Control of Marestail in No-till Soybeans

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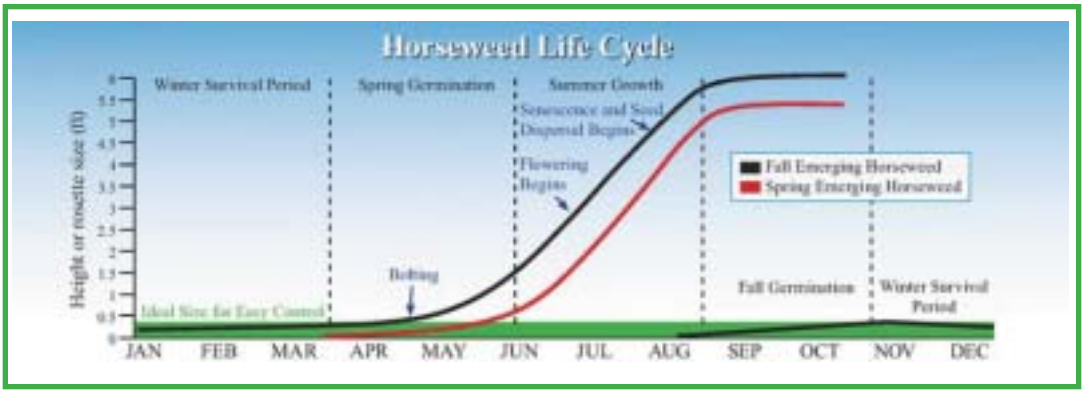
Marestail Biology

- Marestail (also known as horseweed) is one of the most problematic weeds in no-till soybeans in Ohio and Indiana.
- Marestail has two primary periods of emergence - from late summer into fall, and from late March through June. It is one of the first annual weeds to emerge in the spring and is present before crops are planted.
- Marestail plants remain in the low-growing rosette stage through late April, followed by stem elongation (bolting) and growth to an eventual height of 3 to 6 feet. Plants that emerge the previous fall will start stem elongation earlier than spring-emerging plants.
- Marestail competes with the soybeans during the growing season, reducing yield. It matures in late summer or early fall, late enough to interfere with soybean harvest.



Herbicide activity and resistance in marestail

- Herbicide programs must consist of a burndown to ensure that the field is free of marestail at the time of soybean planting, and residual (PRE) herbicides to control marestail for another 6 to 8 weeks. Where marestail emerge between an early spring burndown and planting, additional burndown herbicide should be applied before soybeans emerge.
- Marestail is most readily controlled when in the rosette stage, and herbicides should always be applied before plant height exceeds 4 inches. Larger plants become difficult to control, even when not herbicide-resistant.
- Marestail populations with resistance to glyphosate or ALS inhibitors (e.g. Classic, FirstRate) are widespread throughout Ohio and Indiana, which increases the difficulty of control. Populations with multiple resistance, to both glyphosate and ALS inhibitors, have also been confirmed.
- Only a few POST soybean herbicides have activity on marestail - glyphosate, Ignite, chlorimuron (Classic), and FirstRate. POST herbicides are effective primarily when plants are newly emerged and several inches tall, and only in populations that are not herbicide-resistant, with the exception of Ignite in Liberty Link soybeans.

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Key points for controlling marestail in no-till soybeans

- Do not plant into existing stands of marestail. Start weedfree at the time of planting by using tillage or a preplant herbicide treatment of one of the following, applied when marestail plants are less than 4 inches tall.

  2,4-D ester plus glyphosate (1.5 lb ae/A)

  2,4-D ester plus Gramoxone (3 to 4 pts/A) plus a metribuzin-containing herbicide

  2,4-D ester plus Ignite (29 to 36 oz/A) plus a metribuzin-containing herbicide

  Sharpen (1 oz/A) plus either glyphosate or Ignite

- The burndown effectiveness of any of these can often be improved by including a residual herbicide that contains chlorimuron (e.g. Canopy, Valor XLT, Envive) or cloransulam (e.g. Gangster, Sonic, Authority First).
- Use the highest rate of a 2,4-D ester product that is allowed, based on the interval between application and soybean planting. For all 2,4-D ester products, rates up to 0.5 lb active ingredient per acre must be applied at least 7 days before planting. Rates between 0.5 and 1.0 lb should be applied at least 30 days before planting, with the the exception of several products (e.g. E-99, Salvo, and Weedone 650) that allow these rates to be applied 15 days before planting.
- Where it is not possible to use 2,4-D ester, a combination of Sharpen plus either glyphosate or Ignite will effectively control emerged marestail prior to soybean emergence. A combination of Ignite (29 to 36 oz/A) and metribuzin (at least 0.38 lb ai/A) is also usually effective. Other potentially effective options include combinations of glyphosate plus a herbicide containing chlorimuron or cloransulam (results can be variable depending upon size of the marestail and herbicide resistance).
- Include one or more of the following PRE herbicide(s) for residual control of marestail:

ALS-sensitive populations	*ALS-resistant populations*
Authority Assist, Authority First, Authority MTZ, Canopy DF/EX, Enlite, Envive, FirstRate, Gangster, metribuzin, Python, Sonic, Spartan, Synchrony, Valor, Valor XLT	Authority Assist, Authority First, Authority MTZ, Enlite, Envive, Gangster, metribuzin, Sonic, Spartan, Valor, Valor XLT

- Where POST treatments are needed, apply when marestail are less than 6" tall. The most effective POST treatments in Roundup Ready soybeans include combinations of glyphosate plus Classic or FirstRate.

Consider Liberty Link soybeans

Liberty Link soybeans are an effective tool for management of herbicide-resistant marestail populations. The most effective approach includes application of burndown and residual herbicides as indicated above, to ensure a weedfree start at planting and residual control. This can be followed with one or two POST applications of Ignite as needed to control later-emerging marestail, when plants are less than 6 inches tall. The current Ignite label allows use of Ignite in either the burndown or the POST treatments, but not both.

What about fall herbicide treatments?

Residual herbicides are most effective and long-lasting when applied in the spring, not in the fall. Fall herbicide treatments can be used to manage emerged marestail, winter annuals, and dandelions, but 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). Do not expect a fall herbicide treatment to adequately control marestail that emerges in May or June. 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 residual herbicide (plus 2,4-D, glyphosate, Gramoxone or Sharpen as needed).

Note on glyphosate rates. Glyphosate rates are shown here as "lbs ae/A", or "pounds of acid equivalent per acre". The rate of "1.1 lb ae/A" corresponds to: Roundup WEATHERMAX/PowerMAX - 33 oz/A; Touchdown Total/Duramax - 36 oz/A; all glyphosate products containing 3 lbs glyphosate acid per gallon - 48 oz/A. See Table 23 in the "Weed Control Guide for Ohio and Indiana" for more information.

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