

This is a section from the

2016

Mid-Atlantic

Commercial Vegetable Production Recommendations

The manual, which is published annually, is NOT for home gardener use.

The full manual, containing recommendations specific to New Jersey, can be found on the Rutgers NJAES website in the Publications section
njaes.rutgers.edu

The label is a legally-binding contract between the 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.

SWEET CORN

Varieties

Fresh Market Sweet Corn Variety Selection Guide								
Variety	Relative Maturity	Kernel Type ¹	Disease Resistance ²					Bt Insect Resistance ³
			Et	Pst	Ps	MDMV	Bm	
Bicolor Varieties								
Xtra-Tender 272A	72	Aug		I			I	
Temptation	72	SE						
Temptation II (GMO)	72	SE						Performance
Sweet Rhythm	73	Syn	I	I				
Awesome	74	Syn		I				
Xtra-Tender 2074	74	Aug		I	R			
BSS0977(GMO)	78	SS	I	I	R			Attribute
Summer Sweet HiGlow 7932MR	78	SS	I	I	R		I	
Xtra-Tender 278A	78	Aug	I	I			I	
Montauk	79	Syn	I	I				
Obsession	79	Aug	I	I	R			
Obsession II (GMO)	79	Aug	I	I	R			Performance
Summer Sweet 7902R	79	SS	R	I	R		I	
BC0805 (GMO)	82	Syn			I		I	Attribute
Providence	82	Syn			R		I	
Serendipity	82	Syn					I	
Delectable	84	SE	I	I	R	R		
White Varieties								
Mirai 421W	71	Mirai	I	I	I			
Xtra-Tender 372*	72	Aug		I			I	
Frosty	73	SE	I	I				
Sugar Pearl	73	SE	I	I	I			
Sweet Ice	74	Syn		I				
Whiteout	74	SE	I	I				
Edelweiss	76	SE						
Xtra-Tender 378A	78	Aug		I			I	
Munition	78	SS	I	I	R	I		
Mattapoisett	80	Syn	I	I	I			
WSS0987 (GMO)	81	SS	I		R			Attribute
Avalon	82	Syn	I	I			I	
Devotion	82	Aug		I				
Silver King	82	SE	I	I	I		I	
Argent	83	SE	I	R	I			
Yellow Varieties								
Vision	73	Aug		I			I	
GSS0966 (GMO)	78	SS	I	I	R			Attribute
Summer Sweet 7210R	78	SS	R	R	R		R	
Incredible	82	SE		I	R	R		

¹Kernel Type: SE = Sugary Enhanced, SS = Supersweet, Syn = Synergistic, Aug = Augmented Shrunken. See Table "Sweet Corn Genetics and Isolation Requirements" table for additional details. (Abbreviations applicable to this table; not necessarily elsewhere in this guide.)

²R=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*.

(Abbreviations applicable to this table; not necessarily elsewhere in this guide.)

³Insect resistance from *Bacillus thuringiensis* transgenes is available in some varieties. Attribute varieties have the Cry1Ab gene for corn earworm and European corn borer (ECB) resistance. Performance Series varieties have the Cry1A.105 and Cry2AB genes for corn earworm, ECB and fall armyworm resistance. Performance Series varieties also have transgenes conferring glyphosate resistance. (Abbreviations applicable to this table; not necessarily elsewhere in this guide.)

Processing ¹ Sweet Corn Variety Selection Guide								
Variety	Color	Relative Maturity	Kernel Type ²	Disease Resistance ³				
				Et	Pst	Ps	MD MV	Bm
Protégé	yellow	77	SS	R	I	R		R
SS Jubilee Plus	yellow	83	SS			R		I
Overland	yellow	84	SS	R	R	R		I
GSS 2259P	yellow	84	SS	I	I	R	R	
GSS 1453	yellow	84	SS	R		R		
GH 6462	yellow	83	SU	I	I	R	I	I
GH 9597	yellow	83	SU	I	R	R	R	

¹Use varieties recommended by processors. Local adaptation and quality needs of processors must be considered. Consult the Delaware Extension Vegetable Program website for results from recent processing sweet corn variety trials: <http://extension.udel.edu/ag/vegetable-fruit-resources/vegetable-small-fruits-program/> (Abbreviations applicable to this table; not necessarily elsewhere in this guide.)

²Kernel Type: SU = Sugary/Normal, SS = Supersweet. See Table “Sweet Corn Genetics and Isolation Requirements” table for additional details. (Abbreviations applicable to this table; not necessarily elsewhere in this guide.)

³R=resistance, I=intermediate/partial resistance (Abbreviations applicable to this table; not necessarily elsewhere in this guide.)

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*. (Abbreviations applicable to this table; not necessarily elsewhere in this guide.)

Recommended Nutrients Based on Soil Tests

Before using the table below, refer to important notes in the Soil and Nutrient Management chapter in Section B and your soil test report. These notes and soil test reports provide additional suggestions to adjust rate, timing, and placement of nutrients. Your state’s soil test report recommendations and/or your farm’s nutrient management plan supercede recommendations found below.

Sweet Corn	Pounds N per Acre	Soil Phosphorus Level				Soil Potassium Level				Nutrient Timing and Method
		Low	Med	High	Very High	Low	Med	High	Very High	
				(Opt.)	High			(Opt.)	High	
Fresh Market	125-175	160	120	80	0 ^{1,2}	160	120	80	0 ^{1,2}	Total nutrient recommended.
	40-60 ³	120	100	60	0 ¹	120	100	60	0 ¹	Broadcast and disk-in.
	20	40	20	20	0 ^{1,2}	40	20	20	0 ^{1,2}	Band-place with planter.
	50-100 ³	0	0	0	0	0	0	0	0	Sidedress when corn is 12 inches tall.
Processing	150-200	160	120	80	0 ^{1,2}	160	120	80	0 ^{1,2}	Total nutrient recommended.
	55-80	120	100	60	0 ¹	120	100	60	0 ¹	Broadcast and disk-in.
	20	40	20	20	0 ^{1,2}	40	20	20	0 ^{1,2}	Band-place with planter.
	50-100	0	0	0	0	0	0	0	0	Sidedress 2 weeks after emergence.

Apply 1.0 to 2.0 pounds of boron (B) per acre with broadcast fertilizer. See Table B-9 for more specific boron recommendations.

¹In Virginia, crop replacement values of 40 lbs. P₂O₅ and 40 lbs. K₂O per acre are recommended on soils testing Very High.

²For early planting when soil temperatures are low, band 20 lbs. P₂O₅ and 20 lbs. K₂O per acre when soil tests are Very High to facilitate early growth.

³On very sandy soils, reduce the amount of nitrogen (N) applied via broadcast application and disked-in. Instead, split N applications to include an additional split when corn is 6-inches tall of 40 lbs. N per acre. So, N is applied with the broadcast fertilizer, at-planting in a band, when corn is 6 inches tall, and again when corn is 12 inches tall. In New Jersey, consult your Extension Agent for more 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. The following are critical tissue test values for sweet corn.

Critical sweet corn tissue test values.

