New Acuron™ Corn Herbicide

Acuron™ (developed under the code name SYN-A197) contains four active ingredients, including bicyclopyrone, and will deliver multi-targeted control of the most problematic weeds in corn.
“When weeds start competing with the corn plant, it makes my skin crawl. Those weeds rob yield and nutrients, taking away from my bottom line. We want those weeds gone as soon as possible.”

Matt LaFont, Grower
Brookport, Illinois
Acuron is a new, selective corn herbicide under development by Syngenta. It is designed to deliver broad-spectrum control of many broadleaf weeds and grasses in corn, including:

- Common cocklebur
- Common ragweed
- Giant ragweed
- Kochia
- Marestail
- Morningglory
- Palmer amaranth
- Russian thistle
- Sunflower
- Waterhemp

Acuron herbicide is a premix combination of four active ingredients plus a corn safener.

- Bicyclopyrone is a new active ingredient for burndown plus residual that delivers improved and more consistent control of large-seeded broadleaf weeds in corn
- Mesotrione for burndown and residual control of broadleaf weeds
- S-metolachlor for residual control of annual grasses and small-seeded broadleaf weeds
- Atrazine for burndown plus residual control of broadleaf weeds
- Benoxacor corn safener
Bicyclopyrone was developed to complement mesotrione. When combined with atrazine and S-metolachlor in Acuron, bicyclopyrone and mesotrione deliver control of a wide range of weeds.

<table>
<thead>
<tr>
<th>Weeds PRE</th>
<th>Acuron</th>
<th>Lexar® EZ</th>
<th>Lumax® EZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnyardgrass</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Foxtail</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Lambsquarters</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Palmer amaranth</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Velvetleaf</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Waterhemp</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Kochia</td>
<td>C*</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Marestail</td>
<td>C*</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Cocklebur</td>
<td>C</td>
<td>PC</td>
<td></td>
</tr>
<tr>
<td>Morningglory</td>
<td>C</td>
<td>PC</td>
<td></td>
</tr>
<tr>
<td>Ragweed, giant</td>
<td>C</td>
<td>PC</td>
<td></td>
</tr>
<tr>
<td>Sunflower</td>
<td>C</td>
<td>PC</td>
<td></td>
</tr>
<tr>
<td>Thistle, Russian</td>
<td>C</td>
<td>NL</td>
<td></td>
</tr>
</tbody>
</table>

C - Control, PC = Partial Control, NL= Not Labeled.

* Improved consistency over Lumax EZ / Lexar EZ
After five years of formulation testing and more than 600 field trials featuring bicyclopyrone, Syngenta is anticipating EPA registration of Acuron for the 2015 growing season.

**Acuron Key Characteristics**

- Will contain four active ingredients and three overlapping and complementary modes of action in one convenient premix
  - One of the active ingredients, bicyclopyrone, is a new active ingredient that trials show helps Acuron deliver improved and more consistent weed control than industry standards
  - Multi-targeted approach will offer built-in corn weed resistance management
  - Season-long residual control will help reduce the weed seed bank for future generations
- Expected to be registered in field corn, seed corn, silage corn, sweet corn and yellow popcorn
- Anticipated to control more than 70 of the most problematic broadleaf weeds and annual grasses including small- and large-seeded broadleaf weeds and resistant weed biotypes
- Will use a 3.44 lb/gal ZC liquid formulation with microencapsulation-suspension technology
- Performs well under multiple tillage situations including conventional, reduced and no-till systems
- Will offer tank-mix and rotational flexibility
- Will be labeled for application from 28 days pre-plant (including burndown) up to 12-inch corn
- Contains a corn safener, benoxacor

The seed bank is the reserve of weed seeds found in the soil. Seeds from weed escapes provide most of the new seed entering the seed bank. That’s why it is so important to use a product that effectively controls weeds so they do not make a “deposit” into the weed seed bank.
In a 2013 Syngenta survey of corn growers, the top five weeds they identified as being difficult to control were:

Resistant Weeds are Expanding

Glyphosate weed resistance is expanding, which is driving increased use of residual herbicides, more robust residual rates and the need for herbicide premixes with multiple modes of action. As weeds have developed resistance and become more difficult to control, many current weed control programs have lost their effectiveness, threatening farmer profitability and farm legacy for future generations. Weed control is a basic requirement for a farmer to produce a corn crop at a competitive cost. The use of new technology, such as Acuron, will play a critical role in the long-term viability of the farmer’s operation.

