

A Quick Guide to Using LibertyLink Soybeans Effectively



Bill Johnson
Professor of Weed Science
Joe Ikley
Weed Science Program Specialist
Purdue University

Mark Loux
Professor of Weed Science
The Ohio State University



LibertyLink soybeans and glufosinate herbicide (Liberty, Cheetah, others) are effective tools to control annual weeds and break the cycle of continuous glyphosate use. Glufosinate is effective for control of many ALS-, glyphosate- and PPO-resistant weeds, including marestail, waterhemp, Palmer amaranth, and common and giant ragweed. To ensure successful weed control with the LibertyLink system, glufosinate must be integrated into a comprehensive herbicide program. This publication provides guidelines for the successful management of weeds in LibertyLink soybeans.

Use Tillage or Burndown to Ensure a Weed-Free Start DO NOT PLANT "GREEN"

Postemergence glufosinate treatments cannot be expected to clean up weeds that were not controlled at planting. A successful program starts weed-free at planting by using either tillage or one of the following burndown treatments:

- 2,4-D ester (0.5 lb ae) + glyphosate (1 to 1.5 lb ae)
- Sharpen (1 oz) + glyphosate (1 to 1.5 lb ae)
- 2,4-D ester (0.5 lb ae) + Sharpen (1 oz) + glyphosate (1 to 1.5 lb ae)
- 2,4-D ester (0.5 lb ae) + Gramoxone (3 to 4 pts) + metribuzin (4 to 6 oz ai)

It is advised to omit Liberty from burndown treatments in order to provide maximum flexibility for postemergence use. Only two Liberty applications and a total of 87 fl oz/A are allowed in a growing season. Consider use of a fall herbicide treatment to ensure that spring burndown treatments effectively control marestail.

Use Labeled Rates of Residual Herbicides

Residual herbicides reduce weed densities, slow weed emergence, and provide flexibility in the postemergence application window. Use of a residual herbicide premix that targets troublesome broadleaves and suppresses grasses is most ideal. *The LibertyLink system is most likely to fail where residual herbicides are not used.*

Marestail:

- Authority First/XL/Assist/Maxx, Envive/Enlite, Fierce/FierceXLT, Rowel FX, Sonic, Spartan, Surveil, Trivence, or Valor/Valor XLT
- Metribuzin-containing products or mixtures that provide at least 0.38 to 0.5 lb ai/a
- Mixtures of an Authority or Valor-based premix with metribuzin are most effective in dense marestail infestations.

Waterhemp or Palmer amaranth:

- **Best:** BroadAxe XC, Fierce/FierceXLT, or Trivence
- **Good:** Anthem, Authority Assist/First/MTZ/Maxx/XL, Envive/Enlite, Rowel FX, Sonic, Surveil, Valor/Valor XLT, or Zidua
- **Fair:** Outlook, Optill PRO, pendimethalin, Prefix, S-metolachlor, Warrant, or Warrant Ultra

Lambsquarters:

Any residual herbicide except Outlook, Warrant, or S-metolachlor

Giant ragweed:

Authority First/Maxx/XL, Canopy/Cloak DF or EX, Envive/Enlite, Fierce XLT, FirstRate, Rowel FX, Scepter, Sonic, Surveil, Trivence, or Valor XLT

LibertyLink Soybean Quick Guide

Apply Glufosinate According to Weed Size

Postemergence applications should be made to 3- to 6-inch weeds at a rate of 32 fl oz/A (*less than 3 inches for Palmer amaranth and waterhemp*). A second postemergence application may be necessary for tough to control weeds such as giant ragweed, waterhemp, and Palmer amaranth. If environmental conditions prevent timely application and broadleaf weeds are 6 to 10 inches tall, a rate of up to 43 fl oz may be used, and a sequential application of 32 to 43 fl oz can be used as long as the season maximum of 87 fl oz/A is not exceeded. Dense populations of giant ragweed are most effectively controlled with a planned two-pass postemergence program – first application when plants are 6 to 10 inches tall, and the second three weeks later.

POST Grass Herbicides May be Needed

Glufosinate can be weak on some annual grasses, specifically barnyardgrass, crabgrass, and yellow foxtail. If these species are not adequately controlled with a residual herbicide, it may be advantageous to include a grass herbicide (Select, Assure II, Fusilade, Fusion, Poast, etc.) with the postemergence glufosinate application. These postemergence herbicides will also control volunteer corn.

POST-applied Residuals Provide Extra Insurance on Pigweeds

The addition of herbicides such as S-metholachlor, Outlook, Warrant, or Zidua to the first postemergence application will provide an additional layer of residual to control later-emerging grasses and small-seeded broadleaf weeds (Palmer amaranth and waterhemp). This additional layer of residual can extend the window for a second Liberty post application or even provide enough control that a second postemergence application is unneeded.

Proper Sprayer Setup Will Ensure Successful Results

Spray volume (GPA) – glufosinate should be applied in a minimum of 15 gpa. Increasing this to at least 20 gpa will improve control in denser weed situations, where it is more difficult to attain thorough spray coverage.

Spray droplet size/nozzles – Apply glufosinate using nozzles and pressure that produce medium to coarse sized spray droplets to ensure thorough coverage. Avoid use of nozzles that produce very coarse to ultra coarse droplets. Fine sprays should be avoided to minimize spray drift.

Adjuvants – Liberty should be applied with ammonium sulfate (AMS) at the rate of 3 lbs/A. Anti-foam and drift control agents may be added if needed.

Do Not Spray at Night or Under Adverse Conditions

Spray between 2 hours after dawn and 2 hours before sunset to avoid the possibility of reduced weed control. Avoid spray applications when heavy dew, fog, mist/rain is present, or when weeds are under stress due to environmental conditions such as drought, cool temperatures or extended periods of cloudiness. Glufosinate activity is maximized in warm, sunny weather.

Find the latest weed management information and tools from Purdue: <https://ag.purdue.edu/btny/weedscience>

Find the latest weed management information and tools from Ohio State: <https://u.osu.edu/osuweeds/>

It is the policy of the Purdue University Cooperative Extension Service that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran.

Purdue University is an Affirmative Action institution. This material may be available in alternative formats.