Timing	Value	N	P	K	Ca	Mg	S	Fe	Mn	Zn	B	Cu	Mo
		%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm
Whole plants at the 6 inch stage	Deficient	<3.0	0.3	2.5	0.5	0.25	0.4	<50	40	30	10	5	0.1
	Adequate range	3	0.3	2.5	0.5	0.25	0.4	50	40	30	10	5	0.1
		4	0.5	4	0.8	0.5	0.6	100	100	40	30	10	0.2
	High	>4.0	0.5	4	0.8	0.5	0.6	>100	100	40	30	10	0.2
	Toxic (>)	-	-	-	-	-	-	-	-	-	100	-	-
Most recently matured leaves at the 30 inch stage	Deficient	<2.5	0.2	2.5	0.5	0.2	0.2	<40	40	25	10	4	0.1
	Adequate range	2.5	0.2	2.5	0.5	0.2	0.2	40	40	25	10	4	0.1
		4	0.4	4	0.8	0.4	0.4	100	100	40	30	10	0.2
	High	>4.0	0.4	4	0.8	0.4	0.4	>100	100	40	30	10	0.2
	Toxic (>)	-	-	-	-	-	-	-	-	-	100	-	-
Most recently matured leaves just prior to tassel	Deficient	<2.5	0.2	2	0.3	0.15	0.2	<30	30	20	10	4	0.1
	Adequate range	2.5	0.2	2	0.3	0.15	0.2	30	30	20	10	4	0.1
		4	0.4	3.5	0.6	0.4	0.4	100	100	40	20	10	0.2
	High	>4.0	0.4	3.5	0.6	0.4	0.4	>100	100	40	20	10	0.2
	Toxic (>)	-	-	-	-	-	-	-	-	-	100	-	-

Pre-sidedress Soil Nitrogen Test (PSNT)

A soil test (PSNT) to determine the need for sidedress nitrogen on sweet corn has been developed. The test is effective for sweet corn grown on soils with loamy-textured, high organic matter or where manure has been applied. Sandy soils with low organic matter are known to have low nitrogen availability without using the PSNT. Contact your local county Extension agent for information on sampling and using the PSNT (NJ and PA only).

Sweet Corn Genetics and Isolation Requirements

Variety Class	Genes Present	Variety Examples	Kernel Properties	Grow apart from class(es) ¹
Normal	<i>su</i>	*Silver Queen *Stowells Evergreen	100% normal	*Supersweet *Augmented Shrunken
Sugary Enhanced (heterozygous)	<i>su, se (1 copy)</i>	*Silverado *Argent	75% normal 25% sugary enhanced	*Supersweet *Augmented Shrunken
Sugary Enhanced (homozygous)	<i>su, se (2 copies)</i>	*Table Sweet™ varieties *Silver King, Sugar Snow II *Imaculata, *Brilliance	100% sugary enhanced	*Supersweet *Augmented Shrunken
Supersweet	<i>sh₂</i>	*Snow White *Boreal *Millenium	100% supersweet	*Normal *Sugary Enhanced (all) *Synergistic (all)
Synergistic (Heterozygous <i>se</i> with <i>sh₂</i>)	<i>su, se (1 copy), sh₂ (1 copy)</i>	*Sweet Breed™ varieties	56% normal 19% sugary enhanced 25% supersweet	*Supersweet *Augmented Shrunken
Synergistic (Homozygous <i>se</i> with <i>sh₂</i>)	<i>su, se (2 copies), sh₂ (1 copy)</i>	*TripleSweet™ varieties *Cinderella	75% sugary enhanced 25% tender supersweet	*Supersweet *Augmented Shrunken
Synergistic (Homozygous <i>se</i> with <i>bt₂</i>)	<i>su, se (2 copies), bt₂ (1 copy)</i>	*Misquamicut *Avalon	75% sugary enhanced 25% tender supersweet	*Supersweet *Augmented Shrunken

(table continued next page)

Sweet Corn Genetics and Isolation Requirements *(continued)*

Variety Class	Genes Present	Variety Examples	Kernel Properties	Grow apart from class(es) ¹
Augmented Shrunken	<i>se</i> (2 copies), <i>sh₂</i> (2 copies)	*Gourmet Sweet™ varieties *Multisweet™ varieties *Xtra-Tender™ varieties	100% tender supersweet	*Normal *Sugary Enhanced (all) *Synergistic (all)
Mirai™	<i>su</i> , <i>se</i> (2 copies), <i>sh₂</i> (2 copies)	*Mirai 002	100% tender supersweet	None necessary

¹To avoid starchy kernels, isolate by ≥ 500 feet or ≥ 12 days in silking.

All sweet corn must be isolated from field and popcorn varieties by a distance of at least 500 feet.

The sweetness of the corn kernel is determined by both the tassel and silk parent, while the tenderness is determined entirely by the silk parent. Therefore, any pollen from varieties and types other than the one planted in the field may interfere with sweetness, for example field and popcorn. Certain sweet corn varieties must also be isolated from other sweet corn by greater than 500 feet or 12 days difference in silking date. The table above may be used to determine which corn varieties must be isolated from each other during pollination. Super sweet (*sh₂*) varieties are more difficult to establish than other types of sweet corn. Handle seed gently and use plateless planters to prevent damage to seed. Soil temperature and soil moisture should be optimum to reduce seed decay and obtain good stands.

Seed Treatment

Request that seed be treated with fungicides, see the disease control section for more information. See the insect control section for seed treatments available for seed corn maggot and wireworm control.

Seeding and Spacing

Sowing is in rows 30 to 36 inches apart at a depth of 1.0 to 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 to 10 inches. Larger-eared mid- and late-season varieties are planted at an in-row spacing of 10 to 12 inches. This equates to planting densities ranging from 14,500 to 22,000 per acre.

Processing: The recommended planting density is usually 22,000 to 24,000 per acre. Certain processing sweet corn varieties, however, may be planted at densities of up to 30,000 per acre. Consult the seed company for the target density that best maximizes crop yield and quality.

Mulching

The use of clear plastic mulch will improve stands, conserve moisture, and produce earlier maturity. Corn is seeded in the usual manner except 10 to 20 days earlier in double rows 14 inches apart and on 5- to 6-foot centers. Apply herbicide and then cover with clear, plastic. Using ridges between double rows or wire hoops to allow 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. Before using this system, it is recommended that a test be run to determine if nematodes

are present. If nematodes are present in the soil, control measures are necessary before the above procedure can be used. Clear plastic will allow weeds to germinate and grow quickly, preemergence herbicides should be used under the plastic mulch. Weeds emerging and growing with clear plastic are often too large to be effectively controlled with herbicides after the plastic mulch 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 Sweet Corn

Fresh market sweet corn is best harvested early in the morning when there is reduced field heat.

Harvesting sweet corn at the proper stage is critical to maintain sweetness and tenderness. During the summer, sweet corn will remain 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 kernel exudes a milky liquid when punctured with the thumbnail. Ear tips should be filled. Sweet corn will approach maturity 18-22 days after silking and should be picked daily. As the kernel passes prime harvest time, sugars convert to starch and the hull will become tough. Supersweet varieties will 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. Mechanical harvesters are more efficient; however, they pick the entire crop at one time when the primary ears are ready. Any secondary ears will not be marketable. When you handpick corn, grasp the ear near the base and sharply twist it downward while rotating your wrist. 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. At the 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. Sweet corn for shipping is most commonly packaged in wire bound crates or perforated wax boxes. Burlap bags are also used for local shipment. 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. Sweet corn for shipping is most commonly packaged in wire bound crates or perforated wax boxes. Burlap bags are also used for local shipment. Pallet or bin boxes are sometimes used; however, sweet corn quality, sweetness, and tenderness will deteriorate rapidly after harvest. Sweet corn should be cooled immediately after harvest and kept near 32° F to retain optimum freshness. Sweet corn for local markets is often picked daily and sold the same day. Those shipping sweet corn over any distance must first remove all field heat. Recommended cooling methods are hydrocooling and package icing.

