

WEED MANAGEMENT IN WHEAT

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General Information

Effective weed management in wheat will produce optimum yields. Weeds present in the spring may delay harvest and cause dockage when sold. Italian ryegrass, wild garlic (often referred to as wild onion), and wild radish are the major weed management issues in South Carolina wheat production. Italian ryegrass biotypes resistant to Hoelon (diclofop) have been reported in South Carolina. Avoid yearly application of Hoelon to the same field and utilize crop rotation to help prevent resistance development and reduced current infestations. A successful weed management plan will use multiple production methods to keep weed populations low. Tillage and seedbed preparation or effective burndown herbicides should eliminate all emerged weeds prior to planting. Purchasing weed-free seed, using the proper seeding rate, following a management plan, and rotating to a summer crop will promote efficient weed control. Use of specific herbicides depends on the weed spectrum of your field, economic considerations and application system. Consider your situation and tailor a weed control program to your needs. The following sections will guide you in the decision making process.

No-till or Reduced tillage

Special care should be taken to apply timely preplant or burndown herbicides to provide a weed free seedbed at planting. Gramoxone Max (paraquat) will effectively desiccate summer weeds for more efficient planting and reduced competition with wheat seedlings. If perennial weeds are present prior to planting and application of glyphosate provides an excellent opportunity to manage these problem weeds. An Application of Harmony Extra when wheat reaches the two-leaf stage provides excellent control of wild garlic and curly dock. Fall applications of Harmony Extra usually eliminates the need for spring applications.

Italian Ryegrass and Wild Garlic Control

Effective control of Italian ryegrass prevents competition with wheat for moisture, light and nutrients. Hoelon has historically provided good control of Italian ryegrass. Recently Italian ryegrass biotype have been found that are resistant to Hoelon. Fields that have a history of Italian ryegrass escapes with repeated Hoelon use should be considered resistant populations. For these fields two alternatives are available. Achieve (tralkoxydim) may be applied when wheat has developed one to four leaves. Always add Supercharge adjuvant at two quarts per 100 gallons of spray solution. Osprey (mesosulfuron) may be applied from wheat emergence to the jointing stage to control Italian ryegrass along with other annual grasses and broadleaf weeds. Apply with a non-ionic surfactant (NIS) (2 quarts per 100 gallons of spray solution) **and liquid nitrogen** (1-2 quarts per acre) **or ammonium sulfate** (1.5 to 3 pounds per acre). Methylated seed oil (MSO) at 1.5 pints per acre may be substituted for the NIS and nitrogen additives.

To effectively control wild garlic consider the following guidelines. Apply Harmony Extra at 0.5 to 0.6 ounces per acre in at least 15 gallons of water carrier per acre with a quality non-ionic surfactant (80% active product or greater) at 1 quart per 100 gallons of water. If liquid nitrogen is utilized as the spray carrier add 1 to 2 pints of surfactant per 100 gallons of spray solution. Make applications when wild garlic plants are less than 12 inches tall and wheat plants have at least two leaves, but prior to the development of the third node. Adequate soil moisture and warm temperatures (60°F or greater) are expected for at least three days.

Herbicides for Weed Management in Wheat

Burndown Herbicides for Weed Management in Wheat.

Herbicide	Rate/Acre Broadcast		Remarks/Precautions
	Formulation	Active Ingredient	
Gramoxone Inteon 2 SL (paraquat)	2.0-4.0 pt.	0.5-1.0 lb.	Apply prior to effectively desiccate summer weeds for more efficient planting and reduced competition with wheat seedlings
paraquat	1.5-2.0 pt.	0.5-0.75 lb.	
Glyphosate* acid equivalent (ae)			Apply 1-2 weeks prior to anticipated planting date to control existing summer annual grass and broadleaf weeds and reduced competition with wheat seedlings.
3 lb ae/gal.	32-48 oz.	0.75-1.1 lb. ae	
4 lb. ae/gal.	24-35 oz.		
4.5 lb. ae/gal.	22-32 oz.		

* NOTE: Several brands of glyphosate have become available in recent years. Products differ in terms of concentration, application rates, addition of surfactant and registration on Roundup Ready crops. Always read the label before application.

Preemergence (PRE) Herbicides for Weed Management in Wheat.

Herbicide	Rate/Acre Broadcast		Remarks/Precautions
	Formulation	Active Ingredient	
Hoelon 3EC ^r (Diclofop)	2.0-2.6 pints	0.75-1.0 lb.	Control of non-Hoelon resistant Italian ryegrass in fall planted wheat. Use higher rate in field's with a history of high Italian ryegrass pressure. Do not incorporate.

^r restricted use pesticide

Postemergence (POST) Herbicides for Weed Management in Wheat.

Herbicide	Rate/Acre Broadcast		Remarks/Precautions
	Formulation	Active Ingredient	
Achieve 40DG (Tralkoxydim)	0.44-0.6 lb.	0.18-0.24 lb.	Apply when wheat reaches 1 to 4 leaf stage. Always add Supercharge adjuvant at 2 quarts per 100 gallons of spray solution. Apply in at least 10 gallons of water carrier per acre.
Axial 0.83 SL (pinoxaden)	8.2 oz.	0.053 lb.	Use Adigor adjuvant (9.6 oz per acre) which is supplied with Axial. No other surfactants are required. Do not harvest grain for 60 days after application.

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POST Herbicides Cont.