Waterhemp

Waterhemp Facts$^{1,2}$

- Produces up to 1 million seeds/plant
- Can grow as much as 1 inch per day
- Can grow to an average height of 4 to 5 feet with some weeds reaching up to 12-feet tall
- Pollen can travel one-half mile or more and because of the cross pollination that occurs, resistance spreads
- Early-season competition can reduce corn yield up to 15 percent by the time weeds are just 6 inches tall

“Waterhemp has the ability to change so fast. It seems like every year it takes on a different shape and size. It is very adaptable.”

– Scott Bradford, Grower
Chanute, KS

$^1$ The Pest Management and Crop Development Bulletin; Waterhemp—Biology, Identification, and Management Considerations April 27, 2001; Aaron Hager Christy Sprague.

$^2$ Biology and Management of Waterhemp — GWC-13;
Marestail (Horseweed)

**Marestail Facts**

- First glyphosate-resistant weed identified in U.S. row crops, confirmed in 2000
- Produces up to 200,000 seeds/plant
- Seeds are highly mobile, which results in rapid spread
- Grows 5 to 6 feet tall
- Usually germinates in fall and spring, but can germinate year-round

“Marestail is going to be a problem in the future. The last five years it was waterhemp, but the next five years it’s going to be marestail. We definitely need something for marestail. Syngenta has the technical background to come up with chemicals that a farmer needs. We’re always looking for different chemicals to keep our fields clean because if they’re clean, that makes us more money.”

– Wade Rapp, Grower
Schell City, MO

Palmer Amaranth

**Palmer Amaranth Facts**

- Thrives in reduced-, minimum- or no-tillage systems because it germinates close to the soil surface
- Produces 10,000 to 100,000 seeds/plant
- Can overtake the crop due to its rapid growth, aggressive competition
- Has prolific seed production and germination throughout the season
- Has a faster growth rate and is more competitive than other pigweed species with growth rates approaching 3 inches per day
- When allowed to compete throughout the growing season, it can create yield losses up to 91 percent in corn
- May reach 8 feet in height

“I’ve seen other farms that haven’t used a pre-emergence or pre-plant herbicide, and once you get behind the ball on that, you’ve lost the fight.”

– Darrell Logeman, Grower, Belknap, IL
Giant Ragweed Facts

- Giant ragweed in the field is often 1 to 5 feet taller than the crop with which it is competing
- Can produce up to 5,100 seeds/plant
- Research demonstrated that season-long competition from just two giant ragweed plants per 110 square feet can reduce corn yield by 13 percent

“In this area, we see a lot of giant ragweed. We’ve had problems where weeds have gotten out of hand late in the season and after they harden off, they become very hard to kill. It is better to get to them under control when they are small, at the beginning of the season.”

– Matt Rausch, Grower, Winamac, IN

Morningglory Facts

- Once established, it is very difficult to control with post-emergence applications
- Outcompetes crops and reduces yields
- Can produce up to 500 seeds/plant
- Due to an extremely hard seed coat, some seeds can remain viable in the soil for more than 50 years

“Morningglory has been our toughest weed in corn for the past several seasons. It’s essential that we use a product with multiple modes of action or it will become a problem that we can’t control.”

