



This is a section from the

**2020/2021**

**Mid-Atlantic**

**Commercial Vegetable**

**Production Recommendations**

The recommendations are **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: <http://njaes.rutgers.edu/pubs/publication.asp?pid=E001>.

This manual will be revised biennially. In January 2021, a **critical update** with important updates to the 2020/2021 manual will be communicated through local Extension Agents and Vegetable Specialists.

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.

**Cooperating Agencies:** Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and County Boards of Chosen Freeholders. Rutgers Cooperative Extension, a unit of the Rutgers New Jersey Agricultural Experiment Station, is an equal opportunity program provider and employer.

## F. Commodity Recommendations

### Pesticide Use Disclaimer

#### **THE LABEL IS THE LAW**

**Before using a pesticide, check the label for up to date rates and restrictions.**

**Labels can be downloaded from:** <http://www.cdms.net/>, <https://www.greenbook.net/>  
or <http://www.agrian.com/labelcenter/results.cfm>

**For more information on Pesticide Safety and the Pesticide Label see chapter D.**

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

**1. Pesticides are listed by group or code number based on chemical structure and mechanism of action, as classified by the Weed Science Society of America (WSSA) for herbicides, the Insecticide Resistance Action Committee (IRAC) for insecticides, and the Fungicide Resistance Action Committee (FRAC) for fungicides.**

**If the number is in bold font, the product may have resistance concerns.**

**2. For restricted use pesticides, the restricted active ingredients are labeled with a \*.**  
(See section D 3.2.1 “Restricted Use Classification Statement” for more information).

**3. In addition to the pesticides listed below, other formulations or brands with the same active ingredient(s) may be available. ALWAYS CHECK THE LABEL:**

- a) to ensure a pesticide is labeled for the same use,**
- b) to ensure the pesticide is labeled for the desired crop, and**
- c) for additional restrictions.**

**4. All pesticide recommendations are made for spraying a broadcast area of 1 acre**  
(43,560 square feet). **Adjust the rate for banded applications** (for more information, see section E 1.3 Calibrating Granular Applicators).

**5. Check the label for 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.









<b>2. Soil-Applied (Preplant Incorporated or Preemergence)</b>						
<b>Group</b>	<b>Product Name</b>	<b>Product Rate</b>	<b>Active Ingredient (*=Restricted Use)</b>	<b>Active Ingredient Rate</b>	<b>PHI (d)</b>	<b>REI (h)</b>
3	Prowl 3.3E Prowl H2O 3.8CS	1.8 to 4 pt/A 2 to 4 pt/A	<b>pendimethalin</b>	0.75 to 1.65 lb/A 0.95 to 1.9 lb/A	--	24
<p>-Control 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.          -<b>Do not</b> 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 formulation that provides similar weed control as the older 3.3E product but causes less staining and odor. Other generic pendimethalin products are available.</p>						
5	Atrazine 4FL	1.0 to 1.5 qt/A	<b>atrazine*</b>	1.0 to 1.5 lb/A	--	12
<p>-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. On highly erodible ground with less than 30% surface residue, no more than 1.6 qt may be applied prior to crop emergence. <b><u>Atrazine Use Restrictions</u></b>          -<b>Preplant or Preemergence:</b> On highly erodible soils (as defined by the U.S. Natural Resources Conservation Service):          -Fields where <b>more</b> 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 <b>less</b> 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.          -Apply a maximum of 2 lb/A of active ingredient as a broadcast spray.          -<b>Postemergence:</b> 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.  <b><u>Safety Precautions for Using Atrazine</u></b>          -<b>Do not</b> mix, load, or apply within 50 ft of drinking water wells, livestock wells, agricultural drainage wells, irrigation wells, abandoned wells, or sinkholes. <b>Do not</b> mix or load within 50 ft of intermittent streams, perennial streams, rivers, lakes, or reservoirs.          -<b>Do not</b> apply within 200 ft of lakes or reservoirs. <b>Do not</b> 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.</p>						
15	Dual II Magnum 7.64E	1.0 to 2.0 pt/A	<b>s-metolachlor</b>	0.96 to 1.91 lb/A	30	24
<p>-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 e with atrazine:          o Bicep II Magnum 5.5L at 2.1 qt/A = 1.3 pt Dual II Magnum 7.64E + 1.6 qt atrazine 4L          o Bicep Lite II Magnum 6L at 1.3 qt/A = 1.13 pt Dual II Magnum 7.64E + 0.9 qt atrazine 4L          -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</p>						
15	Harness 7E Surpass NXT 7E	1.25 to 2.75 pt/A 1.5 to 3 pt/A	<b>acetochlor</b>	1 to 2.4 lb/A 1.09 to 2.6 lb/A	--	12
<p>-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.          -<b>Check label</b> for specific rate depending on soil type and organic matter. Also commonly sold as prepackaged mixture with atrazine:          o Harness Xtra 5.6L at 2.5 qt/A = 2.2 pt Harness 7E + 1.6 qt atrazine 4L          o Degree Xtra 4.04ME at 3 qt/A = 4.3 pt Degree 3.8ME + 1 qt atrazine 4L          o 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.</p>						
15	Outlook 6E	10 to 21 fl oz/A	<b>dimethenamid</b>	0.47 to 0.98 lb/A	50	12
<p>-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 = 8.5 fl oz Outlook 6E + 2 fl oz Sharpen 2.85L</p>						
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	<b>pyroxasulfone (± carfentrazone or fluthiacet)</b>	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
<p>-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</p>						