Hydrocooling is the most efficient and effective method of cooling sweet corn. Sweet corn is immersed in ice cold water, which quickly removes all field heat. Sweet corn being shipped long distances should be hydrocooled. For smaller growers and short distance shippers, ice can be added to the crate during packing. The addition of 1 pound of ice per 5 lbs. of sweet corn is normally 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.

Processing Sweet Corn

For processing sweet corn, harvest of standard sugary (su) and sugary-extender (se) varieties begins when kernels reach 70-75% moisture. Supersweet (sh2) 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

Section 18 Emergency Label requests may be submitted to supplement weed control recommendations in sweet corn.

Identify the weeds in each field and select recommended herbicides that control those weeds. See Tables E-3 and E-4.

Match preplant incorporated and preemergence herbicide rates to soil type and percent organic matter in each field.

Apply postemergence herbicides when crop and weeds are within the recommended size and/or leaf stage.

Determine the preharvest interval (PHI) for the crop. See Table E-4 and consult the herbicide label.

Find the herbicides you plan to use in the Herbicide Resistance Action Committee's (HRAC) **Herbicide Site of Action Table E-8** and follow the recommended good management practices to minimize the risk of herbicide resistance development by weeds in your fields.

No-Till / Conservation Tillage

Consider production goals, sweet corn variety, date of planting, soil fertility practices, insect control, planting equipment, mulch, and weed species in the field when considering a conservation tillage program. Consult state Cooperative Extension and agricultural specialists for advice.

Paraquat *plus* S-metolachlor *plus* atrazine--0.3 to 0.6 lb/A *plus* 0.96 to 1.91 lb/A *plus* 1.0 to 2.0 lb/A. Apply 1.2 to 2.4 pints per acre Gramoxone SL 2.0 *plus* 1.0 to 2.0 pints per acre Dual II Magnum 7.64E *plus* 1.1 to 2.2 pounds per acre atrazine 90DF (or other atrazine formulations). Add surfactant as indicated on the Gramoxone SL 2.0 or OLF

label. Use this combination when existing vegetation includes small annual grasses and/or broadleaf weeds. Gramoxone SL 2.0 or OLF will control existing vegetation, Dual II Magnum will provide residual annual grass control, and atrazine will provide residual annual broadleaf weed control. (See atrazine restrictions under the "Early Emergence" section).

Glyphosate *plus* S-metolachlor *plus* atrazine--0.75 to 1.50 lb glyphosate equivalent/A *plus* 0.96 to 1.91 lb/A S-metolachlor *plus* 1.0 to 2.0 lb/A atrazine. Apply the appropriate acid equivalent rate of Glyphomax Plus, Roundup products or Touchdown products, or OLF (Other Labeled Formulations) *plus* 1.0 to 2.0 pints per acre Dual II Magnum 7.64E *plus* 1.1 to 2.2 pounds per acre atrazine 90DF (or other atrazine formulations). Use this combination when existing vegetation includes dense, well-established annual weeds and/or perennial weeds. Roundup Ultra Max will control existing vegetation in 1 to 3 weeks. Perennial weeds must be treated at the proper growth stage to obtain effective control. (See label for application time and rate.) Dual II Magnum will provide residual annual grass control, and atrazine will provide residual annual broadleaf control. (See atrazine restrictions under the "Early Emergence" section.)

See **"Conventional Tillage" section for useful early emergence and postemergence weed control recommendations.**

Conventional Tillage

Preplant Incorporated or Preemergence

Alachlor--1.5 to 3.0 lb/A. Apply 1.5 to 3.0 quarts Micro-Tech or Intro. Primarily controls annual grasses and certain broadleaf weeds, including pigweed, nightshade, and galinsoga, and suppresses yellow nutsedge when preplant incorporated. Combine with atrazine to improve control of other broadleaf weeds. Also available as a jug-mix with atrazine sold as Bullet.

S-metolachlor--0.96 to 1.91 lb/A. Apply 1.0 to 2.0 pints per acre Dual II Magnum 7.64E (or OLF). 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 available as jug-mixes with atrazine sold as Bicep II Magnum and Bicep II Magnum Lite. **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.**

Atrazine--1.0 to 1.5 lb/A. Apply 1.0 to 1.5 quarts atrazine 4FL (or OLF). Primarily controls broadleaf weeds. Combine with Micro-Tech, Partner, or Dual II Magnum to improve control of annual grasses. Use the lowest recommended rate when combined with an annual grass herbicide or to reduce the risk of herbicide residues which may affect certain crops planted the following year. Also sold as jug-mixes, with alachlor sold as Bullet, and with s-metolachlor sold as Bicep II Magnum and Bicep II Magnum Lite.

RESTRICTIONS: Do not double-crop the season atrazine or any atrazine-containing products are used. Grass cover crops can be established after corn harvest provided the recommended rate of atrazine was not exceeded. Moldboard plowing before planting a crop sensitive to atrazine will minimize the risk of injury from atrazine residue. See label for specific crop rotation restrictions.

Preemergence

Mesotrione--0.094 lb/A. Apply 3.0 fluid ounces of Callisto 4SC per acre. Primarily controls common lambsquarters and many other annual broadleaf weeds, including triazine resistant biotypes, but Callisto is weak on ragweed and morningglory species. Combine with Micro-Tech, Intro, or Dual II Magnum to control annual grasses. Temporary injury, appearing as whitening of the foliage after emergence, may occur. Rainfall or irrigation after planting and treatment, but before emergence, increases the likelihood of crop injury. Cold weather that slows corn growth will also retard recovery from injury following preemergence treatments. Sweet corn varieties differ in sensitivity to mesotrione. The majority of varieties exhibit slight injury symptoms when weather conditions after application are favorable. Certain varieties are tolerant, while others exhibit more noticeable injury. Although no variety was severely injured by the recommended rate, postemergence application is preferred when weather conditions that favor injury occur at planting. Severe crop injury may occur if an organophosphate or carbamate insecticide is applied within 7 days of Callisto. Lexar and Lumax are labeled jug-mixes that contain mesotrione or s-metolachlor and atrazine. Camix is a labeled jug-mix that contains mesotrione and s-metolachlor. The mesotrione rate applied when the jug-mixes are used may be higher than the recommended rate, which may increase the risk of crop injury and herbicide carryover. **See the sweet corn section of the Callisto label for additional use precautions.**

Early Emergence

Atrazine--1.0 to 2.0 lb/A. Apply 1.0 to 2.0 quarts per acre Atrazine 4L (or OLF). Primarily controls broadleaf weeds. Apply postemergence when weeds and corn are up to 2 inches tall. Add oil concentrate to be 1% of the spray solution. Do not exceed the maximum rate per acre per year listed on the label for your soil's erodibility class. Also available as a jug-mix with bentazon, sold as Laddok S-12.