– Lane Griffin, Grower, Monroe, NC

3 Source: Biology and Management of Horseweed; The Glyphosate, Weeds, and Crops Series, GWC-9 http://www.glyphosateweedscrops.org/
PERFORMANCE

Broad-Spectrum Weed Control

Trials show that Acuron herbicide will provide control of the toughest broadleaf weeds and grasses in corn.

Why are large-seeded broadleaf weeds so difficult to control?

- Emerge from deeper within the soil profile
- Seeds and plants are larger in size
- More plant mass as they emerge

“When we started evaluating bicyclopyrone in corn, it became evident pretty quickly that what we had was a superior product relative to other HPPD herbicides that offered improved control of large-seeded broadleaf weeds. This is one of the best offerings for corn farmers I have ever seen in terms of broad-spectrum weed control.”

– Stott Howard, Ph.D.
Head of Corn Product Evaluation
Syngenta
## WEEDS CONTROLLED

Weeds Controlled or Partially Controlled by **Pre-Emergence** Applications of Acuron Herbicide

### Broadleaf weeds:
- Amaranth, Palmer
- Amaranth, Powell
- Bedstraw, catchweed*
- Beggarweed, Florida
- Buckwheat, wild
- Buffalobur
- Carpetweed
- Chickweed, common
- Cocklebur, common**
- Deadnettle, purple
- Devil’s-claw
- Galinsoga
- Henbit
- Horseweed (marestail)
- Jimsonweed
- Kochia
- Lambsquarters, common
- Mallow, Venice
- Morningglory, ivyleaf/entireleaf**
- Mustard, wild
- Nightshade, black
- Nightshade, eastern black
- Nightshade, hairy
- Pigweed, redroot
- Pigweed, smooth
- Puncturevine
- Purslane, common
- Pusley, Florida
- Radish, wild
- Ragweed, common
- Ragweed, giant
- Sesbania, hemp
- Shepherd’s-purse
- Sicklepod
- Sida, prickly*
- Smartweed, ladysthumb
- Smartweed, Pennsylvania
- Sunflower, common*
- Thistle, Russian
- Velvetleaf
- Waterhemp, common
- Waterhemp, tall
- Cupgrass, prairie
- Cupgrass, Southwestern
- Cupgrass, woolly*
- Foxtail, giant
- Foxtail, green
- Foxtail, robust (purple, white)
- Foxtail, yellow
- Goosegrass
- Johnsongrass, seedling*
- Millet, foxtail
- Millet, wild proso*
- Panicum, Texas*
- Rice, red
- Sandbur, field*
- Shattercane*
- Signalgrass, broadleaf**
- Signalgrass, narrowleaf
- Sprangletop, red
- Starbur, bristly
- Witchgrass

### Grass weeds:
- Barnyardgrass
- Crabgrass
- Crowfootgrass

### Sedges:
- Nutsedge, yellow

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* Partial control
** May require a tank-mix partner (e.g., atrazine) for control of heavy populations
WEEDS CONTROLLED

Weeds Controlled or Partially Controlled by Early Post-Emergence Applications of Acuron

Amaranth, Palmer
Amaranth, Powell
Bedstraw, catchweed*
Beggarsweed, Florida
Buckwheat, wild
Buffalobur
Carpetweed
Chickweed, common
Cocklebur, common
Dandelion*
Deadnettle, purple
Devil's-claw
Galinsoga
Hemp
Henbit
Horsenettle
Horseweed (marestail)
Jimsonweed
Kochia
Lambsquarters, common
Mallow, Venice
Marestail
Morningglory, ivyleaf/entireleaf
Mustard, wild
Nightshade, black
Nightshade, eastern black
Nightshade, hairy
Pigweed, redroot
Pigweed, smooth
Pokeweed
Potatoes, volunteer
Purslane, common
Pusley, Florida
Radish, wild
Ragweed, common
Ragweed, giant
Sesbania, hemp
Shepherd's-purse
Sida, prickly
Smartweed, ladysthumb
Smartweed, Pennsylvania
Sunflower, common
Thistle, Canada
Velvetleaf
Waterhemp, common
Waterhemp, tall

Grass weeds:
Barnyardgrass*, **
Crabgrass, large**
Foxtail, giant*, **
Signalgrass, broadleaf**

* Partial control
** Apply before the weed exceeds two inches in height
Results from product development trials in 2012 and 2013 demonstrate Acuron delivers improved control and more consistent control than competitors including Corvus® and Verdict™ herbicides.

