

## Post Emergent Sweet Corn Herbicides

The post-emergent materials to choose from can be found in Table 1, but there are a couple of other things you will need to know before making your selection. First, you need to know what weeds you are going after. Some materials are very specific and only control a narrow spectrum or even a couple of species so you need to know what it is you have in your field. Second, you will need to know the stage of your sweet corn in order to know if you can broadcast the materials or use drop tubes to keep the herbicides out of the whorl in order to reduce the chance of injury to the crop. As always, you need to really pay attention to the labels of these materials.

In order for these herbicides to perform their best and have the best crop safety, you need to know which adjuvants are required and how to use other additives such as a nitrogen. Read the labels to make sure that the chemicals and, almost as important, the additives are compatible. This is not only for crop safety, but efficacy of the materials used too. To assist you with that, see Table 2 to help determine which additives are recommended for the different herbicides, **but this is no substitute for reading the product labels! Please also be very aware of the “Post Harvest Interval” or PHI for some of these materials, especially if you are using them on plastic or row cover corn as you may be cutting it close between applications and harvest!**

Stinger is one material that is highly effective, but on a very narrow range of weeds. It is effective on ragweed, certain nightshades and Canada thistle. I have also seen it hurt wild buckwheat and Jerusalem artichoke, but not completely kill it. You are allowed two applications of Stinger per season not to exceed 2/3 of a pint total per acre per season. The recommended rate is 0.33—0.66 pints per acre. If you use the highest rate of 0.66 pints, you have used the maximum amount allowed for the season. See the label for more specific information on this material and if you are thinking of using any of these products with the ones mentioned earlier, please consult the labels to determine if they are compatible.

Impact or Armezon have proven to be quite effective on many of the annual grasses that can be found in our local fields while being pretty safe on the corn. However, I have seen it used on grasses that were very tall and saw it stunt and turn it pure white, only to have them come back a few weeks later and start to regrow. So the key with these materials is to use them when the grasses are small and make sure you follow the label and add the specific adjuvants and nitrogen sources. In trials we did several years ago, the addition of ¼ - ½ lb of atrazine improved control and residual when added to these products, so keep that in mind as well. With that said, please be sure to read the paragraph entitled “Notes about Atrazine” due to the concern of atrazine rates and carryover the next growing season.

Callisto is another product that can be used post emergent and is decent material for quite a few broadleaf weeds like lambquarters, pigweed, smart weed, nightshades, mustards and velvetleaf. It also has activity on small annual grasses like crabgrass and some of the foxtails, but does not control barnyard or panicums so knowing which grass species you have is very important! You also need to be

aware that if you used any of the pre-emergent pre-mixes that contain Callisto (or the active ingredient mesotrione) such as Lumax, Lexar or Accuron, you should not use Callisto post emergent. The rates of Callisto by itself post emergent and the rate that was in the pre-mixes exceeds the maximum use rate for mesotrione.

Halosulfuron or Permit/Profine/Sandea are also labeled for sweet corn and will control several tough broadleaf weeds such as pigweed, small velvetleaf and ragweed and mustards. Where I have seen this product work well is on yellow nutsedge – but the nutsedge has to be big with at least 3-5 leaves to be the most effective and a second application may still be needed. The use of a non-ionic adjuvant is required for optimal control. If using on sweet corn, Permit is the cheaper choice, but is not labeled on any other vegetables. Profine and Sandea are both labeled on sweet corn and many vegetables.

**Notes about Atrazine:** Many of the products mentioned will benefit from the addition of 0.25—0.5 pounds of product with atrazine active ingredient. As atrazine has been one of the key materials used in our pre-emergent programs, it has been recommended that vegetable growers not use more than 1.5 lbs of active ingredient of atrazine per acre per season. This is so that other vegetables can be planted the following season without worrying about atrazine carryover and injury issues on those crops. Lumax, Lexar and Acuron have all become a popular pre-mix pre-emergent herbicide and each contain atrazine. At the recommended rate of 2.5 quarts per acre, there is 0.62 lbs. of actual atrazine (active ingredient) in those mixes, which means you can still use up to 0.5 lbs of atrazine in your post-emergent applications and be safe for next season's vegetables. For example, if you have in your shed AAtrex 4L (4 pounds atrazine per gallon) and you want to add 0.25 pounds as part of your post emergent mix, you would add 1/2 pint of AAtrex 4L. Also, the label states that atrazine should not be used on corn taller than 12" in height. For assistance with calculations of other formulations, contact Chuck Bornt at 518-859-6213.