RESTRICTIONS: 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.

Halosulfuron--0.023 to 0.031 lb/A. Apply 0.5 to 0.66 dry ounces Sandea 75WG to control yellow nutsedge and broadleaf weeds, including common cocklebur, redroot pigweed, smooth pigweed, ragweed species, and velvetleaf. Spray before corn reaches 8 inches in height, or use drop nozzles when corn is over 8 inches tall to avoid spraying the foliage and into the whorl. Sandea applied postemergence will not control common lambsquarters or eastern black nightshade, and will only suppress morningglory species. Always add nonionic surfactant to be 0.25 percent of the spray solution (1.0 quart per 100 gallons of spray solution). Susceptible broadleaf weeds usually exhibit injury symptoms within 1 to 2 weeks of treatment. Typical symptoms begin as yellowing in the growing point that spreads to the entire plant, and is followed by death of the weed. Injury symptoms are similar when yellow nutsedge is treated, but may require 2 to 3 weeks to become evident and up to a month for the weed to die. Corn varieties may vary in sensitivity to Sandea. Use caution when treating new varieties. DO NOT apply to "Jubilee". Sandea is an

ALS inhibitor. Herbicides with this mode of action have a single site of activity in susceptible weeds. The risk of the development of resistant weed populations is high when herbicides with this mode of action are used continuously and exclusively to control a weed species for several years or in consecutive crops in a rotation. Integrate mechanical methods of control and use herbicides with a different mode of action to control the target broadleaf weeds when growing other crops in the rotation. **DO NOT use if organophosphate (OP) insecticides have been applied to the crop, or the risk of crop injury may increase.**

Carfentrazone--0.008 lb/A. Apply 0.5 fluid ounces per acre Aim 2EC before corn reaches 8 inches in height to control seedling broadleaf weeds including pigweed species, common lambsquarters, morningglory species, eastern black nightshade, and velvetleaf. Aim will not control ragweed species. Tank-mix with atrazine at reduced rates or another broadleaf weed herbicide to increase the spectrum of weeds controlled. Do not tankmix with Basagran due to concerns for crop safety. Always add nonionic surfactant to be 0.25 percent of the spray solution (1.0 quart per 100 gallons 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.

Fluthiacet--0.004 to 0.006 lb/A. Apply 0.6 to 0.9 fluid ounces per acre Cadet 0.91EC 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 tankmixed with Basagran due to concerns of crop safety. See comments for carfentrazone above.

Tembotrione--0.082 lb/A. Apply 3.0 fluid ounces of Laudis per acre postemergence to control many annual broadleaf weeds, including common lambsquarters and triazine-resistant broadleaf weed biotypes, and many annual grasses. Add methylated seed oil (MSO) or concentrate (COC) to be 1% of the spray solution (1.0 gallon per 100 gallons of spray solution). In addition, the label requires the addition of nitrogen liquid fertilizer (1.5 quarts per acre) or AMS (1.5 pounds per acre). Tank mix with 0.25 to 1.0 lbs 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 Laudis and atrazine to corn greater than 12 inches tall. Do not use postemergence if Callisto, Lumax or Lexar was used preemergence. Do not tank-mix with Callisto. 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 by Laudis. Most broadleaf weeds should be treated before they are 6 inches tall and grass weeds should be treated before 2 inches in height. Laudis has up to an 18 month replant restriction for many vegetables.

Topramezone--0.016 to 0.022 lb/A. Apply 0.75 to 1.0 fluid ounces of Impact/Armezon 2.8SC per acre postemergence to control many annual broadleaf weeds, including common lambsquarters and triazine-resistant broadleaf weed biotypes, and annual grasses. Add oil concentrate (COC) to be 1% of the spray solution (1 gallon per 100 gallons of spray solution). In addition, the label requires nitrogen fertilizer (liquid or AMS). Tank-mix with 0.25 to 1.0 lbs 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. DO NOT use postemergence if Callisto, Lumax or Lexar was used preemergence. DO NOT tank-mix with Callisto. 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 2 inches in height. 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. Impact/Armezon has an 18 month replant restriction for most vegetables. Do not apply within 45 days of sweet corn harvest.

Postemergence

(Annual grass control will be minimal.)

Atrazine--1.0 to 2.0 lb/A. Apply 1.0 to 2.0 quarts per acre Atrazine 4L (or OLF). See atrazine in **Early Postemergence** section.

Bentazon--0.75-1.0 lb/A. Apply 1.5 to 2.0 pints per acre Basagran 4SC. See label for susceptible broadleaf weeds; results are better when weeds are young. Will provide partial control of yellow nutsedge. Grasses will NOT be controlled. Cultivation within 10 to 14 days will increase control. Also available as a jug-mix with atrazine sold as Laddok S-12.

2,4-D Amine--0.25 to 0.5 lb/A. Use 0.5 to 1.0 pint 4EC. Apply after corn and weeds emerge. Use drop nozzles when corn is over 8 inches tall to avoid spraying the foliage or into the whorl of the corn. Warm, wet weather at application may increase the possibility of crop injury. Use the lower recommended rate when these conditions prevail. Delay cultivation for 8 to 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. DO NOT apply from tasseling to dough stage. At high rates, 2,4-D may cause temporary injury to corn. Do not use a sprayer to apply 2,4-D that will be used to spray sensitive crops postemergence.

Ester formulations, although labeled, are more subject to volatilization and movement to sensitive crops and, therefore, are not recommended.

Clopyralid--0.047 to 0.25 lb/A. Apply 2.0 to 10.5 fluid ounces of Stinger 3A or OLF per acre in one or two applications to control certain annual and perennial broadleaf weeds when sweet corn is less than 18 inches tall. Stinger or OLF 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 or OLF is very effective on small seedling annual and emerging perennial weeds less than 2 to 4 inches tall, but is less effective and takes longer to work when weeds are larger. Use 2.0 to 4.0 fluid ounces to control annual weeds less than 2 inches tall. Increase the rate to 4.0 to 8.0 fluid ounces to control larger annual weeds. Apply the maximum rate of 10.5 fluid ounces, in one or split into two applications to suppress or control perennial weeds. Do not exceed 10.5 fluid ounces in one year. Spray additives are not needed or required by the label, and are not recommended. Observe a minimum preharvest interval (PHI) of 30 days. Stinger or OLF is a postemergence herbicide with residual soil activity. Observe follow-crop restrictions, or injury may occur from herbicide carryover.

