

Herbicide Programs for non-GMO Soybeans

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Essential components of non-GMO weed management

- Weed-free start at planting through use of tillage or preplant burndown herbicides
- Apply residual (PRE) herbicides in spring before soybeans emerge, to reduce weed populations, slow weed growth, and create flexibility in the postemergence application window
- Apply the first postemergence (POST) treatment when weeds are small - less than 4 to 6 inches
- Where needed to control late-emerging weeds, a second POST treatment should be applied about 3 weeks after the first POST treatment

Spring preplant burndown programs

- Burndown should include either:
 - a. glyphosate (0.75 lb or higher) + 2,4-D ester (0.5 lb or higher), or
 - b. paraquat + 2,4-D ester (0.5 lb or higher) + metribuzin 75DF (6 oz or higher)
- Use of 2,4-D ester and soybean planting
 - a. 0.5 lb – 7 days before planting (any ester product)
 - b. 1.0 lb – 15 days before planting for Salvo, E99, Weedone 650 (30 days for other ester products)
- Apply when marestail are less than 4 inches tall – the smaller the better
- For most effective dandelion control, apply a mixture of glyphosate + 2,4-D ester + a residual product that contains chlorimuron (Canopy DF/EX, Valor XLT, Envive) or cloransulam (FirstRate, Gangster, Sonic, Authority First).

Use a broad-spectrum residual (PRE) herbicide

- residual should accomplish the following: 1) control lambsquarters and marestail, including ALS-resistant populations; 2) have activity on giant ragweed; and 3) control or have activity on common ragweed, including ALS-resistant populations.
- Herbicide effectiveness ratings of 8 to 9 indicate “control”, and ratings of 6 or 7 indicate “has activity on”. More extensive ratings can be found in the “Weed Control Guide for Ohio and Indiana”.

	AMG	BNS	CRW	CRW ALSR	GRW	GRW ALSR	LBQ	MTL	MTL ALSR	PIG	VEL	WAH
<i>Auth Assist</i>	8	9	6	-	-	-	9	8	8	9	8	8
<i>Auth First/Sonic</i>	8	8	9	-	7	-	9	9	8	9	8	8
<i>Canopy DF</i>	7	-	9	-	7	-	9	9	6	9	8	6
<i>Envive/ValorXLT</i>	8	9	9	7	7	-	9	9	8	9	8	8
<i>Gangster</i>	8	9	9	7	7	-	9	9	8	9	8	8
<i>Metribuzin</i>	-	-	7	7	-	-	9	8	8	9	7	8
<i>Python</i>	-	8	7	-	-	-	9	8	-	8	8	-
<i>Scepter</i>	7	9	8	-	7	-	9	6	-	9	7	-
<i>Valor</i>	7	9	7	7	-	-	9	8	8	9	7	8

Weed abbreviations: AMG = annual morningglory; BNS = black nightshade, CRW = common ragweed; GRW = giant ragweed, LBQ = lambsquarters, MTL = marestail, PIG = pigweed, VEL = velvetleaf, WAH = waterhemp;

Suggested POST programs

- Apply first POST when weeds are less than 4 to 6 inches tall. Use spray volume of at least 15 gpa and nozzles that produce medium-sized droplets.
- Flexstar (1.3 - 1.5 pts/A) + grass herbicide (Select, Fusion, etc) + COC or MSO + AMS
 - a. can replace AMS with 28%, which may improve weed control but also increases crop injury
 - b. can add FirstRate, Classic or Synchrony to improve control of ALS-sensitive weeds
- Apply Cobra or Phoenix (10 oz/A) 3 weeks later if ragweed not dead, or to control late-emergers
 - a. can add low rate of grass herbicide (Select, Fusion, etc) for small late-emerging grass
- In fields without ALS-resistant weeds (be very sure about this before you go this route), it is possible to take the following approach in the first POST application: FirstRate (0.3 oz/A) or Classic (2/3 to 3/4 oz/A) + grass herbicide + COC or MSO + AMS. Flexstar (3/4 to 1 pt/A) can be added to to improve control of ragweeds. In STS soybeans, a full rate of Synchrony XP can be used instead of FirstRate or Classic.

Approximate cost of herbicide programs for non-GMO soybeans

	ALS-resistant weeds	No ALS-resistant weeds
Preplant burndown	\$12 to \$20	\$12 to \$20
Residual (preemergence)	\$12 to \$16	\$12 to \$16
Postemergence (one app)	\$28 to \$44	\$17 to \$41
Total cost	\$52 to \$80	\$41 to \$77

In fields where a second POST treatment is needed, the total cost will increase by approximately \$15. Costs shown here do not include the cost of application, which typically ranges from \$4 to \$8 per acre.

Some final considerations

Where do non-GMO soybeans fit? Weed control requires a higher level of management and is generally more difficult in nonGMO soybeans compared with Roundup Ready or Liberty Link soybeans. Placing non-GMO soybeans in fields with a history of adequate weed control and a general lack of herbicide-resistant weeds will help ensure that weed management is successful. Fields with ALS-resistant weed populations and/or a history of poor weed control should be avoided where possible.

Fall herbicide treatments. Residual herbicides are most effective and long-lasting when applied in the spring, not in the fall. Fall herbicide treatments should be used to manage winter annuals and dandelions, and should generally be followed by a spring preplant treatment that includes residual herbicides (in other words, don't substitute the fall treatment for a spring preplant treatment). Where a fall application is necessary, we suggest applying either: glyphosate + 2,4-D; or 2,4-D + a low rate of Canopy EX or Canopy DF. This should be followed with a spring preplant application of a low rate of 2,4-D or glyphosate plus a residual herbicide. It is possible to follow fall application of a low rate of Canopy EX or DF with another chlorimuron-containing herbicide in the spring, as long as the total amount of chorimuron between fall and spring applications does not exceed maximum labeled rate for soil type.

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