Herbicide	Rate/Acre Broadcast		Remarks/Precautions
	Formulation	Active Ingredient	
Buctril 4 EC (Bromoxynil)	0.75-1.0 pint	0.375-0.5 lb.	Control of several annual broadleaf weeds. May be applied anytime after wheat emergence, but best results are achieved when applied during the fall. May be tank mixed with Hoelon for increased weed spectrum.
Beyond 1AS (Imazamox)	4-6 oz.	0.032-0.047 lb.	Apply only to Clearfield wheat hybrids. Make applications on wheat from two to four leaf stage to control annual bluegrass, Italian ryegrass, cheat and henbit. Apply with NIS 2 qt./100 gal and UAN at 1-2 qts/A or AMS at 1.5-3 lbs/A.
Express 75WDG (Tribenuron-methyl)	0.17-0.33 oz.	0.008-0.0155	Apply after two-leaf stage of wheat but prior to flag leaf being visible. Add 0.5 to 4 pt of nonionic surfactant per 100 gal of spray solution when applying Express alone. Only partial control of wild garlic, henbit, shepherdspurse, and wild radish. May tank mix with 0.125 to 0.375 lb a.i. of 2,4-D or MCPA for improved control of wild radish and other broadleaf weeds.
Harmony Extra 75 DF (Thifensulfuron + Tribenuron-methyl)	0.5-0.6 oz.	0.023-0.028 lb.	For control of actively growing wild garlic, buttercup and dock. Apply to wheat in at least the two-leaf stage but before the third node is detectable. Add nonionic surfactant (80% active or greater) at 0.25% (1 qt./100 gallons of water) to the spray solution. Use in at least 15 gallons spray volume per acre for ground application and in 3-5 gallons with aerial application. May be tank-mixed with 2, 4-D for improved vetch control.
Hoelon 3EC ^r (Diclofop)	1.3-2.6 pints	0.5-1.0 lb.	For control of annual ryegrass in fall-planted wheat apply 1.3 to 2 pts./A on 1- to 5-leaf ryegrass prior to wheat jointing. Increase rate to 2.0 to 2.6 pts./A for ryegrass with 4 to 5 leaves. Apply in at least 10 gallons of water/A with ground equipment or in at least 5 gallons of water/A by airplane. Use a minimum pressure of 40 PSI. Do not tank mix with Harmony Extra.
Osprey 0.45DF (Mesosulfuron-Methyl)	4.75 oz.	0.013lb.	For control of Hoelon-resistant ryegrass and other annual grass and broadleaf weeds in winter wheat. Applications may be made from time of wheat emergence up to the jointing stage of development. Apply with NIS 2 qt./100 gal and UAN at 1-2 qts/A or AMS at 1.5-3 lbs/A. Methylated seed oil at a rate of 1.5pts./A in 10 gallons or more of water carrier per acre may be substituted for the NIS and Nitrogen additives.

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POST Herbicides Cont.

Herbicide	Rate/Acre Broadcast		Remarks/Precautions
	Formulation	Active Ingredient	
2,4-D 4L	11 oz.	0.33 lb. ester	For control of weeds such as vetch, wild mustard and radish, apply when wheat is well tillered but prior to jointing.
	16-24 oz.	0.5-0.75 lb. amine	
	24-32 oz,	0.75-1.0 lb ester	For control of the above weeds plus wild garlic.

Crop Replant and Rotation Restrictions for Wheat Herbicides.

	Corn	Cotton	Grain Sorghum	Peanuts	Soybeans	Sunflower	Tobacco	Wheat
Achieve	106 D	106 D	106 D	106 D	106 D	106 D	106 D	60 D
Buctril	30 D	30 D	30 D	30 D	30 D	30 D	30 D	30 D
Beyond	9 M	9 M	9 M	9 M	None	9 M	9M	3 M
Express								
Harmony Extra	45 D	45 D	45 D	45 D	45 D	45 D	45 D	None
Hoelon	Apply no later than 66 days before harvest.							
Osprey	12 M	90 D	10 M	90 D	90 D	30 D	10 M	7 D
2,4-D	Replant in the same growing season with crops labeled for 2,4-D use.							

M = months; D = days

Weed Response¹ to Herbicides for Wheat Weed Management.

	PRE	POST								
	Hoelon	Achieve	Axial	Beyond	Buctril	Express	Harmony Extra	Hoelon	Osprey	2,4-D
Broadleaf weeds										
Buttercup	0	0	0	0	6	9	9	0	7	9
Chickweed	0	0	0	5	5	8	8	0	6	3
Curly dock	0	0	0	---	7	9	9	0	0	7
Cutleaf eveningprimrose	0	0	0	0	3	5	5	0	0	8
Henbit	0	0	0	7	5	7	7	0	5	1
Horseweed	0	0	0	---	8	6	6	0	0	9
Wild garlic	0	0	0	0	5	---	9	0	0	7
Wild mustard	0	0	0	5	8	9	9	0	5	8
Wild onion	0	0	0	0	4	9	9	0	0	6
Wild radish	0	0	0	---	7	8	8	0	4	8
Vetch	0	0	0	0	7	7	7	0	7	8
Grass weeds										
Annual bluegrass	0	0	4	7	0	0	0	0	8	0
Little barley	0	0	---	7	0	0	0	0	---	0
Cheat	2	0	---	8	0	0	0	2	3	0
Italian ryegrass	9	8	9	8	0	0	0	9	9	0
*Hoelon resistant	0	8	9	8	0	0	0	0	9	0

¹**KEY TO RESPONSE RATINGS:** 0=No control; 10=100% control; ---=Data not available. Ratings are based on application of labeled rates of each herbicide, applied at the optimum timing for each weed.