Mesotrione--0.094 lb/A. Apply 3.0 fluid ounces of Callisto 4SC per acre. 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 quart per 100 gallons of spray solution), but DO NOT add oil concentrate, liquid fertilizer, or 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. Sweet corn varieties differ in sensitivity to mesotrione. The majority of 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 Lorsban, or severe crop injury may occur. Lexar and Lumax are labeled jug-mixes that contain mesotrione or s-metolachlor and atrazine. Camix is a labeled jug-mix that contains mesotrione and s-metolachlor. The mesotrione rate applied when the jug-mixes are used may be higher than the recommended rate, which may increase the risk of crop injury and herbicide carryover. **See the sweet corn section of the Callisto label for additional use precautions.**

Nicosulfuron--0.031 lb/A. Apply 0.9 dry ounces of Accent Q per acre 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 12 inches tall or up to and including 5 leaf collars, or as a directed spray with drop nozzles only to sweet corn up to 18 inches tall. 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 quart per 100 gallons of spray solution). Accent is safe to apply to certain varieties, injures others, and kills certain sweet corn varieties. Contact your DuPont Crop Protection Sales Representative for information on local sweet corn varieties that have been evaluated for tolerance to Accent. Crop injury may be apparent within 1 to 2 weeks of application as yellowing and death of sweet corn foliage, beginning with the youngest leaves first, or the injury may not be observed until harvest. Injury at harvest is seen as a

constriction at the top, middle, or bottom of the ear, depending on the time of application. Late postemergence applications are more likely to result in ear injury than early postemergence applications. Accent is an ALS inhibitor. Herbicides with this mode of action have a single site of activity in susceptible weeds. The risk of the development of resistant weed populations is high when herbicides with this mode of action are used continuously and exclusively to control a weed species for several years or in consecutive crops in a rotation. Integrate mechanical methods of control and use herbicides with a different mode of action to control the target broadleaf weeds when growing other crops in the rotation. **DO NOT use if organophosphate (OP) insecticides have been applied to the crop, or the risk of crop injury may increase.**

Postemergence

“Poast Protected” Sweet Corn ONLY!

Sethoxydim--0.15 to 0.3 lb/A. Use ONLY on sweet corn hybrids designated as “Poast Protected” ONLY! Other sweet corn varieties will be severely injured or killed. Apply 0.75 to 1.5 pint per acre Poast 1.5EC with oil concentrate to be 1 percent of the spray solution (1.0 gallon per 100 gallons of spray solution) postemergence to control annual grasses and certain perennial grasses. Applications of Poast to “Poast Protected” sweet corn may be made until the onset of pollen shed. Do NOT apply Poast after pollination has occurred. A second application of Poast may be made 10 days after the first application. For best results, treat annual grasses when they are actively growing and before tillers are present. The rate of 0.75 pints/A should only be used when annual grasses are less than 3 inches tall and temperatures and moisture are favorable for rapid growth. Use a minimum of 1.0 pint/A when weeds are 3 inches tall or larger, or when growing conditions are not optimum. Control may be reduced if grasses are large or if hot, dry weather or drought conditions occur. Repeated applications may be needed to control certain perennial grasses. Yellow nutsedge, wild onion, or broadleaf weeds will not be controlled. Do not tank-mix with Aim due to the potential for severe leaf burn. Volunteer “Poast Protected” sweet corn can be controlled with clethodim (Select, Select Max, or Arrow). Other postemergence grass herbicides such as Fusilade, Assure II, and Targa will NOT control volunteer “Poast Protected” sweet corn. Observe a minimum preharvest interval of 30 days and apply no more than 3 pints per acre in one season.

“Roundup Ready” Sweet Corn ONLY!

Glyphosate --0.75 to 1.0 lb glyphosate equivalent/A. Apply the appropriate acid equivalent rate of a labeled Roundup product or OLF (Other Labeled Formulations) before weeds exceed two inches in height or 4 true leaves. Larger weeds can be killed but yield may be reduced before the weeds are killed. Treat 3 to 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. Observe all rate restrictions and Preharvest Intervals for all products applied.

Nuisance Bird Management and Repellency Preharvest Treatment

Noise-producing devices are useful to scare away injurious birds. A permit is required to use an exploding device in New Jersey. Permits may be obtained from New Jersey Division of Fish and Wildlife, Clinton WMA, 7 Van Syckels Road, Hampton, NJ 08827, 908/735-8793.

Avitrol is labeled for use in sweet corn, but each state has different regulations and permit processes. Read the label carefully before use. Consult your local county Extension office for current restrictions.

Insect Control

THE LABEL IS THE LAW. PLEASE REFER TO THE LABEL FOR UP TO DATE RATES AND RESTRICTIONS

NOTE: Copies of specific insecticide product labels can be downloaded by visiting the websites www.CDMS.net or www.greenbook.net. Also, specific labels can be obtained via web search engines.

SOIL PESTS

Seed Corn Maggot (SCM), Wireworms (WW)

Early season control of seed corn maggot and wireworm can be achieved with commercially-treated seed, or in-furrow treatments. Rescue treatments applied post-planting are not effective.

Commercially-Applied Seed Treatments Only

abamectin+thiamethoxam (Avicta Complete Corn)
chlorpyrifos (SCM only) (Lorsban 50W)
clothianidin (Poncho 600)
clothianidin + Bacillus firmus (Poncho/Votivo)
imidacloprid (Gaucho 600)
thiamethoxam (Cruiser 5FS)

At-planting Soil-Applied Treatment

chlorpyrifos--8 oz/1000 row ft Lorsban 15G (or OLF)
tefluthrin--4.0 to 5.0 oz/1000 row ft Force 3G
terbufos--4.5 to 6.0 oz/1000 row ft Counter 20G--SmartBox[®] system only

White Grubs

At-planting Soil-Applied Treatment

chlorpyrifos--8 oz/1000 row ft Lorsban 15G (or OLF)
tefluthrin--4.0 to 5.0 oz/1000 row ft Force 3G (or OLF)
terbufos--4.5 to 6.0 oz/1000 row ft Counter 20G--SmartBox[®] system only

Corn Rootworm Larvae

Crop rotation is the most effective control. Avoid planting corn after corn, cucumbers, pumpkins, or squash. Rotation distance of even 3 feet is effective. Soil insecticides applied at planting aim to protect the root zone for about 6 to 8 weeks after application. To be effective, corn rootworm egg hatch must occur during that time. When allowed on the label, T-band tends to be more effective than in-furrow application. Apply one of the following formulations:

At Planting Treatment:

chlorpyrifos--8.0 oz/1000 row ft Lorsban 15G (or OLF)
tefluthrin--4.0 to 5.0 oz/1000 row ft Force 3G (or OLF)
terbufos--6.0 oz/1000 row ft Counter 20G--SmartBox[®] system only

At Cultivation:

chlorpyrifos--2.0 pts/A Lorsban Advanced (or OLF)
 chlorpyrifos--8.0 oz/1000 row ft Lorsban 15G (or OLF)
 tefluthrin--4.0 to 5.0 oz/1000 row ft Force 3G (or OLF)

Corn Rootworm Adults

Most insecticides used for worm control at silk will control corn rootworm adults. Apply one of the following formulations:

Note: Sweet corn varieties with the *Bacillus thuringiensis* genes will **NOT** control corn rootworm adults.

acetamiprid--4.0 to 5.3 oz/A Assail 30SG
 beta-cyfluthrin--1.6 to 2.8 fl oz/A Baythroid XL
 bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)
 chlorpyrifos--1.0 to 2.0 pts/A Lorsban Advanced (or OLF)
 chlorpyrifos+lambda-cyhalothrin--11.0 to 26.0 fl oz/A Cobalt Advanced
 cyfluthrin--1.6 to 2.8 fl oz/A Tombstone 2EC (or OLF)
 esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF) (or labeled mixtures containing lambda-cyhalothrin like Besiege)
 methomyl--0.75 to 1.5 pt/A Lannate LV (**NOTE – be sure to read new label restrictions regarding use on seedling stage corn and before tassel push**)
 permethrin--4.0 to 8.0 fl oz/A Perm-UP 3.2EC (or OLF)
 zeta-cypermethrin--2.24 to 4.00 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Corn Flea Beetle

Flea beetles transmit bacterial wilt disease (also known as Stewart's wilt) and are numerous after mild winters. Use varieties resistant to bacterial wilt disease or those listed in the Sweet Corn varieties table. Treat susceptible varieties at spike stage when 5% of the plants are infested.

