Managing Volunteer Corn in Soybean and Corn Fields

Historically, volunteer corn has not been an issue for grain crop producers. However, problems have increased in recent years (Figure 1). Volunteer corn can be more than a nuisance and can lead to yield losses in both corn and soybean. Various management options are available to help prevent and/or control volunteer corn as well as remove an existing stand of corn in a replant situation.

**Effects on Yield Potential**

Volunteer corn generally has a minimal effect on corn yield potential, especially if management tools are employed. A study in Indiana indicated significant soybean yield loss starts to occur at 12 plants per 20 square feet (or 26,136 plants per acre). Research in South Dakota indicated soybean yield reductions of 50 to 60% at densities of 26 plants per 20 square feet (or 56,635 plants per acre). Remember to consider the distribution of volunteer corn when evaluating the potential yield loss. While 12 plants per 20 square feet may be realistic in a small area of the field, volunteer corn densities are less likely to be that high throughout the entire field.

In addition to the potential for yield loss, volunteer corn can also attract corn rootworm. Volunteer corn left in soybean fields can allow rootworm larvae to complete their life cycle which can result in higher rootworm populations for the next growing season. The potential increase in rootworm population may result in significant yield losses in fields that rotate to corn the following year. Additionally, if left to tassel, volunteer corn can attract adult rootworm beetles that can lay eggs. Managing volunteer corn early in the season is the best method to reduce the potential for reduced yield from rootworm activity.

**Volunteer Corn Prevention Tips**

- Corn products should be selected with good standability, stalk strength and ear retention characteristics.
- Insect protection traits can help reduce ear drop along with ear and kernel loss.
- Harvesting early can help minimize lodging.
- Making proper adjustments to the combine can help minimize harvest loss.

**Pre-Plant Management Tips**

- Using no-till practices can minimize seed-to-soil contact, thereby hindering germination.
- In conventional till situations, early fall tillage can stimulate germination and emergence prior to a winter freeze, thus reducing the potential for emergence the following spring.

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**Table 1. Herbicide Options for Controlling Volunteer Corn in Soybean:**
The following recommendations apply to burndown and in-crop applications.

Select Max® grass herbicide can be tank mixed with Roundup® brand agricultural herbicides to control volunteer corn in Roundup Ready® soybean. Select Max use rate depends on volunteer corn height:

- Corn 12 inches or less—6.0 oz/acre
- Corn 24 inches or less—9.0 oz/acre
- Corn 36 inches or less—12.0 oz/acre

Select Max® does not require additional surfactant with Roundup® agricultural herbicides.
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If volunteer corn pressure is extremely high, consider planting soybean versus corn. There are more herbicides labeled for soybean that offer good control of volunteer corn.

If there is a field with particularly high volunteer corn pressure, consider planting it last to allow as much of the volunteer corn to germinate prior to the final control measures (tillage, herbicides, etc.) prior to planting.

In corn-on-corn fields, the best option to control volunteer corn is to consider applying a burndown application of Select Max® or Gramoxone® plus a photosynthetic inhibiting herbicide prior to corn planting (Table 2). The addition of metribuzin in the tank mixture with Gramoxone is recommended to improve the control of volunteer corn and provide residual weed control.1

Corn Replant Management Tips

- Tillage can help remove a poor corn stand.
- Herbicide options for controlling volunteer corn in a replant situation can be found in Table 2. A plant back restriction of six days makes Select Max® a favorable option for controlling corn in a continuous corn replant situation. Other graminicides, such as Assure® II and Fusion®, have plant back restrictions of 60 to 120 days, which is not feasible in many burndown or replant situations.

Glufosinate can be a tool to help manage glyphosate tolerant volunteer corn if the corn crop contains LibertyLink® technology, such as with Genuity® SmartStax® RIB Complete® corn. When applicable, be sure that the refuge also is tolerant to glufosinate. Follow all label directions, as control can be variable depending on corn growth stage and environmental conditions.

Integrating management tools for prevention can help relieve the need for the rescue situations in corn. Using prevention and control tactics will likely provide the best results.

Table 2. Herbicide Options for Controlling Volunteer Corn In Continuous Corn:
The following recommendations apply to burndown and replant situations. Control prior to crop emergence is critical as post-emergence options are limited.

<table>
<thead>
<tr>
<th>Option 1:</th>
<th>6.0 oz/acre</th>
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<tbody>
<tr>
<td>Select Max®</td>
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<tr>
<td>Non-ionic Surfactant</td>
<td>0.25% v/v</td>
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<tr>
<td>Ammonium Sulfate</td>
<td>2.5 to 4.0 lbs./acre</td>
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</table>

- Apply in a minimum of 10 gallons of water per acre.
- May be applied as a tank mixture with Roundup® brand agricultural herbicides.
- Application should be made prior to volunteer corn reaching 12 inches in height.
- Do not use a crop oil concentrate (COC) or methylated seed oil (MSO).
- Plant or replant corn no sooner than 6 days after application.
- Care must be taken to avoid in-field boom (spray) overlaps or excessive crop injury may occur.

<table>
<thead>
<tr>
<th>Option 2:</th>
<th>2.5 pt/acre (for corn 1 to 3” tall) or 3.0 pt/acre (for corn 3 to 6” tall)</th>
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<tbody>
<tr>
<td>Gramoxone Inteon®</td>
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<tr>
<td>Metribuzin DF®</td>
<td>3.0 oz/acre</td>
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<tr>
<td>COC</td>
<td>1% v/v</td>
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</tbody>
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- Apply in minimum of 20 gallons of water per acre.
- There are no plant back restrictions.
- Clarity® herbicide may be added at 8.0 oz/acre for enhanced control of marestail and other tough-to-control broadleaves.
- 2,4-D at 1.0 pt/acre may be added, but typically requires a 7 day plant back interval.
- Check the Clarity® and 2,4-D labels for specific instructions.

Sources:

For additional agronomic information, please contact your Asgrow®, DEKALB® and Deltapine® Brands Seed Representative.

AsgrowandDEKALB.com Deltapine.com