Product (active ingredient)	Pre-harvest interval	Weeds controlled	Rate	Comments
<b>Impact or Armezon</b> (topramezone)	45 days	barn-yard grass, fall panicum, foxtails, crabgrass lambsquarter, ragweed and velvetleaf	0.75 fluid ounces	Best control will also occur if broadleaf weeds are less than 4" tall and grass weeds are less than 3" tall. It is also recommended that 0.25—0.5 lbs active ingredient of atrazine be added to improve weed control and residual. Weeds need to be actively growing and coverage is essential. In tall corn, I recommend drop nozzles be used in order to get the spray material down through the canopy and onto the weeds <b>Adjuvants:</b> Methylated seed oil (MSO) or petroleum-based or vegetable seed-based oil concentrate (COC, HSOC) at 0.5 to 1.0 gallon per 100 gallons of water [0.5% to 1.0% volume/volume (v/v)]. <b>Nitrogen Fertilizer:</b> nitrogen-based fertilizers include urea ammonium nitrate(UAN; 28% or 34%) at 1.25 to 2.5 gallons per 100 gallons of water (1.25% to 2.5% v/v) or a spray grade ammonium sulfate (AMS) at a minimum rate of 8.5 to 17 pounds per 100 gallons of water.
<b>Armezon Pro</b> (topramezone + dimethenamid-p)	50 days	Broadleaves and several annual grasses (barnyard grass, crabgrass, Giant Foxtail, Wild Proso Millet)	For sweet corn and popcorn label recommends 20 fluid ounces per acre	Best control will also occur if broadleaf weeds are less than 4" tall and grass weeds are less than 3" tall and actively growing. <b>Applications can be made from corn emergence to 12-inches tall. DO NOT apply within 50 days of harvesting sweet corn ears.</b> <b>Adjuvants:</b> Armezon PRO Alone: Methylated seed oil (MSO) or petroleum-based or vegetable seed-based oil concentrate (COC, HSOC) at 0.5 to 1.0 gallon per 100 gallons of water [0.5% to 1.0% volume/volume (v/v)]. <b>Tank Mixtures with Armezon Pro:</b> Use nonionic surfactant (NIS) at 0.25 to 0.5 gallon per 100 gallons of water [0.25% to 0.5% volume/volume (v/v)]. Oil-type adjuvants (COC, HSOC, and MSO) may be used in tank mixtures with Armezon PRO, however, combinations with these adjuvants can cause elevated necrosis within a few days after treatment and occasionally crop height reduction. <b>Oil-type adjuvants are not recommended when tank mixing with atrazine.</b> <b>Nitrogen Fertilizer:</b> nitrogen-based fertilizers include urea ammonium nitrate(UAN; 28% or 34%) at 1.25 to 2.5 gallons per 100 gallons of water (1.25% to 2.5% v/v) or a spray grade ammonium sulfate (AMS) at a minimum rate of 8.5 to 17 pounds per 100 gallons of water.
<b>Accent Q</b> (nicosulfuron plus a safener)		Mostly annual grasses	0.9 ounces per acre	Accent Q will provide post emergent control of most annual grasses (limited crabgrass control) and if applied alone has very little broadleaf control (Redroot pigweed). If additional broadleaf control is also needed, consider tank mixing Accent Q with another herbicide listed in the label. Applications of ACCENT® Q may be applied broadcast or with drop nozzles (post-directed) on sweet corn up to 12 inches tall or up to and including 5 leaf-collars (V5). <b>For sweet corn 12 - 18 inches tall, apply only with drop nozzles. Do not apply to sweet corn taller than 18 inches or those which exhibit 6 or more leaf-collars (V6).</b> DO NOT APPLY ACCENT® Q to corn previously treated with "Counter" 15G or to corn treated with "Counter" 20CR in-furrow or over the row