Note: Commercially-applied seed treatments (Cruiser, Gaucho, or Poncho) provide early-season protection from corn flea beetle injury.

acetamiprid--4.0 to 5.3 oz/A Assail 30SG
 beta-cyfluthrin--0.8 to 1.6 fl oz/A Baythroid XL
 bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)
 carbaryl--1.0 to 2.0 qts/A Sevin XLR Plus (or OLF) – **Use prohibited on hand harvested corn**
 chlorpyrifos--1.0 to 2.0 pts/A Lorsban Advanced (or OLF)
 chlorpyrifos+lambda-cyhalothrin--11.0 to 26.0 fl oz/A Cobalt Advanced
 cyfluthrin--0.8 to 1.6 fl oz/A Tombstone 2EC (or OLF)
 esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF) (or labeled mixtures containing lambda-cyhalothrin like Besiege)
 methomyl--0.75 to 1.5 pt/A Lannate LV (**NOTE – be sure to read new label restrictions regarding use on seedling stage corn and before tassel push**)
 permethrin--4.0 to 8.0 fl oz/A Perm-UP 3.2EC (or OLF)
 zeta-cypermethrin--2.24 to 4.00 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Corn Leaf Aphid

Apply one of the following formulations:
 acetamiprid--2.1 to 2.9 oz/A Assail 30SG
 chlorpyrifos--1.0 to 2.0 pts/A Lorsban Advanced (or OLF)
 esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 methomyl--0.75 to 1.5 pt/A Lannate LV (**NOTE – be sure to read new label restrictions regarding use on seedling stage corn and before tassel push**)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Cutworms (Also see the "Cutworms" section of Soil Pests-- Their Detection and Control.)

At-planting Soil Applied Treatment

tefluthrin--4.0 to 5.0 oz/1000 row ft Force 3G (banded or t-banded, first year corn only)

Foliar Treatment

beta-cyfluthrin--0.8 to 1.6 fl oz/A Baythroid XL
 bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)
 chlorpyrifos--1.0 to 2.0 pts/A Lorsban Advanced (or OLF)
 chlorpyrifos+lambda-cyhalothrin--11.0 to 26.0 fl oz/A Cobalt Advanced
 cyfluthrin--0.8 to 1.6 fl oz/A Tombstone 2EC (or OLF)
 esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 flubendiamide--2.0 to 3.0 fl oz/A Belt SC
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF)
 lambda-cyhalothrin+chlorantraniliprole--6.0 to 10.0 fl oz/A Besiege
 permethrin--4.0 to 8.0 fl oz/A Perm-UP 3.2EC (or OLF)
 zeta-cypermethrin--2.24 to 4.00 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Grasshoppers

Apply one of the following formulations:
 beta-cyfluthrin--2.0 to 2.8 fl oz/A Baythroid XL
 bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)
 carbaryl--0.5 to 1.5 qts/A Sevin XLR Plus (or OLF) - **Use prohibited on hand harvested corn**
 chlorpyrifos--0.5 to 1.0 pt/A Lorsban Advanced (or OLF)
 chlorpyrifos+lambda-cyhalothrin--6.0 to 13.0 fl oz/A Cobalt Advanced
 cyfluthrin--2.0 to 2.8 fl oz/A Tombstone 2EC(or OLF)
 esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF) (or labeled mixtures containing lambda-cyhalothrin like Besiege)
 zeta-cypermethrin--2.8 to 4.0 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Japanese Beetle (JB)

Note: Insecticides used for worm control at silk may not control Japanese beetle infestations. Sweet corn varieties with the *Bacillus thuringiensis* genes will **NOT** control Japanese beetles.

Apply one of the following formulations:
 acetamiprid--5.3 oz/A Assail 30SG
 beta-cyfluthrin--1.6 to 2.8 fl oz/A Baythroid XL
 beta-cyfluthrin--1.6 to 2.8 fl oz/A Baythroid XL
 bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)

carbaryl--1.0 to 2.0 qts/A Sevin XLR Plus (or OLF) - **Use prohibited on hand harvested corn**
 chlorpyrifos+lambda-cyhalothrin--32.0 to 42.0 fl oz/A Cobalt Advanced
 cyfluthrin--1.6 to 2.8 fl oz/A Tombstone 2EC (or OLF)
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF) (or labeled mixtures containing lambda-cyhalothrin like Besiege)
 zeta-cypermethrin--2.24 to 4.00 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Mites

Apply one of the following formulations:
 bifenthrin--5.12 to 6.40 fl oz/A Bifenture 2EC (Sniper, or OLF)
 spiromesifen--5.7 to 16.0 fl.oz/A Oberon 2SC
 zeta-cypermethrin+bifenthrin--10.3 fl oz/A Hero EC

Sap Beetle (SB) Adults

Loose-husked varieties and ears damaged by other insects are more susceptible to sap beetle attack. Varieties with long, tight silk tubes can reduce SB damage by 50%.

Begin sampling at pollen shed and treat when 5 percent of the ears have adults and/or eggs. Apply one of the following formulations:

Note: Insecticides used for worm control at silk may not control sap beetle infestations. Sweet corn varieties with the *Bacillus thuringiensis* genes will **NOT** control sap beetles.

acetamiprid--4.0 to 5.3 oz/A Assail 30SG (dusky sap beetle only)
 bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)
 carbaryl--1.0 to 2.0 qts/A Sevin XLR Plus (or OLF) - **Use prohibited on hand harvested corn**
 esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF) (or labeled mixtures containing lambda-cyhalothrin like Besiege)
 methomyl--0.75 to 1.5 pt/A Lannate LV (**NOTE – be sure to read new label restrictions regarding use on seedling stage corn and before tassel push) picnic beetle only.**
 zeta-cypermethrin--2.24 to 4.00 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Stink Bugs

beta-cyfluthrin--2.8 fl oz/A Baythroid XL
 bifenthrin--6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)
 chlorpyrifos+lambda-cyhalothrin--16.0 to 38.0 fl oz/A Cobalt Advanced
 lambda-cyhalothrin--1.92 fl oz/A Warrior II or 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF) (or labeled mixtures containing lambda-cyhalothrin like Besiege)
 zeta-cypermethrin+bifenthrin--10.3 fl oz/A Hero EC

Caterpillar Pests (Also see “Insect Control-Decision Making” in the following section.)

Bacillus thuringiensis (Bt) sweet corn hybrids are available that express single or pyramided insecticidal

proteins for protection against lepidopteran 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 (Semini 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 technology 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 three or four 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.

Corn rootworm beetles, Japanese beetles, other silk-feeders, stink bugs, and sap beetles also can cause ear quality problems in Bt corn, because none of the expressed proteins are active on these insects. High rates of silk feeding by silk feeders can interfere with pollination.