2. Soil-Applied (Preplant Incorporated or Preemergence), Zidua, Anthem - continued on next page

## F Sweet Corn

### 2. Soil-Applied (Preplant Incorporated or Preemergence), Zidua, Anthem - continued

<p>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.</p> <p>-These herbicides can be tank-mixed with atrazine or other corn herbicides to broaden weed control spectrum.</p> <p>-Do not apply Anthem Flex or Anthem Maxx on coarse-textured soils, or medium-textured soils with less than 2% organic matter.</p> <p>-Stunting has been observed with pyroxasulfone on coarse-textured soils.</p>						
27	Callisto 4SC	5.3 to 7.7 fl oz/A	mesotrione	0.166 to 0.24 lb/A	45	12
<p>-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, Zemax, and Acuron for more details about these prepackaged mixtures.)</p> <p>-Cold weather that slows corn growth will also retard recovery from injury following preemergence treatments.</p> <p>-<b>Sweet corn varieties differ in sensitivity to mesotrione.</b></p> <p>-Severe crop injury may occur if an organophosphate or carbamate insecticide is applied within 7 days of Callisto.</p> <p>-See the sweet corn section of the Callisto label for additional use precautions.</p>						
27, 15, 5	Lexar EZ 3.7SC Lumax EZ 3.67SC Acuron 3.44SC Acuron Flexi 3.26SC Zemax 3.67SC	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 2 to 2.4 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 1.8 to 2.2 lb/A	45	24
<p>-Lexar EZ and Lumax EZ are mixtures of s-metolachlor (Dual II Magnum), mesotrione (Callisto), and atrazine.</p> <p>-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.</p> <p>-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.</p> <p>-<b>Do not</b> apply more than 3.5 qt/A Lexar EZ, 3.25 qt/A Lumax EZ, or 3 qt/A Acuron per growing season.</p> <p>-<b>Sweet corn varieties differ in sensitivity to mesotrione.</b></p> <p>-<b>Do not</b> apply Lexar, Lumax, or Acuron early POST if the corn was treated with Counter insecticide.</p> <p>-<b>Do not</b> tank-mix Lexar, Lumax, or Acuron with organophosphate (OP) or carbamate insecticides and apply as a foliar POST application. <b>Do not</b> 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 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. <b>-Do not</b> apply any of these herbicides postemergence in sweet corn.</p>						

