



STINE SEED COMPANY | ADEL, IOWA

SMARTER SEED FOR SMARTER FARMERS

## Weed Control Key to Protecting Soybean Yields

Each growing season, soybean growers are faced with a multitude of decisions that will impact the yield opportunity for their crops. One of the most important of these decisions is weed management. Weeds not only steal moisture, nutrients and sunlight from crops, they can also harbor insect pests, diseases and undermine crop quality.

Choosing the right herbicide program is a key component to complete weed control in soybeans. These days, Stine's most popular soybeans feature built-in resistance to glyphosate. Recently, however, in some areas of the United States some weed species are becoming resistant to glyphosate. Herbicide-resistant weeds can be present in a field for up to two years before being discovered. If this problem is not addressed quickly, the weeds spread seed and establish themselves, making it much more difficult to fix the problem.

### But what can growers do to make sure that herbicide-resistant weeds don't harm yield?

For best results, growers should observe all of their fields to identify specific weed pressures, vary their herbicide treatments based on weed species and pressures in order to establish a sound weed management program. This can include a broad-spectrum soil treatment in addition to an over-the-top glyphosate or glufosinate application, and documenting any known weed issues.

One of the most effective ways to manage the risks of herbicide-resistant weeds is to alternate herbicide chemistries with different modes of action, for example rotating between glyphosate and glufosinate. Wise crop husbandry and crop rotations can also help producers reduce the risk of developing herbicide-resistant weeds.



One of the most effective ways to manage the risks of herbicide-resistant weeds is to alternate herbicide chemistries with different modes of action, for example rotating between glyphosate and glufosinate.



STINE HAS YIELD

## THE ROOTS OF GLYPHOSATE

Glyphosate, better known as Roundup, first came into commercial use in 1974 as a broad-spectrum herbicide. In 1996, it was introduced as the herbicide component in the new Roundup Ready® seed-herbicide system. This led to widespread usage of Roundup Ready products and glyphosate.

Glyphosate is absorbed by plant tissue and dispersed to the root system of the plant and is most effective in controlling perennial, grass weeds and broadleaf plants. A crop can be planted soon after application as the herbicide has no residual soil activity.

For years glyphosate has been the one and only option for nonselective over-the-top weed control application. While glyphosate is still one of the most effective weed control methods, glyphosate resistance is occurring.



Glyphosate, better known as Roundup, first came into commercial use in 1974 as a broad-spectrum herbicide.

## THE ROOTS OF GLUFOSINATE

Glufosinate, better known as Ignite® or Liberty, was introduced in the United States in 1993. It is the only nonselective alternative to glyphosate-tolerant soybean systems, with no known weed resistance. This herbicide hinders the plant enzyme involved in the early stages of nitrogen metabolism. As a post-emergence herbicide, it's similar to glyphosate in terms of weed species control, application processes and lack of soil-residual activity. It allows growers to rotate nonselective herbicides to manage weed resistance and preserve the utility of herbicide-tolerant technologies. Glufosinate is the active ingredient in Ignite® herbicide, which is a key component of the LibertyLink® soybean system.



Glufosinate is the active ingredient in Ignite® herbicide, which is a key component of the LibertyLink® soybean system.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready® crops contain genes that confer tolerance to glyphosate, the active ingredient in Roundup® brand agricultural herbicides. Roundup® brand agricultural herbicides will kill crops that are not tolerant to glyphosate. Acceleron and Design®, Genuity®, Genuity and Design®, Genuity Icons, Roundup®, Roundup PowerMAX®, Roundup Ready®, Roundup Ready 2 Technology and Design™, Roundup Ready 2 Yield®, SmartStax™, SmartStax and Design™, VT Triple PRO™, and YieldGard VT Triple® are trademarks of Monsanto Technology LLC. Ignite® and LibertyLink® and the Water Droplet Design® are registered trademarks of Bayer. Herculex® is a trademark of Dow AgroSciences LLC. Respect the Refuge® and Respect the Refuge and Corn Design® are registered trademarks of National Corn Growers Association. SmartStax™ multi-event technology developed by Monsanto Company and Dow AgroSciences. All other trademarks are the property of their respective owners. ©2010 Monsanto Company.

Ignite®, LibertyLink®, the LibertyLink® logo, and Water Droplet logo are registered trademarks of Bayer.

