Soybean Harvest Aids

- Harvest aid herbicide application may help desiccate weeds and the crop to provide for a timely harvest while helping to preserve yield and provide cleaner seed at harvest.

- Application timing is critical for good herbicide efficacy, protection of seed yield and quality, and to adhere to all pre-harvest intervals.

- The harvest aid products available for use in soybean have unique attributes that differ in speed of activity, efficacy, pre-harvest intervals, and re-cropping restrictions.

Soybean herbicide harvest aids can serve multiple purposes. In some regions, harvest aids are used to desiccate the green tissue (pods, leaves, and stems) on physiologically mature soybean plants to help promote harvest efficiency. Harvest aids can also be used to help desiccate weeds that may interfere with harvest operations. The potential to provide weed control benefits or reduce weed seed viability is highly dependant on the herbicide used, weed size, and application timing.

Harvest Aid Considerations

Things to consider prior to the selection and application of a harvest aid product:

- The advantages of using a harvest aid product include potentially better harvested seed quality, earlier harvest, and/or increased harvesting efficiency. However, an improvement in overall yield potential is not an expectation.

- Pre-harvest herbicides do not speed up maturity, or make soybean seed dry down faster, they only serve to drop remaining leaves and dry out green material. A harvest aid may facilitate the drying of pods, making them easier to harvest.

- Desiccants can reduce green vegetation, but do not help remove excessive moisture from the seed. The addition of sodium chlorate to a desiccant can help to remove excessive moisture from green soybean tissue and/or seed, and provide control of weeds.

- If possible, avoid applying a desiccant just before a rain.

- Harvest the desiccated soybean crop as the harvest aid label allows.

- Weeds that are drought stressed may not be desiccated effectively.

- Crop and weed drydown may be slowed during periods of cool, wet weather. Additional time beyond the pre-harvest interval may be needed to dry down large weeds.

Application Timing

The commonly used harvest aid products have specific instructions regarding application timing (Table 1). Once soybean plants reach the R6 growth stage it is a good time to begin sampling fields in preparation for a harvest aid application. In general, it is advisable to wait until the plants have reached the R7 growth stage, which is when rapid leaf yellowing begins and one or more pods reach the mature brown or tan color. Once seeds turn yellow, they begin to separate from the white membrane of the pod, indicating that seed filling is reaching completion and an application may be considered. Application of a product prior to label instructions can reduce seed yield potential or quality. To determine the growth stage of a soybean field, randomly collect pods from the top 1/3 of plants throughout the field and examine the pod and seeds to determine if all of them meet the criteria for an application as specified by the product label.

Harvest Aid Products

Gramoxone® SL, Sharpen® powered by Kixor®, Aim® EW, and Clarity® can be used as harvest aids in soybean (Table 1). Each product has unique attributes and products differ in speed of activity, efficacy, pre-harvest intervals, and re-cropping restrictions. Please check product labels prior to use for specific recommendations and precautions.

Spray coverage is essential to the success of contact herbicides. Gramoxone SL is a contact herbicide, which can provide the quickest desiccation of soybean plants and should be applied in at least 20 gallons of water/acre for good coverage.

Translocated herbicides, like Sharpen or Clarity, are taken up and move through the plant requiring more time for more complete activity. A tank mixtures may provide the best combination of crop desiccation and weed control. Spray adjuvants are typically recommended with harvest aid products to improve coverage and efficacy.

Pre-harvest Weed Management

Low densities of weeds have been shown to reduce harvest efficiency. A research study showed that the presence of broadleaf weed densities (selected to be below a yield loss threshold) at harvest reduced cylinder and combine speed. The amount of foreign material nearly doubled, while damaged soybean seed and soybean seed moisture increased, compared to the weed-free control plots.
Soybean Harvest Aids

Table 1. Recommendations for the use of some harvest aid products for soybean.5

<table>
<thead>
<tr>
<th>Product</th>
<th>Timing</th>
<th>Rate/A Pre-harvest Interval</th>
<th>PHI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundup WeatherMAX®</td>
<td>Genuity® Roundup Ready 2 Yield® Soybean</td>
<td>22 fl oz/A</td>
<td>PHI 14 days¹</td>
</tr>
<tr>
<td>Roundup WeatherMAX®</td>
<td>Non-glyphosate tolerant soybean - Pods have set and lost all green color.</td>
<td>44 fl oz/A - aerial, 3.3 qt/A – ground</td>
<td>PHI 7 days¹</td>
</tr>
<tr>
<td>Gramoxone® SL</td>
<td>Indeterminate Seed Products - at least 65% of pods are a mature brown color or when seed moisture is 30% or less.</td>
<td>8 - 16 fl oz/A</td>
<td>PHI 15 days²</td>
</tr>
<tr>
<td>Sharpen® (powered by Kixor® Herbicide)*</td>
<td>Indeterminate Seed Products - greater than 65% brown pods and greater than 70% leaf drop or when seed moisture is 30% or less. 'Determinate Seed Products' - seeds are fully developed, 1/2 leaves have dropped and remaining leaves are yellowing.</td>
<td>1 - 2 fl oz/A</td>
<td>PHI 3 days²³</td>
</tr>
<tr>
<td>Aim® EC*</td>
<td>Crop is mature and grain has begun to dry down. To defoliate and/or desiccate troublesome broadleaf weeds e.g. morningglories, pigweeds, and velvetleaf that may be present at harvest.</td>
<td>1 - 1.5 fl oz/A</td>
<td>PHI 3 days²</td>
</tr>
<tr>
<td>Clarity®</td>
<td>Pods have reached mature brown color; at least 75% leaf drop has occurred.</td>
<td>8 - 32 fl oz/A</td>
<td>PHI 7 days²</td>
</tr>
</tbody>
</table>

1See label for grazing, hay, or fodder preharvest interval.
2Do not graze or feed treated soybean fodder/orange to livestock.
3Do not apply on soybean grown for seed production.

Pre-harvest herbicides most likely will not prevent weed seed production, but some research has demonstrated a reduction in weed seed production and seed viability.3,4 Keep in mind that results can be influenced by the type of herbicide used, weed species, and application timing in relation to weed seed development.5 Pre-harvest herbicides that are translocated within weed species have the potential to reduce seed viability when applied during the initial seed set stage of weed growth. Precise herbicide application timing is required to have any effect on weed seed viability. In most cases, the application timing may not coincide with label restrictions for application to the crop to prevent crop seed injury or herbicide residues in crop seed. Weed competition should be addressed early in the season to protect crop yield potential and reduce weed seed production. In situations where crop growth or canopy closure is delayed and weeds continue growth late in the season, pre-harvest herbicide applications may be used to help increase harvest efficiency.

Summary

The application of certain herbicides prior to harvest can be used to help manage late-season weeds that could interfere with harvest efficiency. Additionally, these products can be used to help desiccate aboveground green soybean tissues to also improve harvest efficiency. The type of herbicide used, weed species present, and application timing are all factors that can affect harvesting efficiency.

Sources


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