no atrazine was applied prior to crop emergence, use a maximum rate of 2 lb/A of active ingredient. If a soil-applied application was made in the same calendar year, the combined preplant or preemergence and postemergence applications may not exceed 2.5 lb/A of active ingredient. **Safety Precautions for Using Atrazine** -**Do not** mix, load, or apply within 50 ft of drinking water wells, livestock wells, agricultural drainage wells, irrigation wells, abandoned wells, or sinkholes. **Do not** mix or load within 50 ft of intermittent streams, perennial streams, rivers, lakes, or reservoirs. -**Do not** apply within 200 ft of lakes or reservoirs. **Do not** apply within 66 ft of the points where surface water runoff enters intermittent streams, perennial streams, or rivers. The 66-ft buffers should be planted to a crop or seeded with grass on highly erodible land.						
15	Dual II Magnum 7.64E	1.0 to 2.0 pt/A	**s-metolachlor**	0.96 to 1.91 lb/A	30	24
-Dual II Magnum are similar in activity to Harness, Outlook, and Surpass NXT. Dual II Magnum contains a crop-safening agent. Primarily controls annual grasses, controls, or suppresses yellow nutsedge, and suppresses certain broadleaf weeds. -Use preplant incorporated to improve yellow nutsedge control. Combine with atrazine to improve control of most broadleaf weeds. -Also commonly sold as prepackaged mixture with atrazine: Bicep II Magnum 5.5L* at 2.1 qt/A = 1.3 pt Dual II Magnum 7.64E + 1.6 qt atrazine 4L Bicep Lite II Magnum 6L* at 1.3 qt/A= 1.13 pt Dual II Magnum 7.64E + 0.9 qt atrazine 4L Other premix includes (S-metolachlor plus Shieldex [tolpyralate]), do not apply to emerged sweet corn. -Other generic versions of metolachlor and s-metolachlor may be available, and may or may not be labeled for use in the crop and may or may not include the safener for corn,						
15	Harness 7E Surpass NXT 7E	1.25 to 2.75 pt/A 1.5 to 3 pt/A	**acetochlor**	1 to 2.4 lb/A 1.09 to 2.6 lb/A	--	12
-Acetochlor products can be applied preplant incorporated or preemergence but prior to weed emergence, and before corn height exceeds 11 inches. Control many annual grasses and yellow nutsedge as well as certain small-seeded broadleaves. -**Check label** for specific rate depending on soil type and organic matter. Also commonly sold as prepackaged mixture with atrazine: Harness Xtra* 5.6L at 2.5 qt/A= 2.2 pt Harness 7E + 1.6 qt atrazine 4L Degree Xtra* 4.04ME at 3 qt/A= 4.3 pt Degree 3.8ME + 1 qt atrazine 4L Keystone NXT* 5.6SE at 2.5 qt/A= 2.2 pt Surpass NXT 7E + 3 pt atrazine 4L -Other products and formulations may be available, including the premix Restraint (acetochlor plus Shieldex [tolpyralate]). Do not apply Restraint to emerged corn.						
15	Outlook 6E	10 to 21 fl oz/A	**dimethenamid**	0.47 to 0.98 lb/A	50	12
-Outlook is similar in activity to Dual, and Harness. -Primarily controls annual grasses, controls, or suppresses yellow nutsedge, and suppresses certain broadleaf weeds. Local data has shown sweet corn injury with Outlook applied preemergence on coarse-textured soils. Outlook may be applied preemergence on up to 12-inch-tall corn prior to weed emergence. -Incorporation improves control of yellow nutsedge. -Prepackaged mixture with saflufenacil (Sharpen): Verdict 5.57EC at 10 fl oz/A = 8.5 fl oz/A Outlook 6E + 2 fl oz/A Sharpen 2.85L						
15	Zidua 85WG Zidua SC 4.17L Anthem Flex Anthem Maxx 4.3SE	1.5 to 4oz/A 1.75 to 6.5 fl oz/A 3.5 to 6 fl oz/A 3 to 6 fl z/A	**pyroxasulfone (± carfentrazone or fluthiacet)**	0.06 to 0.21 lb/A 0.06 to 0.21 lb/A 0.1 to 0.17 0.1 to 0.2 lb/A	37	12
-Zidua contains the single active ingredient pyroxasulfone. Anthem Flex contains carfentrazone (Aim) and Anthem Maxx contains fluthiacet (Cadet). However, carfentrazone or fluthiacet do not provide any residual weed control. Pyroxasulfone has annual grass activity similar to Dual, Harness, Outlook, Surpass, etc., but also provides good control of several annual broadleaves. These herbicides can be applied preplant (surface or incorporated) up to 45 d before planting or preemergence. Rates can be adjusted for soil type or 2-pass application programs. Corn must be planted at least 1 inch deep. -These herbicides can be tank mixed with atrazine or other corn herbicides to broaden weed control spectrum. -Do not apply Anthem Flex or Anthem Maxx on coarse-textured soils, or medium-textured soils with less than 2% organic matter. -Stunting has been observed with pyroxasulfone on coarse-textured soils.						
27	Callisto 4SC	5.3 to 7.7 fl oz/A	**mesotrione**	0.166 to 0.24 lb/A	45	12
-Primarily controls common lambsquarters and many other annual broadleaf weeds, including triazine resistant biotypes, but Callisto is weak on ragweed and morningglory species. Typically combined with other herbicides to improve control of grasses and broaden broadleaf spectrum. (See comments under Lumax, Lexar, and Acuron for more details about these prepackaged mixtures.) Other premixes with mesotrione include Calibra or Coyote, -Cold weather that slows corn growth will also retard recovery from injury following preemergence treatments. -**Sweet corn varieties differ in sensitivity to mesotrione**. -Severe crop injury may occur if an organophosphate or carbamate insecticide is applied within 7 days of Callisto. -See the sweet corn section of the Callisto label for additional use precautions.						

2a. Soil-Applied (Preplant Incorporated or Preemergence) - continued next page

2a. Soil-Applied (Preplant Incorporated or Preemergence) - continued)

27, 15, **5**	Lexar EZ 3.7SC* Lumax EZ 3.67SC* Acuron 3.44SC* Acuron Flexi 3.26SC	3 to 3.5 qt/A 2.7 to 3.25 qt/A 2.5 to 3 qt/A 2 to 2.25 qt/A	**mesotrione + s-metolachlor + atrazine (± bicyclopyrone)**	2.78 to 3.24 lb/A 2.48 to 2.98 lb/A 2.15 to 2.58 lb/A 1.63 to 1.83 lb/A	45	24