### 3a. Postemergence

Group	Product Name	Product Rate	Active Ingredient (* = Restricted Use)	Active Ingredient Rate	PHI (d)	REI (h)
2	Accent Q 54.5WG	0.9 oz/A	nicosulfuron	0.031 lb/A	--	4
<p>-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).</p> <p>-<b>Do not</b> treat sweet corn more than 18 inches tall to control many annual grasses and certain annual broadleaf weeds.</p> <p>-Tank-mix with atrazine to increase the spectrum of weeds controlled.</p> <p>-Add nonionic surfactant to be 0.25% of the spray solution (1 qt/100 gal of spray solution).</p> <p>-<b>Accent Q is safe to apply to certain varieties, but injures or kills others.</b> Contact your DuPont Crop Protection Sales Representative for information on local sweet corn varieties that have been evaluated for tolerance to Accent Q.</p> <p>-<b>Do not</b> 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. <b>-Do not</b> tank-mix with 2,4-D otherwise grass control will be reduced.</p> <p>-Accent Q is an ALS inhibitor, Group 2 herbicide, and there is widespread resistance in the region to this family of herbicides.</p> <p>-<b>Do not</b> make more than one application of Accent Q per year. The following prepackaged mixture also contains nicosulfuron:</p> <ul style="list-style-type: none"> <li>o Revulin Q 51.2WG at 4 oz/A = 1.1 oz Accent Q 54.5WG + 3 fl oz Callisto 4SC</li> </ul> <p>-Rainfastness is 4 h.</p>						
2	Sandea 75DF Permit 75DF	0.5 to 0.66 oz/A	halosulfuron	0.023 to 0.031 lb/A	30	12
<p>-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.</p> <p>-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.</p> <p>-Always add nonionic surfactant to be 0.25% of the spray solution (1 qt/100 gal).</p> <p>-<b>Corn varieties may vary in sensitivity to Sandea.</b> Use caution when treating new varieties. <b>Do not</b> apply to "Jubilee".</p> <p>-<b>Do not</b> use if organophosphate (OP) insecticides have been applied to the crop, or the risk of crop injury may increase.</p> <p>-Sandea is an ALS inhibitor, Group 2 herbicide, and there is widespread resistance in the region to this family of herbicides.</p> <p>-Rainfastness is 4 h.</p>						

3a. Postemergence - continued on next page



## 3a. Postemergence - continued

4	2,4-D amine 4L	0.5 to 1.0 pt/A	<b>2,4-D amine</b>	0.25 to 0.5 lb/A	45	48
<p>-Apply after corn and weeds emerge. Use drop nozzles when corn is over 8" tall to avoid spraying the foliage or into the whorl.</p> <p>-Warm, wet weather at application may increase the possibility of crop injury. Use the lower recommended rate under these conditions.</p> <p>-Delay cultivation for 8-10 days after treatment to avoid damaging corn due to temporary brittleness sometimes caused by 2,4-D.</p> <p>-<b>Sweet corn varieties differ in 2,4-D tolerance.</b> 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. <b>-Do not apply from tasseling to dough stage.</b> Ester formulations, although labeled, are more subject to volatilization and movement to sensitive crops and are not recommended. Rainfastness is 6 to 8 h.</p>						
4	Starane Ultra 2.8L	0.4 pt/A	<b>fluroxypyr</b>	0.14 lb/A	31	12
<p>-Apply in 1 or 2 applications to control certain annual and perennial broadleaf weeds when sweet corn is less than V5 growth stage.</p> <p>-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.</p> <p>-Maximum Starane Ultra application per year: 0.7 pt/A and no more than 2 applications per crop season.</p>						
4	Stinger 3A	2.0 to 10.5 fl oz/A	<b>clopyralid</b>	0.047 to 0.25 lb/A	30	12
<p>-Apply in 1 or 2 applications to control certain annual and perennial broadleaf weeds when sweet corn is less than 18 inches tall.</p> <p>-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.</p> <p>-Use 2.0 to 4.0 fl oz/A to control annual weeds less than 2 inches tall. Increase the rate to 4.0 to 8.0 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.</p> <p>-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.</p>						
5	Atrazine 4L	1.0 to 2.0 qt/A	<b>atrazine*</b>	1.0 to 2.0 lb/A	--	12
<p>-Primarily controls broadleaf weeds. Apply postemergence when weeds are less than 2 inches tall. Add oil concentrate to be 1% of the spray solution. <b>Do not</b> apply if corn is greater than 12" tall</p> <p>-<b>Do not</b> exceed the maximum rate per acre per year listed on the label for your soil's erodibility class.</p> <p>-<b>ATRAZINE RESTRICTIONS:</b> Refer to "Atrazine Use Restrictions" in the Soil-applied section above.</p> <p>-When this and other atrazine treatments are used, <b>do not</b> 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.</p>						
6	Basagran 4L	1.5 to 2.0 pt/A	<b>bentazon</b>	0.75 to 1.0 lb/A	--	48
<p>-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 8 h.</p>						
14	Aim 2EC	0.5 fl oz/A	<b>carfentrazone</b>	0.008 lb/A	--	12
<p>-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 amaranth.</p> <p>-Tank-mix with atrazine at reduced rates or another broadleaf weed herbicide to increase the spectrum of weeds controlled. <b>Do not</b> tankmix 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.</p> <p>-<b>Variety sensitivity to Aim may vary.</b> 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.</p>						
14	Cadet 0.91EC	0.6 to 0.9 fl oz/A	<b>fluthiacet</b>	0.004 to 0.006 lb/A	40	12
<p>-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 tankmixed with Basagran due to concerns of crop safety. See comments for carfentrazone above. Rainfastness is 1 h.</p>						
27	Callisto 4SC	3.0 fl oz/A	<b>mesotrione</b>	0.094	45	12
<p>-Primarily controls common lambsquarters and many other annual broadleaf weeds, including triazine resistant biotypes, but Callisto is weak on ragweed and morninglory species.</p> <p>-Always add nonionic surfactant to be 0.25% of the spray solution (1 qt/100 gal of spray solution), but <b>do not</b> 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.</p> <p>-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. <b>Do not</b> apply tank-mixes of Callisto and atrazine to corn greater than 12 inches tall.</p> <p>-<b>Sweet corn varieties differ in sensitivity to mesotrione.</b> 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.</p> <p>-<b>Do not</b> 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. See the sweet corn section of the Callisto label for additional use precautions.</p>						