				at cultivation. Applications of ACCENT® Q to corn previously treated with “Counter” 20 CR, “Lorsban”, or “Thimet” may cause unacceptable crop injury, especially on soils of less than 4% organic matter. <b>Adjuvants:</b> Crop oil concentrate (COC) or Non-Ionic Surfactant (NIS) plus a sprayable grade ammonium nitrogen such as UAN or AMS. See label for specific rates and uses.
Supplemental labeling for <b>Accent Q tank mixed with Impact and atrazine</b> – If using this combination, the user must have in their possession a copy of this supplemental label! Accent Q may be applied with 0.5 – 0.75 fluid ounces per acre of Impact plus 0.375 – 1.5 pounds per acre active ingredient atrazine (12 – 48 fluid ounces of a 4L formulated atrazine product). However, if you have used any atrazine containing pre-emergent products, the general rule of thumb for rotating vegetables the following year after using atrazine is no more than 1.5 pounds total active ingredient per acre. More than that and you greatly increase the potential for atrazine injury to susceptible crops.				
<b>Permit/Profine/ Sanda</b> (halosulfuron)	30 days	Broadleaves (pigweed, velvetleaf, ragweed) and Yellow nutsedge	0.67 ounces per acre	Apply Permit over the top or with drop nozzles from the spike through layby stage of the corn. Treat young actively growing broadleaf weeds 1 to 3 inches in height. <b>Adjuvants:</b> Nonionic Surfactant (NIS) is required in the spray solution. Use NIS at 0.25 to 0.5% v/v concentration (1 to 2 quarts per 100 gallons of spray solution). Do not use COC or MSO as the potential for injury is too great. <b>Nitrogen fertilizers:</b> May be added but are not necessary for post-emergent applications. Apply a high quality, granular spray grade ammonium sulfate at a rate of 2 to 4lb/A or a liquid nitrogen fertilizer solution (e.g. UAN 28%) at a rate of 2 to 4 quarts/A. Use of soil or foliar applied systemic organophosphate insecticides on PERMIT treated crops may increase the potential for crop injury and/or the severity of the crop injury. Do not apply SANDEA using air assisted (air blast) field crop sprayers
<b>Stinger</b> (clopyralid)	30 days	Broadleaves (ragweed, wild buckwheat, Common cocklebur, Jerusalem artichoke, Canada thistle)	0.33 – 0.66 pints per acre	Apply Stinger any time after sweet corn emergence through 18-inch tall sweet corn uniformly with ground equipment as a broadcast or directed spray in 10 to 20 gallons total spray volume per acre. Do not exceed 2/3 or 0.67 fluid ounces per year. Do not apply to sweet corn that is greater than 18” tall. Control of common cocklebur, common ragweed, giant ragweed, sunflower, other annual weeds and Jerusalem artichoke, apply 1/4 to 1/2 pint of Stinger per acre from weed emergence up to the 5-leaf stage of growth. I would recommend using Stinger alone and not in tank mixtures at this time.

**Table 2:** Comparison of adjuvants and other additives used in post-emergent sweet corn herbicides. This is not a substitute for reading the herbicide labels.

Herbicide	Crop Oil Concentrate (COC)	Non Ionic Surfactant (NIS)	Methylated seed oil (MSO)	Nitrogen (UAN or AMS)
Impact/Armezon	X		X	X
Armezon Pro (used alone)	X		X	X

<b>Armezon Pro (in tank mixes)</b>		<b>X</b>		<b>X</b>
<b>Accent Q</b>	<b>X</b>	<b>X</b>		<b>X</b>
<b>Permit</b>		<b>X</b>		<b>X</b>
<b>Callisto</b>	<b>X</b>	<b>X</b>		
<b>Stinger</b>				