-Lexar EZ and Lumax EZ are mixtures of s-metolachlor (Dual II Magnum), mesotrione (Callisto), and atrazine.
-Acuron contains the same active ingredients as Lumax/Lexar with the addition of another Group 27 herbicide, bicyclopyrone. In general, it controls a broader weed spectrum and is better on ragweed, cocklebur, and annual morningglory, and effective on many annual broadleaves and some grasses compared to Lumax/Lexar.
-The typical use rates in all tillage systems are 3 qt/A Lexar EZ, 2.7 qt/A Lumax EZ, and 2.5 qt/A Acuron. These products may be applied broadcast on up to 12-inch-tall corn, but prior to annual grass emergence.
-**Do not** apply more than 3.5 qt/A Lexar EZ, 3.25 qt/A Lumax EZ, 3 qt/A Acuron or 2.25 qt/A Acuron Flexi per growing season.
-**Sweet corn varieties differ in sensitivity to mesotrione**.
-**Do not** apply Lexar, Lumax, or Acuron early POST if the corn was treated with Counter insecticide.
-**Do not** tank mix Lexar, Lumax, or Acuron with organophosphate (OP) or carbamate insecticides and apply as a foliar POST application. **Do not** make a foliar POST application of any OP or carbamate insecticide within 7 days before or 7 days after a Lexar EZ, Lumax EZ, or Acuron application, or severe corn injury may occur. Corn, soybeans, small grains, and sorghum may be planted in the spring following Lexar EZ, Lumax EZ, or Acuron application. Zemax is similar to Lumax EZ but contains no atrazine. The typical use rate is 2 qt/A. -**Do not** apply any of these herbicides postemergence in sweet corn.

27, 15, **5**	Storen	2.1 to 2.4 qt/A	**mesotrione + s-metolachlor + pyroxasulfone + bicyclopyrone**	0.163 to 0.186 lb/A 1.14 to 1.61 lb/A 0.08 to 0.09 lb/A 0.039 to 0.045 lb/A	45	24

-Improved fall panicum control compared to Lexar, Acuron products
-Broadleaf weed control is improved with the addition of atrazine.
-See comments for individual products in this table.
-Do not apply to emerged sweet corn.

2b. Application Timing for Use of Soil-Applied Herbicides on Emergence Corn

Herbicide (*=Restricted Use)	Timing		Premix Herbicides (*=Restricted Use)	Timing
Prowl 3.3 E / Prowl H20	up to 24 inches or V8*		Bicep*	up to 12 inches
Atrazine*	before corn is 12 inches		Harness Xtra*	not allowed
Dual II Magnum	up to 40 inches		Keystone NXT*	not allowed
Harness 7E	before corn is 12 inches		Acuron*	not allowed
Surpass NXT	not allowed		Acuron Flexi	not allowed
Outlook	before corn is 12 inches		Lexar*	not allowed
Zidua	up to V4 stage		Lumax*	not allowed
Anthem Flex / Anthem Max	through the V4 stage		Storen	not allowed
Callisto	up to 30 inches or 8 leaves*			

*Use whichever criteria is more restrictive

3a. Postemergence

Group	Product Name (*=Restricted Use)	Product Rate	Active Ingredient	Active Ingredient Rate	PHI (d)	REI (h)
2	Accent Q 54.5WG	0.9 oz/A	**nicosulfuron**	0.031 lb/A	--	4

-Apply as a broadcast or with drop nozzles as a directed spray as an early postemergence rescue treatment to control emerged annual grasses. Treat sweet corn with a broadcast spray or with drop nozzles as a directed spray up to 18 inches tall or up to and including 6 leaf collars (V6).
-**Do not** treat sweet corn more than 18 inches tall to control many annual grasses and certain annual broadleaf weeds.
-Tank mix with atrazine to increase the spectrum of weeds controlled.
-Add nonionic surfactant to be 0.25% of the spray solution (1 qt/100 gal of spray solution).
-**Accent Q is safe to apply to certain varieties but injures or kills others**. Contact your DuPont Crop Protection Sales Representative for information on local sweet corn varieties that have been evaluated for tolerance to Accent Q.
-**Do not** use if organophosphate (OP) insecticides have been applied to the crop or tank mix with bentazon (Basagran) or the risk of crop injury may increase.
-**Do not** tank mix with 2,4-D otherwise grass control will be reduced.
-Accent Q is an ALS inhibitor, Group 2 herbicide, and there is widespread resistance in the region to this family of herbicides.
-**Do not** make more than one application of Accent Q per year. The following prepackaged mixture also contains nicosulfuron:
Revulin Q 51.2WG at 4 oz/A= 1.1 oz/A Accent Q 54.5WG + 3 fl oz/A Callisto 4SC
-Rainfastness is 4 h.

