UGA Programs for Controlling Ryegrass and Wild Radish in 2021/2022 Wheat

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Ryegrass is the greatest weedy threat to wheat production in Georgia. Most ryegrass escapes are a result of 1) planting into fields already infested with emerged ryegrass and/or 2) making herbicide applications after the ryegrass is too large to control. However, herbicide-resistant ryegrass has become common with numerous populations being confirmed with resistance to Osprey, PowerFlex, Axial XL, and Hoelon. Ryegrass will likely achieve resistance to herbicides quicker than any other plant, even Palmer amaranth. Aggressive resistance management programs must be implemented; ignoring this warning may destroy long-term sustainability of grain production in a given field. Proper management includes planting into a weed-free seedbed, growing a healthy vigorous crop, identifying and treating ryegrass early (Tables 1 and 4), tillage including deep turning when feasible, crop rotation, and making wise resistance management decisions (Table 2).

Growers must avoid treating fields two years in a row with the same or similar herbicide chemistry.

Hoelon, Axial XL, Axial Bold
Similar Chemistry

Osprey & PowerFlex
Same Chemistry

Fierce & Zidua
Contain Same Chemistry

Table 1. Ryegrass Management

Scenario and Stage of Wheat Growth	Control Options	Comments
Emerged ryegrass before planting	Tillage or Roundup followed by Gramoxone	Apply Roundup 5 or more days before planting, follow with Gramoxone at planting. Deep turning is also effective when erosion is not a concern.
After planting when 80% of the wheat seeds have germinated with shoots at least ½" long. Must be activated before ryegrass emerges for residual control.	Zidua 85 WG: 0.75-1.25 oz/A Zidua 4.17 SC: 1.25-2.2 fl oz/A	Label prohibits true PRE. Plant wheat seed at least 0.75" deep; do not apply to broadcast seeded wheat. Zidua at 1.0 oz/A (85 WG) or 1.75 fl oz/A (4.17 SC) is ideal for most soils; higher rates can be used for medium textured soils or for POST applications.
After planting when 95% of the wheat is in the spike to 2-leaf stage. Apply before ryegrass is ¼" with activation needed for residual control. *Injury should be expected!*	Fierce 76 WDG: 1.5 oz/A Fierce 3.04 EZ: label expected in 2022 at 3 fl oz/A	Apply in water to wheat planted at least 1" deep; do not apply to broadcast seedings. *Critical tool for fields infested with populations resistant to POST herbicides. Avoid sands.* Do not apply Fierce EZ until labeled.
Wheat between 3-leaf and jointing; ryegrass ≤ 1 tiller. Resistant populations are present in fields across the state.	Axial Bold: 15 oz/A, PowerFlex HL: 2.0 oz/A, or Osprey: 4.75 oz/A	Axial Bold does not require an adjuvant. Powerflex requires crop oil concentrate at 1% v/v. Osprey requires nonionic surfactant 2 qt/A + approved ammonium nitrogen fertilizer at 1-2 qt/A.

Table 2. Critical Thinking Points for Ryegrass Control

1. ABSOLUTELY NO ryegrass emerged when planting.
2. For normal developing wheat, postemergence ryegrass herbicides **should be applied around Christmas**.
3. Suggest not mixing ryegrass herbicide(s) with 2,4-D, MCPA, Quelex, or NITROGEN as antagonism can occur!!!
4. Zidua must be activated before ryegrass emergence but label does not allow preemergence application.
5. Fierce must be activated prior to weeds reaching ½ inch; be prepared for some crop injury.

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Nick T. Place, Dean and Director

Wild radish is the most problematic broadleaf weed infesting nearly every Georgia wheat field (pictures above). Its seedpods often contaminate harvested grain thereby reducing profits. The seedpod usually does not shatter, but instead, dries down and fragments into small sections. These seedpod sections are very close in size and shape to wheat seed and are difficult to remove in cleaning (right). Managing wild radish in wheat is not difficult if timely control decisions are implemented (Tables 3, 4, & 5).

Table 3. Wild Radish and Other Broadleaf Weeds

Scenario and Stage of Wheat Growth	Control Options	Comments
Emerged broadleaf weeds, including radish, before planting.	Tillage or Roundup mixtures	Quelex or Harmony Extra TS plus Roundup applied before planting provides control of most weeds without plantback concerns.
Wheat between 2-tiller and full tiller. Radish < 8" diameter, henbit, chickweed, most other broadleaf weeds.	MCPA (16 oz/A) + Harmony Extra TS ***OR*** Quelex 0.75 oz/A	MCPA rate based on 3.8 lb ae/gal. 2,4-D could replace MCPA at full tiller wheat. Many Harmony type products are available; see label and Table 5.
Early flush of broadleaf weeds when the initial herbicide application is needed before 2-tiller wheat.	Harmony Extra TS ***OR*** Quelex 0.75 oz/A (2-leaf - 2 tiller wheat) ***followed by*** MCPA 16-20 oz (2-tiller – full tiller wheat)	Sequential applications may be needed to control early emerging intense populations. 2,4-D could replace MCPA at full tiller wheat. Many Harmony type products are available; see label and Table 5.

Table 4. Both Ryegrass and Wild Radish

Scenario and Stage of Wheat Growth	Herbicide Option	Comments
Wheat between 3-leaf and jointing; radish < 6" diameter and ryegrass < 1 tiller.	PowerFlex HL 2.0 oz/A	Add crop oil concentrate at 1% v/v. Harmony Extra TS can be added to improve broadleaf weed control.
Wheat between 3-leaf and pre-boot, apply Axial Bold to control ryegrass. Follow up with a broadleaf treatment between 2-tiller and full-tiller.	Axial Bold 15 oz/A ***followed by*** MCPA + Harmony Extra TS ***OR*** Quelex	Wait at least 7 days between applications. No adjuvant required with Axial Bold. Ideal rate for MCPA = 16 oz/A; Quelex = 0.75 oz/A; Harmony Extra TS = see table 5.

Table 5. Critical Thinking Points for Broadleaf Weed Control

1. For normal developing wheat, postemergence broadleaf herbicides **should be applied around Christmas**.
2. Harmony Extra Total Sol rate ranges from 0.45 to 0.9 oz/A; 0.75 oz/A ideal usually. Other formulations exist.
3. 2,4-D is better than MCPA on larger weeds but MCPA poses less crop injury potential, so be timely and use MCPA.
4. MCPA offers 2 to 3X more residual radish control (only about 10 days though) when compared to Quelex or 2,4-D