Supplemental silk sprays applied to the Attribute corn should effectively control these secondary pests. For the pyramided Bt hybrids, sap beetle infestations have been much reduced due to the relative lack of stalk and ear damage caused by lepidopteran pests. Nevertheless, on farms with a known history of sap beetle problems, an insecticide application 5-6 days after the first onset of silking also is the best timing for maximum protection against these pests, which are attracted to the ear zone to lay eggs as silk tissue degrades. In some situations, multiple sprays may be needed depending on population pressure. 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.

NOTE: Loose husked varieties and ears with short or no silk tubes are more susceptible to worm damage.

Armyworm (True)

Apply one of the following formulations:

beta-cyfluthrin (**first and second instar only**)--1.6 to 2.8 fl oz/A Baythroid XL
 bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)
 chlorpyrifos--1.0 to 2.0 pts/A Lorsban Advanced (or OLF)
 chlorpyrifos+lambda-cyhalothrin--11.0 to 26.0 fl oz/A Cobalt Advanced
 cyfluthrin--(**first and second instar only**)1.6 to 2.8 fl oz/A Tombstone 2EC (or OLF)
 esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 flubendiamide--2.0 to 3.0 fl oz/A Belt SC
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF)
 lambda-cyhalothrin+chlorantraniliprole--6.0 to 10.0 fl oz/A Besiege
 methomyl--0.75 to 1.5 pt/A Lannate LV (**NOTE – be sure to read new label restrictions regarding use on seedling stage corn and before tassel push**)
 methoxyfenozide (**early-season whorl treatment**)--4.0 to 16.0 fl oz/A Intrepid 2F
 spinetoram--3.0 to 6.0 fl oz/A Radiant SC
 spinosad--1.67 to 3.3 oz/A Blackhawk 36WG
 zeta-cypermethrin--2.8 to 4.0 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Corn Earworm (CEW)

Many insecticides are highly toxic to bees. For more information concerning toxicity of insecticides to bees, refer to Table D-6. Apply one of the following formulations:

beta-cyfluthrin--1.6 to 2.8 fl oz/A Baythroid XL
 bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)
 chlorantraniliprole--3.5 to 5.0 fl oz/A Coragen 1.67SC
 cyfluthrin--1.6 to 2.8 fl oz/A Tombstone 2EC (or OLF)
 esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 flubendiamide--2.0 to 3.0 fl oz/A Belt SC
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF)
 lambda-cyhalothrin+chlorantraniliprole--6.0 to 10.0 fl oz/A Besiege
 methomyl--1.00 to 1.5 pt/A Lannate LV (**NOTE – be sure to read new label restrictions regarding use on seedling stage corn and before tassel push**)
 permethrin--4.0 to 8.0 fl oz/A Perm-UP 3.2EC (or OLF)

spinetoram--3.0 to 6.0 fl oz/A Radiant SC
 spinosad--2.2 to 3.3 oz/A Blackhawk 36WG
 zeta-cypermethrin--2.8 to 4.0 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

European Corn Borer (ECB)

Thorough spray coverage in whorls and on plants is essential. Select an insecticide that has low toxicity to bees (refer to Table D-6). Apply one of the following formulations:

beta-cyfluthrin--1.6 to 2.8 fl oz/A Baythroid XL
 bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)
 chlorantraniliprole--3.5 to 5.0 fl oz/A Coragen 1.67SC
 chlorpyrifos--1.5 to 2.0 pts/A Lorsban Advanced (or OLF)
 chlorpyrifos+lambda-cyhalothrin--16.0 to 38.0 fl oz/A Cobalt Advanced
 cyfluthrin--1.6 to 2.8 fl oz/A Tombstone 2EC (or OLF)
 esfenvalerate--5.8 to 9.6 fl oz/A Asana XL
 flubendiamide--2.0 to 3.0 fl oz/A Belt SC
 indoxacarb (**through tassel push only**)--2.5 to 3.5 oz/A Avaunt 30WDG
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF)
 lambda-cyhalothrin+chlorantraniliprole--6.0 to 10.0 fl oz/A Besiege
 methomyl--0.75 to 1.5 pt/A Lannate LV (**NOTE – be sure to read new label restrictions regarding use on seedling stage corn and before tassel push**)
 methoxyfenozide (**early-season whorl treatment**)--4.0 to 16.0 fl oz/A Intrepid 2F
 permethrin--4.0 to 8.0 fl oz/A Perm-UP 3.2EC (or OLF)
 spinetoram--3.0 to 6.0 fl oz/A Radiant SC
 spinosad--1.67 to 3.30 oz/A Blackhawk 36WG
 zeta-cypermethrin--2.8 to 4.0 fl oz/A Mustang Maxx (or OLF)
 zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Fall Armyworm (FAW)

For whorl applications, direct spray over the plants so that it penetrates leaf whorls when FAW first appears and repeat application, if necessary. For foliar spray applications, high-spray gallonage (50 to 75 gallons per acre) is necessary for effective FAW control. Apply one of the following formulations:

beta-cyfluthrin (**first and second instar only**)--2.8 fl oz/A Baythroid XL
 bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper or OLF)
 chlorantraniliprole--3.5 to 5.0 fl oz/A Coragen 1.67SC
 chlorpyrifos--1.0 to 2.0 pts/A Lorsban Advanced (or OLF)
 chlorpyrifos+lambda-cyhalothrin--11.0 to 26.0 fl oz/A Cobalt Advanced
 cyfluthrin (**first and second instar only**)--2.8 fl oz/A Tombstone 2EC (or OLF)-
 esfenvalerate (**first and second instar only**) 5.9 to 9.6 fl oz/A Asana XL
 flubendiamide--2.0 to 3.0 fl oz/A Belt SC
 indoxacarb (**through tassel push only**)--2.5 to 3.5 oz/A Avaunt 30WDG
 lambda-cyhalothrin--1.28 to 1.92 fl oz/A Warrior II or 2.56 to 3.84 fl oz/A Lambda-Cy (LambdaT, or OLF)
 lambda-cyhalothrin+chlorantraniliprole--6.0 to 10.0 fl oz/A Besiege

methomyl--0.75 to 1.5 pt/A Lannate LV (**NOTE – be sure to read new label restrictions regarding use on seedling stage corn and before tassel push**)

spinetoram--3.0 to 6.0 fl oz/A Radiant SC

spinosad--1.67 to 3.3 oz/A Blackhawk 36WG

zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Western Bean Cutworm (WBC)

beta-cyfluthrin--1.6 to 2.8 fl oz/A Baythroid XL

bifenthrin--2.1 to 6.4 fl oz/A Bifenture 2EC (Sniper, or OLF)

cyfluthrin--1.6 to 2.8 fl oz/A Tombstone 2EC (or OLF)