3a. Postemergence - continued next page

3a. Postemergence - continued

2	Sandea 75DF Permit 75DF	0.5 to 0.66 oz/A	**halosulfuron**	0.023 to 0.031 lb/A	30	12
-Apply to control yellow nutsedge and broadleaf weeds, including common cocklebur, redroot pigweed, smooth pigweed, ragweed species, and velvetleaf. Sandea/Permit applied postemergence will not control common lambsquarters or eastern black nightshade and will only suppress morningglory species. -Spray before corn reaches 8" in height or use drop nozzles when corn is over 8" tall to avoid spraying the foliage and into the whorl. -Always add nonionic surfactant to be 0.25% of the spray solution (1 qt/100 gal). -**Corn varieties may vary in sensitivity to Sandea**. Use caution when treating new varieties. **Do not** apply to "Jubilee". -**Do not** use if organophosphate (OP) insecticides have been applied to the crop, or the risk of crop injury may increase. -Sandea is an ALS inhibitor, Group 2 herbicide, and there is widespread resistance in the region to this family of herbicides. -Rainfastness is 4 h.						
4	2,4-D amine 4L	0.5 to 1.0 pt/A	**2,4-D amine**	0.25 to 0.5 lb/A	45	48
-Apply after corn and weeds emerge. Use drop nozzles when corn is over 8" tall to avoid spraying the foliage or into the whorl. -Warm, wet weather at application may increase the possibility of crop injury. Use the lower recommended rate under these conditions. -Delay cultivation for 8-10 days after treatment to avoid damaging corn due to temporary brittleness sometimes caused by 2,4-D. -**Sweet corn varieties differ in 2,4-D tolerance**. Super sweet varieties may be more sensitive than other varieties. Injury will be less when the minimum recommended rate is used. Use with caution on new varieties. At high rates, 2,4-D may cause temporary injury to corn. -**Do not apply from tasseling to dough stage**. Ester formulations, although labeled, are more subject to volatilization and movement to sensitive crops and are not recommended. Rainfastness is 6 to 8 h.						
4	Starane Ultra 2.8L	0.4 pt/A	**fluroxypyr**	0.14 lb/A	31	12
-Apply in 1 or 2 applications to control certain annual and perennial broadleaf weeds when sweet corn is less than V5 growth stage. -Starane Ultra has a limited control spectrum but the label lists weeds such as chickweed, cocklebur, ragweed, purslane, bindweed, dogbane, morningglory, and velvetleaf. Starane can cause poor development of brace roots. Rainfastness is 1 h. -Maximum Starane Ultra application per year: 0.7 pt/A and no more than 2 applications per crop season.						
4	Stinger 3SL	5.3 to 10.5 fl oz/A	**clopyralid**	0.125 to 0.25 lb/A	30	12
-Apply in 1 or 2 applications to control certain annual and perennial broadleaf weeds when sweet corn is less than 18 inches tall. -Stinger controls weeds in the Composite and Legume plant families. Common annuals controlled include galinsoga, ragweed species, common cocklebur, groundsel, pineappleweed, clover, and vetch. Perennials controlled include Canada thistle, goldenrod species, aster species, and mugwort (wild chrysanthemum). Stinger is very effective on small seedling annual and emerging perennial weeds less than 2-4 inches tall but is less effective and takes longer to work when weeds are larger. -Use 5.3 fl oz/A to control annual weeds less than 3 inches tall. Increase the rate to 5.3 to 10.5 fl oz/A to control larger annual weeds. Apply the maximum rate of 10.5 fl oz/A, in 1 or split into 2 applications to suppress or control perennial weeds. -Spray additives are not needed or required by the label and are not recommended. Observe follow-crop restrictions, or injury may occur from herbicide carryover. -Rainfastness is 6 h. Maximum Stinger application per year: 10.5 fl oz/A.						
5	Atrazine 4L*	1.0 to 2.0 qt/A	**atrazine**	1.0 to 2.0 lb/A	--	12
-Primarily controls broadleaf weeds. Apply postemergence when weeds are less than 2 inches tall. Add oil concentrate to be 1% of the spray solution. **Do not** apply if corn is greater than 12" tall -**Do not** exceed the maximum rate per acre per year listed on the label for your soil's erodibility class. -**ATRAZINE RESTRICTIONS**: Refer to "Atrazine Use Restrictions" in the Soil-applied section above. -When this and other atrazine treatments are used, **do not** double-crop during this season. Cover crops after corn are satisfactory providing the recommended rate of atrazine is not exceeded. Mold-board plowing before planting grain or vegetables the following spring will minimize the risk of atrazine residue injury. See label for specific crop rotation restrictions. -Rainfastness is 1 to 2 h.						
6	Basagran 4L Basagran 5L	1 to 2.0 pt/A 0.8 to 1.6 pt/A	**bentazon**	0.5 to 1.0 lb/A	--	48
-See label for susceptible broadleaf weeds; results are better when weeds are young. Basagran will provide partial control of yellow nutsedge. Basagran will not control grasses or pigweeds. Cultivation within 10-14 days will increase control. Rainfastness is 4 h.						
14	Aim 2EC	0.5 fl oz/A	**carfentrazone**	0.008 lb/A	--	12
-Apply before corn reaches 8 inches in height to control seedling broadleaf weeds including pigweeds, common lambsquarters, morningglory species, eastern black nightshade, and velvetleaf. Aim will not control ragweed species nor Palmer amarnath. -Tank mix with atrazine at reduced rates or another broadleaf weed herbicide to increase the spectrum of weeds controlled. **Do not** tank mix with Basagran due to concerns for crop safety. Always add nonionic surfactant to be 0.25% of the spray solution (1.0 qt/100 gal of spray solution). Expect to see speckling on the crop foliage after application. Initially the injury may appear to be substantial, but it is not systemic, and corn outgrows the injury rapidly. -**Variety sensitivity to Aim may vary**. Use caution when treating new varieties. Weather conditions may affect the degree of injury observed. Injury may be more severe during periods of warm, cloudy weather with high humidity and plentiful soil moisture when corn growth is rapid and "soft." To reduce the risk of crop injury, use drop nozzles when corn is over 8 inches tall to avoid spraying the foliage and into the whorl. Rainfastness is 1 h.						
14	Cadet 0.91EC	0.6 to 0.9 fl oz/A	**fluthiacet**	0.004 to 0.006 lb/A	40	12
-Apply before corn is 48 inches tall or prior to tasseling. While Cadet has a wide application window, it will only control weeds less than 2 inches tall, except velvetleaf which is very sensitive to Cadet. Cadet should not be tank mixed with Basagran due to concerns of crop safety. See comments for carfentrazone above. Rainfastness is 1 h.						

3a. Postemergence - continued next page

3a. Postemergence - continued

27	Callisto 4SC	3.0 fl oz/A	**mesotrione**	0.094	45	12
-Primarily controls common lambsquarters and many other annual broadleaf weeds, including triazine resistant biotypes, but Callisto is weak on ragweed and morningglory species. -Always add nonionic surfactant to be 0.25% of the spray solution (1 qt/100 gal of spray solution), but **do not** add oil concentrate, liquid fertilizer, or ammonium sulfate (AMS), or tank mix Callisto and bentazon (Basagran), or severe crop injury may be observed. Temporary minor injury, appearing as whitening of the new foliage, may occur. The crop will quickly outgrow minor injury with no effect on yield or earliness. -Tank mix with 0.25 to 1.0 lb ai/A of atrazine for improved control and to broaden the spectrum of weed control. Research results support the use of at least 0.5 lb ai/A of atrazine. **Do not** apply tank mixes of Callisto and atrazine to corn greater than 12 inches tall. -**Sweet corn varieties differ in sensitivity to mesotrione**. Most varieties may exhibit slight injury symptoms. Certain varieties are tolerant while others exhibit more noticeable injury. No variety was severely injured by the recommended rates applied with nonionic surfactant. -**Do not** tank mix Callisto with organophosphate or carbamate insecticides or apply if the crop was treated with Counter, or severe crop injury may occur. See the sweet corn section of the Callisto label for additional use precautions. -Prepackaged mixture that also contain mesotrione for postemergence use: Revulin Q 51.2WG at 4 oz/A = 1.1 oz/A Accent Q 54.5WG + 3 fl oz/A Callisto 4SC Calibra or Coyote = S-metolachlor plus mesotrione. -Rainfastness is 1 h.						
27	Shieldex 400SC (3.33SC)	1.0 to 1.35 fl oz	**tolpyralate**	0.026 to 0.035 lb/A	35	12
-Primarily controls common lambsquarters and many other annual broadleaf weeds, including triazine resistant biotypes, but Shieldex is weak on morningglory species. -Label recommends methylated seed oil over nonionic surfactant or crop oil concentrate. Use MSO at 0.5 to 1% of the spray solution (0.5 to 1 gal/100 gal of spray solution); NIS at 0.25 to 0.5% (1 to 2 qt/100 gal of spray solution); COC at 1% (1 gal/100 gal of spray solution). Use 2.5 gal/100 gal of liquid fertilizer or ammonium sulfate (AMS) at 8.5 lb/100 gal. -Tank mix with 0.25 to 1.0 lb ai/A of atrazine for improved control and to broaden the spectrum of weed control. Research results support the use of at least 0.5 lb ai/A of atrazine. **Do not** apply tank mixes of Shieldex and atrazine to corn greater than 12 inches tall. -Shieldex rotation to snap beans, peas, cucurbits, and other vegetables is 9 to 12 months, refer to label. -**Do not** apply more than two applications during the growing season; applications should be separated by 14 days; maximum rate of 2.7 fl oz/yr. Rainfastness is 1 h.						
27	Armezon 2.8SC Impact 2.8SC	0.75 to 1.0 fl oz/A 0.75 to 2.0 fl oz/A	**topramezone**	0.016 to 0.022 lb/A 0.016 to 0.044 lb/A	45	12
-Note that maximum rates differ between Armezon and Impact. -Apply postemergence to control many annual broadleaf weeds, including common lambsquarters and triazine-resistant broadleaf weed biotypes, and annual grasses. Impact/Armezon will control/suppress crabgrass and most other annual grass species but may not control certain grass species or grasses larger than the maximum recommended size when treated. Most broadleaf weeds should be treated before they are 6 inches tall and grass weeds should be treated before they are 2 inches tall. Use the higher recommended rate to suppress or control panicum species or in rescue applications where the target weeds have grown beyond the size indicated on the label. -Add oil concentrate (COC) to be 1% of the spray solution (1 gal/100 gal of spray solution). In addition, the label requires N fertilizer, liquid or ammonium sulfate (AMS). -Tank mix with 0.25 to 1.0 lb ai/A of atrazine for improved control and to broaden the spectrum of weed control. Research results support the use of at least 0.5 lb ai/A of atrazine. **Do not** apply tank mixes of Impact/Armezon and atrazine to corn greater than 12 inches tall. -Local research has not seen issues with postemergence application if mesotrione (*e.g.*, Callisto, Lumax, Lexar, Acuron) was used preemergence; however not all sweet corn hybrids have been tested. -**Do not** tank mix with Callisto. -Impact/Armezon has an 18-month replant restriction for most vegetables. -Armezon: **do not** apply more than 1 fl oz/A during the growing season. Impact: do not apply more than 2 fl oz/A during the season. -Rainfastness is 1 h. -Prepackaged mixture that also contains topramezone: Armezon PRO 5.35EC at 24 fl oz/A= 0.76 fl oz/A Armezon 2.85SC (or Impact) + 18 fl oz/A Outlook 6E						
27	Laudis	3.0 fl oz/A	**tembotrione**	0.082 lb/A	--	12
-Apply postemergence to control many annual broadleaf weeds, including common lambsquarters and triazine-resistant broadleaf weed biotypes, and many annual grasses. Laudis will control/suppress most annual grass species but may not control certain grass species or grasses larger than the maximum recommended size when treated. Fall panicum is not controlled. Most broadleaf weeds should be treated before they are 6 inches tall and grass weeds should be treated before 2 inches in height and before V7 sweet corn growth stage. -Add methylated seed oil (MSO) or concentrate (COC) to be 1% of the spray solution (1.0 gal/100 gal of spray solution). In addition, the label requires the addition of N liquid fertilizer (1.5 qt/A) or ammonium sulfate (AMS) (1.5 lb/A). -Tank mix with 0.25 to 1.0 lb ai/A of atrazine for improved control and to broaden the spectrum of weed control. Research supports the use of at least 0.5 lb ai/A of atrazine. **Do not** apply tank mixes of Laudis and atrazine to corn greater than 12 inches tall. -Local research has not seen issues with postemergence application if mesotrione (*e.g.*, Callisto, Lumax, Lexar, Acuron) was used preemergence; however not all sweet corn hybrids have been tested. -**Do not** tank mix with Callisto. -Laudis has up to an 18-month replant restriction for many vegetables. -Rainfastness is 1 h. **Do not** apply more than 1 application per growing season						