Comparison of Acuron and competitor products for pre-emergence control of problematic weeds.*

- Weeds tested were cocklebur, kochia, morningglory, Palmer amaranth, Russian thistle, sunflower, giant ragweed and waterhemp
- Acuron delivers improved and more consistent control than industry standards

> "Greater consistency means with a full rate of Acuron, farmers are getting a higher level of control more often, which means fewer weed escapes and less resprays versus today’s standards."

–Gordon Vail, Ph.D., Technical Product Lead for herbicides, Syngenta
SYNGENTA TRIALS IN IOWA

Untreated

Acuron Pre

SYNGENTA TRIALS IN NEBRASKA

Untreated

Acuron Pre fb. Touchdown Total®
“To see the new level of weed control Acuron will bring compared to the existing products on the market is very exciting. With four active ingredients, including bicyclopyrone, Acuron will offer improved control of difficult weeds like giant ragweed, morningglory, cocklebur, Russian thistle and kochia that farmers have been struggling with. It brings the level of control of those weeds up to an acceptable level well into the season.”

Scott Cully
Syngenta R&D Scientist
Illinois
“We’ve got some really tough weeds to control in this area – waterhemp and giant ragweed being the primary targets. I’ve had Acuron in my internal trial programs for a couple years now and it has looked fantastic compared to industry standards. We had Acuron at the University of Minnesota Rochester location, which is only about 20 minutes from my home site. They have a very serious population of giant ragweed. The performance of Acuron in trials was impressive compared to competitor treatments.”

Ryan Lins
Syngenta R&D Scientist
Minnesota

SYNGENTA TRIALS IN ILLINOIS

Untreated

Acuron Pre

“For us here in Ohio, one of our key driver weeds is giant ragweed. It is a problem weed for us. It is pretty much on every acre across the state. Acuron has come along and added the benefit of a higher level of consistency of control for this problem weed in Ohio.”

Dain Bruns
Syngenta R&D Scientist
Ohio
CROP SAFETY

In numerous trials, Acuron has shown to have an excellent crop safety profile.

Acuron is safe when applied pre-emergence to corn.

![Bar chart showing injury (%) comparison between Acuron and Lumax EZ at 1X and 2X rates.](source: HBI008A3-2013)
Weed Resistance MANAGEMENT

A strong weed resistance management strategy includes a herbicide program containing multiple modes of action. Acuron herbicide contains four herbicide active ingredients and three modes of action for overlapping control of key target species. Acuron is a combination of bicyclopyrone, atrazine, mesotrione and S-metolachlor (Group 5, 15 and 27 herbicides). When registered, the full labeled rate of Acuron applied pre-emergence will be very effective for managing resistant weeds.

“Everybody is concerned about how they are going to control resistant weeds. They are chomping at the bit for new products to come out, so they can manage this resistance problem. Not only is Acuron a new product, but a new product that works. I’m excited to have had a hand in doing research on this product and to work for an innovative company that invests in R&D across disciplines – weed science, disease control, insect control, traits – so we can combat the resistance issues that are starting to crop up across the world.”

– Cheryl Dunne, R&D Group Leader, Syngenta
## USE RECOMMENDATIONS

### Corn Type

<table>
<thead>
<tr>
<th>Acuron is expected to be registered for use in</th>
<th>Application Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field corn, seed corn, silage corn</td>
<td>Pre-emergence and post-emergence</td>
</tr>
<tr>
<td>Sweet corn</td>
<td>Pre-emergence only</td>
</tr>
<tr>
<td>Yellow popcorn</td>
<td>Pre-emergence only</td>
</tr>
</tbody>
</table>

### Use Rate

The full application rate of Acuron ranges from 2.5-3.0 qts/A depending on soil organic matter.