3a. Postemergence, Callisto - continued on next page

## F Sweet Corn

### 3a. Postemergence, Callisto - continued

<p>-Prepackaged mixture that also contain mesotrione for postemergence use:          ○ Revulin Q 51.2WG at 4 oz/A = 1.1 oz Accent Q 54.5WG + 3 fl oz Callisto 4SC</p> <p>-Rainfastness is 1 h.</p>						
27	Shieldex 400SC (3.33SC)	1.0 to 1.35 fl oz	<b>tolpyralate</b>	0.026 to 0.035 lb/A	35	
<p>-Primarily controls common lambsquarters and many other annual broadleaf weeds, including triazine resistant biotypes, but Shieldex is weak on morninglory species.</p> <p>-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 AMS at 8.5 lb/100 gal.</p> <p>-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. <b>Do not</b> apply tank-mixes of Shieldex and atrazine to corn greater than 12 inches tall.</p> <p>-Shieldex rotation to snap beans, peas, cucurbits and other vegetables is 9 to 12 months, refer to label.</p> <p>-<b>Do not</b> 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.</p>						
27	Impact/Armezon 2.8SC	0.75 to 1.0 fl oz/A	<b>topramezone</b>	0.016 to 0.022 lb/A	45	12
<p>-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 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.</p> <p>-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 AMS).</p> <p>-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. <b>Do not</b> apply tank-mixes of Impact/Armezon and atrazine to corn greater than 12 inches tall.</p> <p>-<b>Do not</b> use postemergence if mesotrione (e.g., Callisto, Lumax, Lexar, Acuron) was used preemergence. <b>Do not</b> tank-mix with Callisto.</p> <p>-Impact/Armezon has an 18 month replant restriction for most vegetables.</p> <p>-<b>Do not</b> apply more than 1 fl oz/A during the growing season. Rainfastness is 1 h.</p> <p>-Prepackaged mixture that also contains topramezone:          ○ Armezon PRO 5.35EC at 24 fl oz/A = 0.76 fl oz Armezon 2.85SC (or Impact) + 18 fl oz Outlook 6E</p>						
27	Laudis	3.0 fl oz/A	<b>tembotrione</b>	0.082 lb/A	--	12
<p>-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.</p> <p>-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 AMS (1.5 lb/A).</p> <p>-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. <b>Do not</b> apply tank-mixes of Laudis and atrazine to corn greater than 12 inches tall.</p> <p>-<b>Do not</b> use postemergence if mesotrione (e.g., Callisto, Lumax, Lexar, Acuron) was used preemergence. <b>Do not</b> tank-mix with Callisto.</p> <p>-Laudis has up to an 18 month replant restriction for many vegetables.</p> <p>-Rainfastness is 1 h. <b>Do not</b> apply more than 1 application per growing season</p>						