3.b. Postemergence for Herbicide Resistant Sweet Corn Varieties ONLY!						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient**	**Active Ingredient Rate**	**PHI (d)**	**REI (h)**
1	Poast 1.5EC	0.75 to 1.5 pt/A	**sethoxydim**	0.15 to 0.3 lb/A	30	12
-**USE ONLY ON "POAST PROTECTED" SWEET CORN!** Other sweet corn varieties will be severely injured or killed. -Use 1% crop oil concentrate (COC) at 1% v/v (1 gal/100 gal of spray solution). -**The use of COC may increase the risk of crop injury when hot or humid conditions prevail.** To reduce the risk of crop injury, omit additives or switch to nonionic surfactant (NIS) when grasses are small and soil moisture is adequate. -Use lower labeled rates for annual grass control and higher labeled rates for perennial grass control. -Yellow nutsedge, wild onion, wild garlic, and broadleaf weeds will **not** be controlled. -Controls many annual and certain perennial grasses. For best results, treat annual grasses when they are actively growing, before tillers are present. Control may be reduced if grasses are large or under hot dry weather conditions. -Repeated applications may be necessary to control certain perennial grasses. If repeat applications are necessary, allow 14 days between applications. -**Do not** tank mix with or apply within 2 to 3 days of any other pesticide, unless labeled, as this may increase the risk of crop injury or reduce the control of grasses. Rainfastness is 1 h. -**Do not** exceed more than 3pt/A Poast per season. -Refer to Poast label for additional application guidelines.						
9	Roundup PowerMax 4.5L (or other labeled generic formulation)	16 to 44 fl oz/A	**glyphosate**	0.75 to 1.5 lb acid equivalent/A	30	4
-**USE ONLY ON "ROUNDUP READY" SWEET CORN!** Other sweet corn varieties will be severely injured or killed. -Apply before weeds exceed 2 inches in height or have 4 true leaves. Larger weeds can be killed but yield may be reduced before the weeds are killed. Treat 3-4 weeks after planting when growing conditions are favorable. Perennial weeds must be treated at the proper growth stage to obtain effective control (see label for application time and rate). -Tank mix glyphosate with Dual II Magnum for residual annual grass control and atrazine for residual annual broadleaf control. -Rainfastness is 6 h. Observe all rate restrictions and Pre-harvest Intervals for all products. **Do not** apply more than 44 fl oz/A in a single application and before 48" tall corn and more than 4.1 qt/A total of all in-crop applications.						
10	Liberty 280 2.34L Scout 2.34L Interline 2.34L	22 fl oz/A	**glufosinate**	0.4 lb/A	50	4
-**USE ONLY ON "LIBERTY LINK" (ATTRIBUTE OR ATTRIBUTE II) SWEET CORN!** Other sweet corn varieties will be severely injured or killed. Control many annual broadleaves and grasses. Apply before weeds exceed 3 inches tall and corn reaches V6 growth stage. Include ammonium sulfate (AMS) at 1.5-3 lb/A in the spray mixture. -Sinate is a prepackaged mixture of Impact 2.8SC plus Liberty 2.34L -Use at least 15 gal/A spray volume and medium to coarse spray nozzles. -Tank mix with other labeled sweet corn herbicides to broaden control spectrum and for residual control. -Rainfastness is 4 h. **Do not** apply more than 22 fl oz/A in a single application and 44 fl oz/A per year.						

4. Other Labeled Herbicides These products are labeled but limited local data are available; and/or are labeled but not recommended in our region due to potential crop injury concerns.		
Group	**Product Name (*=Restricted Use)**	**Active Ingredient**
14	Sharpen	**saflufenacil**
14,15	Verdict	**saflufenacil + dimethenamid**

Insect Control

THE LABEL IS THE LAW-see the Pesticide Use Disclaimer on the first page of Chapter F.

Insect pest management in sweet corn typically occurs in five separate phases:

1) preventive measures at the time of seed purchase such as selecting a transgenic *Bt* hybrid and/or pretreated a commercially applied insecticide seed treatment; **2)** at-planting insecticide applications for soil pests; **3)** managing early seedling pests up to V6, **4)** managing whorl stage corn for lepidopteran pests; and **5)** ear protection.