<table>
<thead>
<tr>
<th>Soil Organic Matter Content</th>
<th>Application Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 3%</td>
<td>2.5 qt/A</td>
</tr>
<tr>
<td>≥ 3%</td>
<td>3.0 qt/A</td>
</tr>
</tbody>
</table>

### Application Timing

For optimal weed control, Acuron should be applied before weeds emerge. When registered, Acuron can be applied:

- **Early pre-plant**: May be applied 28 days prior to planting
- **Pre-emergence or preplant incorporated**: May be applied as a broadcast application
- **Post-emergence alone or in tank mixture**: May be applied after corn emergence (but before corn reaches 12 inches in height) in field corn, seed corn or silage corn
- **In a two-pass program**:
  - Acuron applied pre-emergence followed by Acuron applied post-emergence
  - Apply 2.0 qt/A pre-emergence followed by a post-emergence application of non-HPPD containing herbicide
  - Apply 1.5 qt/A pre-emergence followed by a post-emergence application of Halex® GT + AAtrex® herbicide
Upon registration, Acuron will be labeled for use in tank mixture with other products. These tank-mix partners may be used in conventional reduced, or no-till systems, and be applied by the same methods and at the same timings as Acuron unless otherwise specified in the tank-mix product label.

- Acuron tank mixtures for applications prior to corn emergence
  - AAtrex* brands
  - Princep® brands
  - Gramoxone® brands
  - Touchdown® or Roundup® brands
  - Warrior II with Zeon Technology®

- Acuron tank mixtures for post-emergence applications
  - AAtrex* brands
  - Touchdown or Roundup® brands in glyphosate-tolerant corn
  - Liberty® in LibertyLink® corn

### Adjuvant Recommendations

- **Burndown or pre-emergence**
  - If weeds are present at time of application, either a non-ionic surfactant (NIS) or crop oil concentrate (COC) type product is recommended
  - If weeds are present at the time of application, ammonium sulfate (AMS) is also recommended

- **Post-emergence - Acuron applied alone**
  - Apply Acuron with a non-ionic surfactant (NIS)
  - The use of COC, methylated seed oil (MSO) or blended adjuvants are not recommended

- **Post-emergence - tank mixtures**
  - For Acuron tank mixtures with glyphosate, adding AMS is recommended. AMS is recommended for water conditioning, improved weed control activity, or both.
  - For Acuron tank mixtures with Liberty® (LibertyLink® hybrids only), AMS should be the only adjuvant added to this tank mixture, or severe crop injury may occur

*A tank-mix of an AAtrex brand herbicide with Acuron can provide additional control and consistency of control of difficult grass weeds. Refer to the AAtrex brand product labels for weeds controlled and other restrictions.
**Rotational Crops**

When Acuron is applied as directed on its label, follow the crop rotation intervals in the table below. If Acuron is tank mixed with other products, follow the most restrictive product’s crop rotation interval. Do not rotate to food or feed crops other than those listed on this label.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Replant/Rotational Interval ¹</th>
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</thead>
<tbody>
<tr>
<td>Field corn, Seed corn, Silage corn, Sweet corn, Yellow popcorn</td>
<td>Anytime</td>
</tr>
<tr>
<td>Small grain cereals including wheat, barley and rye</td>
<td>4 Months</td>
</tr>
<tr>
<td>Cotton, Peanuts, Potato, Rice, Soybeans, Sorghum (all types)</td>
<td>10 Months</td>
</tr>
<tr>
<td>All other rotational crops</td>
<td>18 Months</td>
</tr>
</tbody>
</table>

¹ Once registered, refer to the Acuron label for additional replanting and rotational instructions.