### 3.b. Postemergence for Herbicide Resistant Sweet Corn Varieties ONLY!

Group	Product Name	Product Rate	Active Ingredient (* = Restricted Use)	Active Ingredient Rate	PHI (d)	REI (h)
1	Poast 1.5EC	0.75 to 1.5 pt/A	<b>sethoxydim</b>	0.15 to 0.3 lb/A	30	12
<p><b>-USE ONLY ON "POAST PROTECTED" SWEET CORN!</b> Other sweet corn varieties will be severely injured or killed.</p> <p>-Use 1% crop oil concentrate (COC) at 1% v/v (1 gal/100 gal of spray solution).</p> <p>-<b>The use of COC may increase the risk of crop injury when hot or humid conditions prevail.</b> To reduce the risk of crop injury, omit additives or switch to nonionic surfactant (NIS) when grasses are small and soil moisture is adequate.</p> <p>-Use lower labeled rates for annual grass control and higher labeled rates for perennial grass control.</p> <p>-Yellow nutsedge, wild onion, wild garlic, and broadleaf weeds will not be controlled.</p> <p>-Controls many annual and certain perennial grasses. For best results, treat annual grasses when they are actively growing at before tillers are present. Control may be reduced if grasses are large or under hot dry weather conditions.</p> <p>-Repeated applications may be necessary to control certain perennial grasses. If repeat applications are necessary, allow 14 days between applications.</p> <p>-<b>Do not</b> 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.</p> <p>-<b>Do not</b> exceed more than 3pt/A Poast per season. -Refer to Poast label for additional application guidelines.</p>						

3.b. Postemergence for Herbicide Resistant Sweet Corn Varieties ONLY! - continued on next page

## 3.b. Postemergence for Herbicide Resistant Sweet Corn Varieties ONLY! - continued

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
<p><b>-USE ONLY ON "ROUNDUP READY" SWEET CORN!</b> Other sweet corn varieties will be severely injured or killed.</p> <p>-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).</p> <p>-Tank-mix glyphosate with Dual II Magnum for residual annual grass control and atrazine for residual annual broadleaf control.</p> <p>-Rainfastness is 6 h. Observe all rate restrictions and Preharvest Intervals for all products. <b>Do not</b> 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.</p>						
10	Liberty 280 2.34L Scout 2.34L Interline 2.34L	22 fl oz/A	glufosinate	0.4 lb/A	50	4
<p><b>-USE ONLY ON "LIBERTY LINK" (ATTRIBUTE OR ATTRIBUTE II) SWEET CORN!</b> 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 AMS (ammonium sulfate) at 1.5-3 lb/A in the spray mixture.</p> <p>-Use at least 15 gal/A spray volume and medium to coarse spray nozzles.</p> <p>-Tank-mix with other labeled sweet corn herbicides to broaden control spectrum and for residual control.</p> <p>-Rainfastness is 4 h. <b>Do not</b> apply more than 22 fl oz/A in a single application and 44 fl oz/A per year.</p>						
<p><b>4. Other Labeled Herbicides</b> 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.</p>						
<b>Group</b>	<b>Product Name</b>	<b>Active Ingredient (*=Restricted Use)</b>				
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 four 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 whorl stage corn for lepidopteran pests; and 4) 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 (Semini's 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

## F Sweet Corn

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	Active Ingredient(s)
1B	Lorsban 50W	chlorpyrifos* - SCM only
4A	Cruiser 5FS	thiamethoxam
4A	Gaucha 600	imidacloprid
4A	Poncho 600	clothianidin
4A + 6	Avicta Complete Corn	abamectin* + thiamethoxam
4A + 11B	Poncho/Votivo	clothianidin + <i>Bacillus firmus</i>
4A + 28	Lumivia	thiamethoxam + 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	Product Rate	Active Ingredient(s) (*=Restricted Use)	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
1B	Lorsban 15G, Lorsban 15G SmartBox® system	8 oz/1000 row ft	chlorpyrifos*	35	24	H
3A	Force 3G, Force 3G SmartBox® system	4.0 to 5.0 oz/1000 row ft	tefluthrin*	n/a	48	H

## 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 the 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, Gaucha, or Poncho) provide early-season protection from corn flea beetle injury.**

Apply one of the following formulations:						
Group	Product Name	Product Rate	Active Ingredient(s) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
1A	Sevin XLR Plus <sup>1</sup>	1.0 to 2.0 qt/A <sup>1</sup>	carbaryl <sup>1</sup>	see label	see label	H
1B	Lorsban Advanced	1.0 to 2.0 pt/A	chlorpyrifos*	21	24	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					
4A	Assail 30SG	4.0 to 5.3 oz/A	acetamiprid	see label	12	M

<sup>1</sup>Use of carbaryl prohibited on hand harvested corn.