1) Preventive Control

Bt Transgenic Sweet Corn

Bacillus thuringiensis (Bt) sweet corn hybrids are available that express single or pyramided insecticidal proteins for protection against lepidopteran "worm" pests. Attribute® hybrids (Syngenta Seeds) expressing the cry1Ab protein (YieldGard trait) have been available since 1998, and growers can purchase 80K or 25K seed units of white, yellow, and bicolor SE and Sh2 hybrids for local, shipping, and processing markets. These hybrids now express the Liberty Link herbicide tolerance trait. Performance Series™ hybrids (Seminis Seeds) expressing two Bt proteins (cry1A.105 and cy2Ab2) are also available in 80K or 25k seed units. These pyramided traits provide additional

protection, particularly for corn earworm and fall armyworm, and also are Roundup Ready. In addition, Attribute® II hybrids (Syngenta Seeds) with pyramided genes expressing YieldGard and Viptera traits (Vip3A protein) and stacked with the Liberty Link trait are now available. This Bt pyramided gene technology currently provides nearly 100% control of all lepidopteran pests of sweet corn.

All Bt sweet corn hybrids, regardless of whether single or pyramided traits, provide 100% protection against European corn borers, thus no insecticides are needed during the whorl or tasseling stages, or even during silking if this pest is the only concern. However, corn earworm and fall armyworm are more tolerant to the cry proteins, and sweet corn is also exposed to sap beetles, stink bugs, and silk feeding by corn rootworm adults which can reduce pollination. Because of this pest complex, insecticide sprays may be needed to ensure fresh market quality of Bt hybrids. Furthermore, control efficacy of the YieldGard trait against corn earworm has significantly declined in the Attribute hybrids, and there is recent evidence that the Performance Series hybrids are also showing reduced efficacy due to corn earworm resistance development to the cry proteins. Thus, fields planted in these Bt hybrids will need insecticide applications, depending on the insect pressure and level of resistance in the population. In addition, under moderate to high moth activity (early August-early September), many eggs are laid later in ear development after the expressed Bt protein has degraded in dead silk tissue. This loss of protein activity also is accelerated by hot, dry conditions, which cause rapid desiccation of the silk tissue. As a result, earworms and fall armyworms have a greater chance of surviving and invading the ear. Under high moth activity, up to 50% or more of the Attribute ears can become infested with larvae. In this situation, spray schedules of 3 or 4 applications starting 3-4 days after the first onset of silking and repeated 3-4 days apart may be required. The pyramided Bt hybrids (Performance Series™, Attribute® II) are more effective than the single protein Attribute hybrids and should require much fewer applications, depending on the ear quality requirements. For these hybrids under high corn earworm pressure, a single application of insecticide applied when 100% of the ears have silked (about 5-6 days after the first onset of silking) has been sufficient to ensure fresh market quality. This timing, compared to an earlier silk application conserves beneficial insects that provide an important ecological service by feeding on eggs and small larvae during the fresh silking period.

Insecticidal Seed Treatments

Commercially Applied Seed Treatments Only		
Group	**Product Name (*=Restricted Use)**	**Active Ingredient(s)**
4A	Cruiser 5FS	thiamethoxam
4A	Gaucho 600	imidacloprid
4A	Poncho 600	clothianidin
4A + 6	Avicta Complete Corn*	abamectin + thiamethoxam
4A + 11B	Poncho/Votivo	clothianidin + *Bacillus firmus*
28	Lumivia	chlorantraniliprole

2) At-Planting Insecticide Applications for Soil Pests

Seedcorn Maggots (SCM), Wireworms (WW), and White Grubs (WG)

These insects can attack germinating corn seeds and the early developing roots. Early season control can be achieved with either commercially treated seed or in-furrow insecticide treatments. Larger white grubs may not be completely controlled with most seed treatments. Rescue treatments applied post-planting are not effective.

At planting soil-applied treatment. Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1B	Counter 20G SmartBox® system*	4.5 to 6.0 oz/1000 row ft	terbufos	see label	see label	H
3A	Force 3G, Force 3G SmartBox® system*	4.0 to 5.0 oz/1000 row ft	tefluthrin	n/a	48	H
30	Nurizma	0.05 to 0.07 fl oz/1000 row ft	broflanilide	AP	12	H

Corn Rootworm Larvae

Western corn rootworm can be a serious pest of corn planted continuously year after year in the same field. Eggs are laid in cornfields the previous summer and hatch the following spring. Rootworm larvae can only survive on corn. The larvae prune back and tunnel into roots. Crop rotation is the most effective control for corn rootworm. Avoid planting corn after corn, cucumbers, pumpkins, or squash; rotation distance of even 3 ft is effective. Soil insecticides applied at planting aim to protect the root zone for about 6-8 weeks after application. When allowed on the label, T-band tends to be more effective than in-furrow application.

3) Seedling Pests

Corn Flea Beetles

Corn flea beetles transmit bacterial wilt disease (also known as Stewart's wilt) and are numerous after mild winters. If possible, use varieties resistant to bacterial wilt disease. Plants are most vulnerable to this disease in the seedling stage. Treat susceptible varieties at spike stage when > 5% of the plants are infested with beetles. **Note: Commercially applied neonicotinoid seed treatments (Cruiser, Gaucho, or Poncho) provide early-season protection from corn flea beetle injury.**

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1A	Sevin XLR Plus[1]	1.0 to 2.0 qt/A[1]	carbaryl[1]	2	24	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					
4A	Assail 30SG Assail 30SC	4.0 to 5.3 oz/A 3.4 to 4.5 fl oz/A	acetamiprid	7	12	M

[1]Use of carbaryl prohibited on hand harvested corn.

Cutworms See also section E 3.1. Soil Pests - Detection and Control.

Black cutworm is a sporadic pest that can be particularly problematic in no-till situations. Cutworms can clip corn seedlings killing entire plants as they craw down a row. Use of a soil-applied insecticide for other pests such as white grubs and rootworms will provide some control of cutworms.

For rescue treatment, apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1A	Sevin XLR Plus[1]	2.0 qt/A[1]	carbaryl[1]	see label	see label	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					

[1]Use of carbaryl prohibited on hand harvested corn

True Armyworms Armyworms are a sporadic pest that chew jagged holes in the edges of leaves. They are primarily a concern of seedling to early-whorl stage corn. They are active at night.

For rescue treatment, apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1A	Lannate LV***[1]**	0.75 to 1.5 pt/A[1]	methomyl[1]	see label	48	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					
5	Blackhawk 36WG	2.2 to 3.3 oz/A	spinosad	1	4	M
5	Radiant SC	3.0 to 6.0 fl oz/A	spinetoram	1	4	M
18	Intrepid 2F	4.0 to 16.0 fl oz/A	methoxyfenozide	3	4	L
18 + 5	Intrepid Edge	4.0 to 12.0 fl oz/A	methoxyfenozide + spinetoram	3	4	M
28	Vantacor	1.7 to 2.5 fl oz/A	chlorantraniliprole **- soil**	1	4	L
28	Vantacor	1.2 to 2.5 fl oz/A	chlorantraniliprole **- foliar**	1	4	L

[1]Read new methomyl label restrictions regarding use on seedling stage corn and before tassel push!