esfenvalerate--2.9 to 5.8 fl oz/A Asana XL

flubendiamide--2.0 to 3.0 fl oz/A Belt SC

lambda-cyhalothrin+chlorantraniliprole--6.0 to 10.0 fl oz/A Besiege

spinetoram--3.0 to 6.0 fl oz/A Radiant SC

spinetoram--3.0 to 6.0 fl oz/A Radiant SC

spinosad--2.2 to 3.3 oz/A Blackhawk 36WG

zeta-cypermethrin+bifenthrin--4.0 to 10.3 fl oz/A Hero EC

Pesticide	Use Category ¹	Hours to Reentry ²	Days to Harvest ^{3,4}
INSECTICIDE			
acetamiprid	G	12	see label
beta-cyfluthrin	R	12	0
bifenthrin	R	12	1
carbaryl	G	see label	see label
(hand harvest prohibited)			
chlorantraniliprole	G	4	1
chlorpyrifos (soil/foiar)	R	24	21
chlorpyrifos+			
lambda-cyhalothrin	R	24	21
cyfluthrin	R	12	0
esfenvalerate	R	12	1
flubendiamide	G	12	1
imidacloprid (seed treatment)	G	12	see label
indoxacarb (mech./hand harvest)	G	12/14 days	3
lambda-cyhalothrin	R	24	1
lambda-cyhalothrin+			
chlorantraniliprole	R	24	1
methomyl	R	48	0
methoxyfenozide	G	4	3
permethrin	R	12	1
spinetoram	G	4	1
spinosad	G	4	1
spiromesifen	G	12	5
tefluthrin	R	0	see label
terbufos	R	see label	see label
thiamethoxam (seed treatment)	G	12	see label
zeta-cypermethrin	R	12	3
zeta-cypermethrin+bifenthrin	R	12	3
FUNGICIDE (FRAC code)			
Approach (Group 11)	G	12	7
azoxystrobin (Group 11)	G	4	7
chlorothalonil (Group M5)	G	12	14
Headline (Group 11)	G	12	7
Headline AMP (Groups 3+11)	G	12	20
mancozeb (Group M3)	G	12,24	7
Priaxor (Group 7+11)	G	12	7
propiconazole (Group 3)	G	12	14
Prosaro (Group 3+3)	G	12	7
Quilt Xcel (Groups 11+3)	G	12	14
Stratego (Groups 11 + 3)	G	12	14
Stratego YLD (Groups 11+3)	G	12	0
Trivapro (Groups 3 + 7+ 11)	G	12	7

(footnotes next column)

See Table D-6.

¹ G = general, R = restricted

² Chemicals with multiple designations are based on product and/or formulation differences. **CONSULT LABEL**

³ See label for days to harvest for feed, forage and/or stover. Days to harvest as listed in table are for grain/ears only.

Insect Control--Decision Making Fresh Market

Whorl/Tassel Infestation

In general, insect larval feeding (ECB and FAW) during the whorl stage of sweet corn development has a greater impact on early planted, short-season varieties. For ECB on early plantings, apply first spray when 15 percent of the plants show fresh feeding signs. Additional applications may be necessary if infestation remains above 15 percent. An early tassel treatment is usually more effective than a whorl treatment because larvae are more exposed to the chemicals. The impact of infestation on mid- and late-season plantings depends on the stage of the plants when the infestation occurs. Treat for FAW during the early whorl stage when more than 15 percent of the plants are infested. During mid- to late-whorl stages, treatment for both FAW and ECB may be necessary if more than 30 percent of the plants are infested. Treat fields in early tassel stage if more than 15 percent of the emerging tassels are infested with ECB, FAW, or young CEW larvae.

Ear Infestation

Direct sampling for CEW, FAW, and ECB during silking is not practical because of the low thresholds of ear damage. Begin treatment when the ear shanks emerge or the very first silks appear. Silk sprays should continue on a schedule based on area blacklight and pheromone trap counts, geographical location, and time of year. Early in the season, silk sprays may be required on a 3- to 6-day schedule. When CEW populations are heavy, it may be necessary to treat on a 2- to 3-day schedule.

Applications during the low populations can be terminated up to 5 days 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 irrigation or rains wash off the spray within 24 hours 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.

Nematode Control

Nematode control is very important to the production of this crop. See Chapter E "Nematodes" section of Soil Pests--Their Detection and Control. Use fumigants listed in the "Soil Fumigation" section or use Counter 15G or Mocap 15G. Consult labels for use directions. See seed treatment section below.

Disease Control

Fungicide 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, or Maxim XL. Seed treatment with these fungicides is especially important for early seedings of Super Sweet (sh) varieties.

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: www.sweetcorn.uiuc.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.

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 resistant varieties for fall harvest.

Root and Stalk Rot

Root and stalk rots are caused by several species of fungi, including *Fusarium*, *Diplodia*, *Pythium* and *Macrophomina*. Some of these disease-causing organisms enter through the roots and move up into the stalk, while others enter the stalk directly at the nodes. Insect damage can increase infection by wounding the plant and allowing fungi to enter. For management, 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.

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, 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.

Leaf Spots (Gray leaf spot, Northern corn leaf spot, Northern, Southern and Anthracnose leaf blights)

These diseases originate in corn residue and progress up the plant with persistent rain or overhead irrigation. In order to minimize blight issues, avoid planting continuous corn and bury residue with tillage. For optimal control begin sprays before symptoms appear. Regular scouting and protectant fungicides late in the season may be necessary.

Apply the following protectant fungicides:

chlorothalonil (Do not apply to corn to be processed.)--0.75 to 2.0 pt 6F/A (7 day schedule) or OLF
mancozeb--1.5 lb 75DF/A

and rotate on a 7-14 day schedule with one of the following:

Trivapro--14.5 fl oz / A (10.5 fl oz Trivapro A and 4 fl oz Trivapro B)

Quilt Xcel--10.5 to 14 fl oz. 2.2SC/A
Headline AMP--10.0 to 14.4 fl oz 1.68SC/A
Headline--9.0 to 12.0 fl oz 2.1EC/A
Approach--6.0 to 12.0 fl. oz 2.08 SC/A
Priaxor--4.0 to 8.0 fl oz 4.17SC/A
Stratego--10.0 fl oz. 2.08 EC/A
Stratego YLD--4.0 to 5.0 fl. oz. 4.18 EC/A (5-14 day schedule)
Prosaro--6.5 fl. oz 421 SC / A (5-14 day schedule)
azoxystrobin--9.2 to 15.5 fl oz 2.08SC/A or OLF
propiconazole--2.0 to 4.0 fl oz 3.6 EC/A or OLF

Do not make more than 2 consecutive applications of one of the above fungicides before rotating to another fungicide from a different FRAC code.

Rust (Common and Southern)

Rust is caused by a pathogen that blows into our region from Southern areas each year. Consequently, rust can occasionally become troublesome on susceptible hybrids planted later in the growing season. In most years chemical control measures are not warranted. However, corn warrants spraying if infection occurs prior to the whorl stage, particularly if Southern rust is detected. Observe fields on a regular basis.

If pustules are observed prior to the whorl stage, apply one of the following on a 7-14 day schedule:

Trivapro--14.5 fl oz / A (10.5 fl oz Trivapro A and 4 fl oz Trivapro B)
Headline AMP--10.0 to 14.4 fl oz 1.68SC/A
Quilt Xcel--10.5 to 14 fl oz. 2.2SC/A
azoxystrobin--9.2 to 15.5 fl oz 2.08F/A or OLF
Priaxor--4.0 to 8.0 fl oz 4.17SC/A
Prosaro--6.5 fl. oz 421 SC / A (5-14 day schedule)
Stratego--10.0 fl oz. 2.08 EC/A
Stratego YLD--4-5 fl. oz. 4.18 EC/A (5-14 day schedule)
Headline--9.0 to 12.0 fl oz 2.1EC/A

Do not make more than 2 consecutive applications of one of the above fungicides before rotating to another fungicide from a different FRAC code.