## 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. 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.

**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 crawl 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	Product Rate	Active Ingredient(s) (*= <b>Restricted Use</b> )	PHI (d)	REI (h)	Bee TR
1A	Sevin XLR Plus <sup>1</sup>	2.0 qt/A <sup>1</sup>	carbaryl <sup>1</sup>	see label	see label	H
1B	Lorsban Advanced	1.0 to 2.0 pt/A	chlorpyrifos*	21	24	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					

<sup>1</sup>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	Product Rate	Active Ingredient(s) (*= <b>Restricted Use</b> )	PHI (d)	REI (h)	Bee TR
1A	Lannate LV <sup>1</sup>	0.75 to 1.5 pt/A <sup>1</sup>	methomyl* <sup>1</sup>	see label	48	H
1B	Lorsban Advanced	1.0 to 2.0 pt/A	chlorpyrifos*	21	24	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	L
28	Coragen 1.67SC	3.5 to 7.5 fl oz/A	chlorantraniliprole - <b>foliar</b>	1	4	L

<sup>1</sup>Read new methomyl\* label restrictions regarding use on seedling stage corn and before tassel push!

### **3) 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	Product Rate	Active Ingredient(s) (*= <b>Restricted Use</b> )	PHI (d)	REI (h)	Bee TR
1A	Lannate LV <sup>1</sup>	0.75 to 1.5 pt/A <sup>1</sup>	methomyl* <sup>1</sup>	see label	48	H
1B	Lorsban Advanced	1.0 to 2.0 pt/A	chlorpyrifos*	21	24	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	L
22	Avaunt 30WDG, Avaunt eVo	2.5 to 3.5 oz/A	indoxacarb - <b>through tassel push only</b>	3	see label	H
28	Coragen 1.67SC	3.5 to 7.5 fl oz/A	chlorantraniliprole - <b>foliar</b>	1	4	L

<sup>1</sup>Read new methomyl\* label restrictions regarding use on seedling stage corn and before tassel push!

#### 4) 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.

Please note that some localized CEW populations have developed resistance to pyrethroids (Group 3A), and that these insecticides should be used with caution and rotated to other insecticide classes within a season.

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 rains 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	Product Rate	Active Ingredient(s) (*= <b>Restricted Use</b> )	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 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 + 5	Intrepid Edge	4.0 to 12.0 fl oz/A	methoxyfenozide + spinetoram	3	4	L
28	Coragen 1.67SC	3.5 to 7.5 fl oz/A	chlorantraniliprole - <b>foliar</b>	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 the 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.

Apply one of the following formulations:						
Group	Product Name	Product Rate	Active Ingredient(s) (*= <b>Restricted Use</b> )	PHI (d)	REI (h)	Bee TR
1A	Lannate LV	0.75 to 1.5 pt/A	methomyl*	see label	48	H
1B	Lorsban Advanced	1.0 to 2.0 pt/A	chlorpyrifos*	21	24	H
4A	Neonicotinoids registered for us on Peas: see table at the end of Insect Control.					
4D	Sivanto Prime or 200SL	7.0 to 14.0 fl oz/A	flupyradifurone	7	4	M

#### 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	Product Rate	Active Ingredient(s) (*= <b>Restricted Use</b> )	PHI (d)	REI (h)	Bee TR
1A	Lannate LV	0.75 to 1.5 pt/A	methomyl*	see label	48	H
1B	Lorsban Advanced	1.0 to 2.0 pt/A	chlorpyrifos*	21	24	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					
4A	Assail 30SG	4.0 to 5.3 oz/A	acetamiprid	see label	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 for 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 plants.

Apply one of the following formulations:						
Group	Product Name	Product Rate	Active Ingredient(s) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					
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 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	Product Rate	Active Ingredient(s) (*=Restricted Use)	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 <sup>1</sup>	1.0 to 2.0 qt/A <sup>1</sup>	carbaryl <sup>1</sup>	see label	see label	H
3A	Pyrethroid insecticides registered for use on Sweet Corn: see table at the end of Insect Control.					
4A	Neonicotinoids registered for us on Peas: see table at the end of Insect Control.					