Stink Bugs Note: Brown and brown marmorated stink bugs are less susceptible to pyrethroids than green and southern green stink bugs. Careful pyrethroid selection is advised, consult your local Cooperative Extension Service for recommendations for your area.

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table below.					

4) Managing Whorl Stage Corn for Lepidopteran Pests

Whorl/Tassel Infestation by European Corn Borer (ECB) and Fall Armyworm (FAW)

In general, insect larval feeding (ECB and FAW) during the whorl stage of development has a greater impact on early planted, short-season varieties. For ECB on early plantings, apply first spray when 15% of the plants show fresh feeding signs. Additional applications may be necessary if infestation remains above 15%. An early tassel treatment is usually more effective than a whorl treatment because larvae are more exposed to the chemicals.

For mid- and late-season plantings, the impact of infestation depends on the growth stage of the plants. Treat for FAW during the early whorl stage when more than 15% of the plants are infested. During mid- to late-whorl stages, treatment for both FAW and ECB may be necessary if more than 30% of the plants are infested. Treat fields in early tassel stage if more than 15% of the emerging tassels are infested with ECB, FAW, or young CEW larvae. Thorough spray coverage in whorls and on plants is essential; direct spray over the plants so that it penetrates leaf whorls. For foliar spray applications, 50-75 gal/A is necessary for effective control. Group 3A pyrethroids may not provide complete control of FAW.

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1A	Lannate LV*[1]	0.75 to 1.5 pt/A[1]	methomyl[1]	see label	48	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					
5	Blackhawk 36WG	2.2 to 3.3 oz/A	spinosad	1	4	M
5	Radiant SC	3.0 to 6.0 fl oz/A	spinetoram	1	4	M
18	Intrepid 2F	4.0 to 16.0 fl oz/A	methoxyfenozide	3	4	L
18 + 5	Intrepid Edge	4.0 to 12.0 fl oz/A	methoxyfenozide + spinetoram	3	4	M
22	Avaunt 30WDG, Avaunt eVo	2.5 to 3.5 oz/A	indoxacarb-**through tassel push only**	3	see label	H
28	Vantacor	1.2 to 2.5 fl oz/A	chlorantraniliprole – **foliar**	1	4	L

[1]Read new methomyl label restrictions regarding use on seedling stage corn and before tassel push!

5) Ear Protection

Corn Earworms (CEW) and Other "Worm" Pests Including European Corn Borers (ECB), Fall Armyworms (FAW), and Western Bean Cutworms (WBC)

CEW is the major pest attacking corn ears in the Mid-Atlantic U.S. Moth activity increases after mid-July and continues into September. One female can deposit an egg on hundreds of ears. Direct sampling for CEW, FAW, and ECB during silking is not practical. Begin treatment when the ear shanks emerge or the very first silks appear. Silk sprays should continue on a schedule based on area blacklight or pheromone trap counts, geographical location, and time of year. Before mid-July, silk sprays may be required on a 3-6-d schedule. When CEW populations are heavy (> 10 moths per night), and/or later in the summer, it may be necessary to treat on a 2-3 day schedule.

Note that CEW populations have developed resistance to pyrethroids (Group 3A) which may result in inadequate control, particularly in the late season. Pyrethroids should be used with caution and rotated to other insecticide classes within a season or tank mixed with other, effective insecticides.

Applications during the low populations can be terminated up to 5 d before last harvest. During heavy populations and high temperatures, treatments will need to be made according to the legal "days to harvest" of the chemical. For best control during heavy infestations, maximize the gallonage of water per acre, use a wetting agent, and make applications during the early morning if possible**. If irrigation or rain wash off the spray within 24 h** after an application, repeat treatment as soon as the foliage dries. For more precise timing of silk sprays, use blacklight and pheromone traps to determine the actual moth activity on your farm. Contact your county Extension agent or consult your state pest management newsletter for more information on these techniques.

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1A	Lannate LV*	1.0 to 1.5 pt/A	methomyl	see label	48	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					
5	Blackhawk	2.2 to 3.3 oz/A	spinosad	1	4	M
5	Radiant SC	3.0 to 6.0 fl oz/A	spinetoram	1	4	M
18 + 5	Intrepid Edge	4.0 to 12.0 fl oz/A	methoxyfenozide + spinetoram	3	4	M
28	Vantacor	1.2 to 2.5 fl oz/A	chlorantraniliprole **- foliar**	1	4	L

Corn Leaf Aphids

Corn leaf aphids are contamination concerns for sweet corn as their densities can reach extremely high numbers on corn husks leading to sticky honey dew build up and concomitant sooty mold growth on the husks. This hurts marketability. Aphid outbreaks are typically caused by frequent applications of pyrethroid insecticides, which **do not** control the aphids, but rather eliminate natural enemies that consume the aphids under normal conditions. In recent years, melon aphids and bird cherry oat aphids have also reached high densities in Delmarva corn; melon aphids are less susceptible to methomyl than corn leaf aphids and bird cherry oat aphids. *(continued next page)*

Corn Leaf Aphids - continued

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1A[1]	Lannate LV*	0.75 to 1.5 pt/A	methomyl	see label	48	H
4A	Assail 30SG Assail 30SC	2.1 to 2.9 oz/A 1.8 to 2.4 fl oz/A	acetamiprid	1	12	M
4C	Transform WG	0.75 to 1.5 fl oz/A	sulfoxaflor	7	24	H
4D	Sivanto Prime	7.0 to 14.0 fl oz/A	flupyradifurone	7	4	M

[1]Susceptibility concerns with melon aphids

Corn Rootworm Adults and Japanese Beetles - Silk Clipping Beetles

High rates of silk feeding by corn rootworm beetles, Japanese beetles, and other silk-feeders can affect pollination and cause ear quality problems. **Note: Sweet corn varieties with the *Bacillus thuringiensis* genes will NOT control any of these insects.** For silk feeding insects, when more than 50% of ears have fresh silks cut back and the plants are still pollinating, an insecticide spray also is recommended.

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1A	Lannate LV*	0.75 to 1.5 pt/A	methomyl	see label	48	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					
4A	Assail 30SG Assail 30SC	4.0 to 5.3 oz/A 4.5 fl oz/A	acetamiprid	7	12	M

Grasshoppers

Grasshoppers may be quite conspicuous on corn feeding on leaves, but they are seldom of economic concern because they often move into corn later in the season after other grasses and plants have dried down or been harvested. Unless they are seedlings, corn plants typically can tolerate their feeding injury. Grasshoppers also are more abundant on field edges giving the impression that their pest densities are higher than they actually are across the field. Most insecticides (Group 1A, 1B, 3, or 4A) applied to other insects will also control grasshoppers.

Mites

Mites feed by removing fluids from plant tissue leading to lighter colored or white areas described as stippling. Extensive feeding may lead to reduced photosynthesis and reduced vigor of plants.