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**MODES OF ACTION AND SELECTIVITY**

With four active ingredients including new bicyclopyrone and three overlapping and complementary modes of action, Acuron will offer built-in corn weed resistance management and product stewardship to help reduce new seed production from weeds, lessening the seed bank and future problems.

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**Plastoquinone/Tocopherol Synthesis**

1. **Tyrosine**
2. **4-Hydroxyphenylpyruvate**
3. **Homogentisate**
4. **2-Demethylphytol-plastoquinone**
5. **2-Demethylplastoquinone**
6. **α-Tocopherol**
7. **Plastoquinone**

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**Carotenoid Synthesis**

1. **Glycerinaldehyde-3-Phosphate + Pyruvate**
2. **Isopentenyl-Phosphate**
3. **Geranyl-Pyrophosphate**
4. **Farnesyl-Pyrophosphate**
5. **Geranylgeranyl-Pyrophosphate**
6. **Phytoene**
7. **Phytoene desaturase**

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**Atrazine**

- **Blocked by mesotrione and bicyclopyrone**

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Bicyclopyrone and Mesotrione
(WSSA mode of action group – 28)

Bicyclopyrone and mesotrione act by blocking the function of the essential plant enzyme 4-hydroxy-phenylpyruvate dioxygenase (HPPD). They are both competitive inhibitors of HPPD and, by binding very tightly to the enzyme’s active site, it prevents the normal substrate (4-hydroxyphenyl pyruvate) from binding and renders the enzyme inactive. The direct result of blocking the function of HPPD is that plastoquinone and alpha-tocopherol are not produced. Without plastoquinone, the formation of carotenoid pigments is stopped, leading to bleaching in sensitive plants. The combination of these effects is lethal to weeds. Selectivity is due to the corn’s ability to rapidly metabolize (detoxify) bicyclopyrone and mesotrione into inactive compounds. This metabolism is mediated by cytochrome (P450) enzymes in both corn and weeds. In corn, the detoxification process is so rapid that no significant amounts of bicyclopyrone or mesotrione are translocated away from the treated area and injury does not occur. However, in susceptible weeds, the P450 enzymes cannot metabolize bicyclopyrone and mesotrione effectively. This allows extensive translocation in weeds and allows inhibition of HPPD in the sensitive new tissues.

S-metolachlor
(WSSA mode of action group – 15)

The primary mode of action of S-metolachlor is to block the formation of very long chain fatty acids. This is caused by the inhibition of elongase enzymes, which are required for the formation of very long chain fatty acids (C20, C22, and C24 fatty acids) from shorter chain fatty acid substrates (C16 and C18 chain lengths). Production of lipids and waxes required for cell membrane formation and plant growth is stopped. This results in the disruption of cell division and elongation. In turn, this results in the cessation of weed seedling growth shortly after germination and subsequent death. Selectivity of S-metolachlor is a result of the corn plant’s ability to metabolize S-metolachlor to inactive compounds much more rapidly than weeds. The enzyme glutathione-s-transferase (GST) is responsible for this metabolism and corn plants contain significantly larger amounts of GST than susceptible weeds. This accounts for the differences in tolerance between corn and weeds.
Atrazine is an inhibitor of photosystem II (PS II). By binding to the QB binding site of PSII, atrazine blocks the Hill reaction, which takes place in the chloroplasts. This results in the prevention of photosynthesis and the solar energy collected by the leaf is diverted into the formation of destructive reactive oxygen species (e.g. singlet oxygen) rather than the normal photosynthesis products. These destructive species build up to the point where chlorophyll, carotenoids and cell membranes are destroyed which results in death of the plant.

Strong synergy is observed on both grass and broadleaf weeds when mesotrione or bicyclopyrone are applied with atrazine. Synergy results when the HPPD-inhibiting herbicides deplete plastoquinone and effectively increase the effectiveness of atrazine binding to the QB binding site of photosystem II and also because the HPPD-inhibiting herbicides deplete the plant pigments that provide the front-line protection against the destructive reactive oxygen species that are the causative agents of PSII-herbicide damage.