<sup>1</sup>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.**

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

## 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	Product Rate	Active Ingredient(s) (*=Restricted Use)	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	
Bifenthrin 2EC, others	2.1 to 6.4 fl oz/A	bifenthrin*	1	12	H	
Hero EC	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, others	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						
Cobalt Advanced	11.0 to 42.0 fl oz/A	lambda-cyhalothrin* + chlorpyrifos* (Group 1B)	21	24	H	
Besiege	6.0 to 10.0 fl oz/A	lambda-cyhalothrin*+chlorantraniliprole (Group 28)	1	24	H	
Ethos XB	6.8 to 17.0 fl oz/A	bifenthrin* + <i>Bacillus amyloliquefaciens</i> - soil	n/a	12	H	
Ethos XB	2.8 to 8.5 fl oz/A	bifenthrin* + <i>Bacillus amyloliquefaciens</i> - foliar	1	12	H	

<b>Group 4A Neonicotinoid Insecticides Registered for Use on Sweet Corn</b>					
<b>Apply one of the following formulations (check if the product label lists the insect you intend to spray; the label is the law):</b>					
<b>Product Name</b>	<b>Product Rate</b>	<b>Active Ingredient(s) (*=Restricted Use)</b>	<b>PHI (d)</b>	<b>REI (h)</b>	<b>Bee TR</b>
Assail 30SG	2.1 to 5.3 oz/A	acetamiprid	see label	12	M

## 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 in chapter E Pest Management. Use fumigants listed in section E 1.5, or one of the following:

<b>Code</b>	<b>Product Name</b>	<b>Product Rate</b>	<b>Active Ingredient(s) (*=Restricted Use)</b>	<b>PHI (d)</b>	<b>REI (h)</b>	<b>Bee TR</b>
1B	Counter 20G	see label for use directions (not for use in PA, MD, VA, and 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 LS, Dynasty, Captan, Thiram, Vitavex or Maxim XL. Seed treatment with these fungicides is especially important for early seedings 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. 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.

<b>Code</b>	<b>Product Name</b>	<b>Product Rate</b>	<b>Active Ingredient(s) (*=Restricted Use)</b>	<b>PHI(d)</b>	<b>REI (h)</b>	<b>Bee TR</b>
<b>Apply one of the following protectant fungicides:</b>						
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
<b>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):</b>						
3	propiconazole 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	14.5 fl oz/A (10.5 fl oz/A Trivapro A and 4 fl oz/A Trivapro B)	propiconazole + benzovindiflupyr + azoxystrobin	7	12	N
3+7+11	Miravis Neo	13.7 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

*Leaf Blights and Leaf Spots - continued on next page*



*Leaf Blights and Leaf Spots - continued*

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 2.08 SC	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 2.1EC	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	Product Rate	Active Ingredient(s) (*=Restricted Use)	PHI (d)	REI (h)	Bee TR
<b>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):</b>						
3 + 3	Prosaro 421SC	6.5 fl. oz/A (5-14 day schedule)	tebuconazole + prothioconazole	7	12	N
3+7+11	Trivapro	14.5 fl oz/A (10.5 fl oz/A Trivapro A and 4 fl oz/A Trivapro B)	propiconazole + benzovindiflupyr + azoxystrobin	7	12	N
3+7+11	Miravis Neo	13.7 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	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 (common rust)	1.6 lb/A	mancozeb + azoxystrobin	7	24	--

**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.

**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.

**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.

**For Immediate Medical Attention**

**Call 911**

**For a Pesticide Exposure Poisoning**

**Emergency Call**



**For All States**

This number will automatically connect you to the poison center nearest to you.

**Anyone with a poisoning emergency can call the toll-free telephone number for help.**

Personnel at the Center will give you first-aid information and direct you to local treatment centers if necessary.

## **For Pesticide Spills**

**Small Spills:** See the product label for cleanup advice.

**Large spills:** Call the National Response Center at 1-800-424-8802 or CHEMTREC at 800-424-9300 (24 hours) - Industry assistance with emergency response cleanup procedures for large, dangerous spills.

**Be aware of your responsibility to report spills to the proper state agency.**