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
10B	Zeal Pro / MVP	11.5 to 34.6 fl oz/A	etoxazole	**21**	**12**	**L**
10B	Zeal SC	2.0 to 6.0 fl oz/A	etoxazole	21	12	L
23	Oberon 2SC	5.7 to 16.0 fl oz/A	spiromesifen	5	12	M
23	Oberon 4SC	2.85 to 8.0 fl oz/A	spiromesifen	5	12	M

Sap (Picnic, Dusky) Beetles

Most sap beetle infestations follow behind "worm" infestations, which create entry holes for the beetles to reach kernels to deposit their eggs. Nevertheless, on farms with a known history of sap beetle problems, an insecticide application 5-6 days after the first onset of silking is the best timing for maximum protection against these pests, which are attracted to the ear zone to lay eggs as silk tissue degrades. Varieties with long, tight silk tubes can reduce sap beetle damage. Begin sampling at pollen shed and treat when 5% of the ears have adults and/or eggs. Most insecticides used for "worm" control at silking will control these beetles. **Note: Sweet corn varieties with the *Bacillus thuringiensis* genes will NOT control sap beetles.**

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1A	Lannate LV*	0.75 to 1.5 pt/A	methomyl	see label	48	H
1A	Sevin XLR Plus[1]	1.0 to 2.0 qt/A[1]	carbaryl[1]	see label	see label	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control					
4A	Assail 30SG Assail 30SC	4.0 to 5.3 oz/A 3.4 to 4.5 fl oz/A	acetamiprid	7	12	M

[1]Use of carbaryl prohibited on hand harvested corn

Stink Bugs

Stink bugs including the invasive brown marmorated stink bug can feed on developing ears resulting in misshapen ears, unfilled kernels, collapsed kernels, and kernels that turn dark after corn is cooked. **Note: Sweet corn varieties with the *Bacillus thuringiensis* genes will NOT control any of these insects.**

Note: Brown and brown marmorated stink bugs are less susceptible to pyrethroids than green and southern green stink bugs. Careful pyrethroid selection is advised, consult your local Cooperative Extension Service for recommendations for your area.

Apply one of the following formulations:						
Group	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table below.					

Group 3A Pyrethroid Insecticides Registered for Use on Sweet Corn

Apply one of the following formulations (check if the product label lists the insect you intend to spray; the label is the law):					
Product Name (*=Restricted Use)	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
Asana XL*	5.8 to 9.6 fl oz/A	esfenvalerate	1	12	H
Baythroid XL*	0.8 to 2.8 fl oz/A	beta-cyfluthrin	0	12	H
Brigade 2EC*, others	2.1 to 6.4 fl oz/A	bifenthrin	1	12	H
Hero*	4.0 to 10.3 fl oz/A	zeta-cypermethrin + bifenthrin	3	12	H
Lambda-Cy 1EC*, others	2.56 to 3.84 fl oz/A	lambda-cyhalothrin	1	24	H
Mustang Maxx*	2.24 to 4.0 fl oz/A	zeta-cypermethrin	1	12	H
Permethrin 3.2EC*, others	4.0 to 8.0 fl oz/A	permethrin	1	12	H
Tombstone*	0.8 to 2.8 fl oz/A	cyfluthrin	0	12	H
Warrior II*	1.28 to 1.92 fl oz/A	lambda-cyhalothrin (see label for cutworm rate)	1	24	H
Combo products containing a pyrethroid					
Besiege*	6.0 to 10.0 fl oz/A	lambda-cyhalothrin+chlorantraniliprole (Group 28)	1	24	H
Elevest*	4.8 to 9.6 fl oz/A	bifenthrin + chlorantraniliprole (Group 28)	1	12	H
Ethos XB*	3.4 to 17.0 fl oz/A (at plant) 4.0 to 5.3 fl oz/A (PPI) 3.4 fl oz/A (PRE)	bifenthrin + *Bacillus amyloliquefaciens* - **soil**	n/a	12	H
Ethos XB*	2.8 to 8.5 fl oz/A	bifenthrin + *Bacillus amyloliquefaciens* - **foliar**	1	12	H
Savoy EC*	6.0 to 12.9 fl oz/A	bifenthrin + acetamiprid Group 4A)	7	12	H

Disease Control

THE LABEL IS THE LAW-see the Pesticide Use Disclaimer on the first page of Chapter F. Recommended Fungicides

Nematodes

Control is very important to the production of sweet corn. See also sections E 1.5. Soil Fumigation and E 1.6 Nematode Control. Use fumigants listed in section E 1.5., or one of the following:

Code	**Product Name (*=Restricted Use)**	**Product Rate**	**Active Ingredient(s)**	**PHI (d)**	**REI (h)**	**Bee TR**
1B	Counter 20G*	see label for use directions (**not for use in WV**)	terbufos	AP	48	H
1B	Mocap 15G*	see label for use directions	ethoprop	AP	48	H

Seed Treatment

Request that seed be treated with one or more of the following fungicides for seedling diseases and damping-off: Allegiance, Apron XL, Dynasty, Captan, Thiram, Vitavex or Maxim XL. Seed treatment with these fungicides is especially important for preventing early season seeding diseases of Super Sweet (sh) varieties.

Bacterial and Fungal Diseases

Leaf Blights (Northern, Southern, and Anthracnose Leaf Blights), and Leaf Spots (Gray Leaf Spot, Northern Corn Leaf Spot)

These diseases originate in corn residue and progress up the plant with persistent rain or overhead irrigation. Avoid planting continuous corn and bury residue with deep tillage immediately after harvest. For optimal control, begin sprays before symptoms appear or very early stage of symptom appearance if favorable weather for disease development persists. Regular scouting and protectant fungicides late in the season may be necessary.

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
Apply one of the following protectant fungicides:						
M03	mancozeb 75DF	1.5 lb/A	mancozeb	7	24	N
M05	chlorothalonil 6F (7-day schedule, **do not** apply to corn to be processed)	0.75 to 2.0 pt/A	chlorothalonil	12	12	N
AND rotate on a 7-14 day schedule with one of the following (do not apply the same fungicide more than twice in a row; switch to fungicides with different FRAC codes):						
3	Tilt 3.6EC (not registered for Anthracnose)	2.0 to 4.0 fl oz/A	propiconazole	12	12	N
3 + 3	Prosaro 421SC	6.5 fl. oz/A (5-14 day schedule)	tebuconazole + prothioconazole	7	12	N
3+7+11	Trivapro 2.21SE	14.5 fl oz/A	propiconazole + benzovindiflupyr + azoxystrobin	7	12	N
3+7+11	Miravis Neo	13.7 fl oz/A	propiconazole + pydiflumetofen + azoxystrobin	14	12	N
3 + 11	Headline AMP 1.68SC	10.0 to 14.4 fl oz/A	metconazole + pyraclostrobin	20	12	N
3 + 11	Quilt Xcel 2.2SE	10.5 to 14 fl oz/A	propiconazole + azoxystrobin	14	12	N
3 + 11	Stratego 2.08EC (Anthracnose, GLS)	10.0 fl oz /A	propiconazole + trifloxystrobin	14	12	N
3 + 11	Stratego YLD 4.18EC (Anthracnose, GLS)	4.0 to 5.0 fl oz/A (5-14 d. schedule)	prothioconazole + trifloxystrobin	0	12	N
3 + 11	Veltyma 3.34SC	7.0 to 10.0 fl oz/A	mefentrifluconazole + pyraclostrobin	21	12	N
7 + 11	Priaxor 4.17SC	4.0 to 8.0 fl oz/A	fluxapyroxad + pyraclostrobin	7	12	N
M03+11	Dexter Max (not registered for Anthracnose)	1.6 lb/A	mancozeb + azoxystrobin	7	24	--
11	Aproach 2.08SC	6.0 to 12.0 fl oz/A	picoxystrobin	7	12	N
11	azoxystrobin 2.08F	9.2 to 15.5 fl oz/A	azoxystrobin	7	4	N
11	Headline 2.09EC	9.0 to 12.0 fl oz/A	pyraclostrobin	7	12	N