Bicyclopyrone, atrazine and mesotrione are readily absorbed by the leaves, roots and shoots. Translocation occurs in both the xylem and phloem and results in rapid distribution throughout susceptible weed.

S-metolachlor uptake is primarily through the shoots of germinating seedling weeds. Some root uptake also occurs, but this is less pronounced and slower than through the shoots. Translocation is limited, but this is not an essential characteristic for the activity of S-metolachlor.
Physico-Chemical Properties of the Active Ingredients

<table>
<thead>
<tr>
<th>Chemical Name (IUPAC):</th>
<th>2-(4-mesy1-2-nitrobenzoyl)-3-hydroxycyclohex-2-enone</th>
<th>(S)-2-chloro-N-(2-ethyl-6-methyl-phenyl)-N-(2-methoxy-1-methyl-ethyl)-acetamide</th>
<th>6-chloro-N 2-ethyl-N 4-isopropyl-1,3,5-triazine-2,4-diamine</th>
<th>4-hydroxy-3[2-[(2-methoxyethoxy)methyl]-6-(trifluoromethyl)-3-pyridyl]carbonylbicyclo[3.2.1]oct-3-en-2-one</th>
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<tr>
<td>Chemical Abstracts Registry Number:</td>
<td>104206-82-8</td>
<td>87392-12-9</td>
<td>1912-24-9</td>
<td>352010-68-5</td>
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<tr>
<td>Common Name:</td>
<td>Mesotrione</td>
<td>S-metolachlor</td>
<td>Atrazine</td>
<td>Bicyclopyrone</td>
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<tr>
<td>Molecular Formula:</td>
<td>C\textsubscript{14}H\textsubscript{13}NO\textsubscript{7}S</td>
<td>C\textsubscript{15}H\textsubscript{22}ClNO\textsubscript{2}</td>
<td>C\textsubscript{8}H\textsubscript{14}ClN\textsubscript{5}</td>
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<td>Chemical Structure:</td>
<td><img src="image1" alt="Molecular Structure of Mesotrione" /></td>
<td><img src="image2" alt="Molecular Structure of S-metolachlor" /></td>
<td><img src="image3" alt="Molecular Structure of Atrazine" /></td>
<td><img src="image4" alt="Molecular Structure of Bicyclopyrone" /></td>
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<tr>
<td>Molecular Weight:</td>
<td>339.32 g/mol</td>
<td>283.8 g/mol</td>
<td>215.68 g/mol</td>
<td>399.36 g/mol</td>
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<tr>
<td>Appearance:</td>
<td>pale yellow solid</td>
<td>extremely pale-yellow, clear liquid</td>
<td>white solid</td>
<td>beige to brown solid</td>
</tr>
</tbody>
</table>
Acuron is a 3.44 lb/gal liquid formulation comprised of four active ingredients plus a corn safener.

<table>
<thead>
<tr>
<th>Component</th>
<th>lb/gal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicyclopyrone</td>
<td>0.06</td>
</tr>
<tr>
<td>Mesotrione</td>
<td>0.24</td>
</tr>
<tr>
<td>S-metolachlor</td>
<td>2.14</td>
</tr>
<tr>
<td>Atrazine</td>
<td>1.0</td>
</tr>
<tr>
<td>Benoxacor</td>
<td>0.107</td>
</tr>
</tbody>
</table>

“As weed resistance expands, farmers need more robust pre-emerge residual herbicides with multiple modes of action to control tough weeds and Acuron will fit nicely. This product will take large-seeded broadleaf weed control to the next level, while still providing the same, excellent performance on small-seeded broadleaf weeds and grasses that farmers have come to expect from Syngenta corn herbicides.”

– Gordon Vail, Ph.D., Technical Product Lead for herbicides, Syngenta
For more information, visit www.acuron-herbicide.com.
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