Root and Stalk Rots

Root and stalk rots are caused by several species of fungi, including *Fusarium*, *Diplodia*, and *Macrophomina,* as well as species of the oomycete *Pythium*. Some of these fungi enter through the roots and move up into the stalk, while others enter the stalk directly at the nodes. Insects can increase infection by enabling fungi to enter the plant in damaged areas. Use fungicide-treated seed and plant in well-drained areas. Do not exceed recommended plant densities. Keep soil fertility balanced based on soil tests. Manage insects throughout the growing season.

Rust (Common and Southern)

Rust is caused by a pathogen that blows into our region from Southern areas. In most years chemical control measures are not necessary but rust occasionally becomes troublesome on susceptible hybrids planted later in the growing season. Corn warrants spraying if infection occurs prior to the whorl stage, particularly if Southern rust is detected. Scout fields on a regular basis.

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
If pustules are observed prior to the whorl stage, apply one of the following on a 7-14 day schedule (do not apply the same fungicide more than twice in a row; switch to fungicides with different FRAC codes):						
3 + 3	Prosaro 421SC	6.5 fl. oz/A (5-14 day schedule)	tebuconazole + prothioconazole	7	12	N
3+7+11	Trivapro 2.21SE	14.5 fl oz/A	propiconazole + benzovindiflupyr + azoxystrobin	7	12	N
3+7+11	Miravis Neo	13.7 fl oz/A	propiconazole + pydiflumetofen + azoxystrobin	14	12	N
3 + 11	Headline AMP 1.68SC	10.0 to 14.4 fl oz/A	metconazole + pyraclostrobin	20	12	N

Rust (Common and Southern) - continued next page

Rust (Common and Southern) - continued

3 + 11	Quilt Xcel 2.2SE	10.5 to 14 fl oz/A	propiconazole + azoxystrobin	14	12	N
3 + 11	Stratego 2.08EC	10.0 fl oz /A	propiconazole + trifloxystrobin	14	12	N
3 + 11	Stratego YLD 4.18EC	4.0 to 5.0 fl oz/A (5-14 day schedule)	prothioconazole + trifloxystrobin	0	12	N
7 + 11	Priaxor 4.17SC	4.0 to 8.0 fl oz/A	fluxapyroxad + pyraclostrobin	7	12	N
M03+11	Dexter Max[1] (for common rust)	1.6 lb/A	mancozeb + azoxystrobin	7	24	--

[1]Dexter Max is extremely toxic to some apple varieties. See label.

Smut

There is no true genetic resistance to smut in sweet corn. Later maturing, larger varieties tend to be more tolerant to smut than early maturing, smaller varieties. Since damaged tissue is more prone to infection, control corn borers, stink bugs, and other problematic insect pests as the first tassel appears.

Stewart's Bacterial Wilt

Use varieties resistant to Stewart's wilt listed in the sweet corn varieties table at the front of this section in areas with a history of bacterial wilt. More variety information relative to Stewart's Bacterial Wilt is available at: *http://sweetcorn.illinois.edu/index.html*. Control of flea beetles is essential for effective disease management. Flea beetles transmit Stewart's wilt and are prevalent after mild winters. Use insecticide-treated seed or a recommended insecticide at seedling emergence. Treat susceptible varieties at spike stage when 5% of the plants are infested. See Insect Control Section for flea beetle control recommendations.

Tar Spot (*Phyllachora maydis*)

Corn Tar Spot is a fungal leaf disease that was first detected in the United States in 2015 in Illinois and Indiana and has since spread to multiple states. Fungicide application time may vary depending on the onset of disease, however, application during corn reproductive stage (silking-growth stage R1) has been found most effective for controlling tar spot.

Code	Product Name (*=Restricted Use)	Product Rate	Active Ingredient(s)	PHI (d)	REI (h)	Bee TR
3 + 7	Lucento	5.0 to 5.5 fl oz/A	flutriafol + bixafen	10	See label	N
3 + 11	Veltyma	7.0 to 10.0 fl oz/A	mefentrifluconazole + pyraclostrobin	21	12	N
3 + 11	Delaro 325 SC	8.0 to 12.0 fl oz/A	prothioconazole + trifloxystrobin	See label	24	--
3+11+7	Trivapro 2.21 SE	13.7 fl oz/A	propiconazole + azoxystrobin + benzovindiflupyr	14	12	N
3+11+7	Adastrio 4.0 SC[1]	7.0 to 9.0 fl oz/A	flutriafol + azoxystrobin + fluindapyr	See label	See label	--
3+11+7	Miravis Neo 2.5 SE	13.7 fl oz/A	propiconazole + azoxystrobin + pydiflumetofen	14	12	N
3+11+7	Delaro Complete	8.0 fl oz/A	prothioconazole + trifloxystrobin + fluopyram	See label	12	NA
7 + 11	Priaxor Xemium[1]	4.0 to 8.0 fl oz/A	fluxapyroxad + pyraclostrobin	7	12	N
7+3+11	Revytek	8.0 to 15 fl oz/A	fluxapyroxad + mefentrifluconazole + pyraclostrobin	21	12	N
11	Aproach[1]	6.0 to 12.0 fl oz/A	picoxystrobin	7	12	N
11 + 3	Headline AMP[1]	10.0 to 14.4 fl oz/A	pyraclostrobin + metconazole	7	12	N
11 + 3	Topguard EQ[1]	5.0 to 7.0 fl oz/A	azoxystrobin+ flutrifol	7	72	N
11 + 3	Quilt Xcel 2.2 SE[1]	10.5 to 14 fl oz/A	azoxystrobin+ propiconazole	14	12	N

[1] See section 2(ee) label and confirm availability in your state.

Viruses

Maize Dwarf Mosaic Virus (MDMV)

MDMV is most likely to occur on corn planted after July 1. The virus is transmitted by aphids to sweet corn from infected weeds, especially Johnsongrass. Less frequently, the disease may be transmitted in/on seed. For control, manage weeds and aphids and plant healthy (disease free) seeds of resistant varieties for fall harvest.

If you are having a medical emergency after using pesticides, always call 911 immediately.

POISON Help®

1-800-222-1222

In Case of an Accident

- Remove the person from exposure
- Get away from the treated or contaminated area immediately
- Remove contaminated clothing
- Wash with soap and clean water
- Call a physician and/or the National Poison Control Center (1-800-222-1222). Your call will be routed to your State Poison Control Center.
- Have the pesticide label with you!
- Be prepared to give the EPA registration number to the responding center/agency