

Management of glyphosate-resistant weeds in the fall with Dual Magnum and Envoke.

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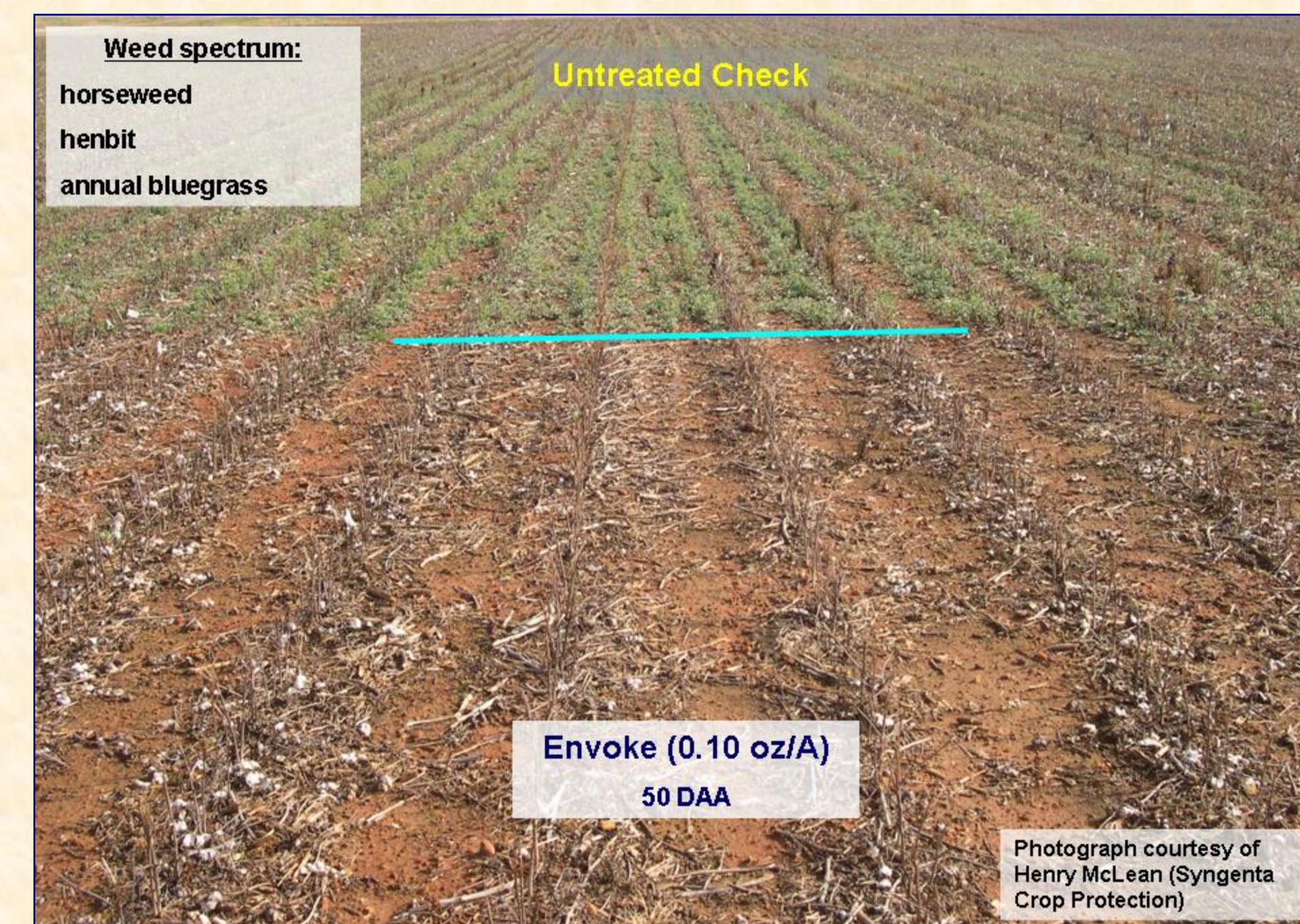


Introduction

- Winter annual weeds such as horseweed, henbit, shepherd's-purse, cutleaf eveningprimrose, chickweed, Carolina geranium, curly dock, Italian ryegrass, and annual bluegrass are often targets of early spring preplant herbicide applications in cotton (Fairbanks et al., 2001; Reynolds et al., 2000; Jordan et al., 2001).
- Paraquat, glyphosate, and 2,4-D have historically been typical component(s) of early spring burndown applications to provide broad-spectrum control of winter annuals (Jordan et al., 2001; York et al., 2004).
- Since confirmation of glyphosate-resistant (GR) horseweed in the cotton producing states of TN, AR, MS, and NC (Heap 2005), producers have centered early spring burndown applications around this highly problematic weed.
- Early spring burndown applications, before crop planting, have proven to be effective against GR horseweed and Italian ryegrass, but this timing can provide erratic results.
- Herbicides with long-term residual activity such as trifloxysulfuron (Envoke®) are much needed tools for controlling horseweed and winter annuals prior to cotton planting.
- Herbicides such as S-metolachlor (Dual Magnum®) applied in the fall (September 1 – November 20) can provide excellent Italian ryegrass control. This section 24© special local need label only applies to the states of Mississippi, Louisiana, and Arkansas. Crops planted the following spring can include corn, soybean, and cotton.

Envoke® Label Update

- Section 3 registration was received for early preplant applications in cotton.
- States included on this registration are AL, AR, FL, GA, KS, KY, LA, MO (Bootheel), MS, NC, SC, TN, VA, and OK/TX (east of I-35).
- Apply Envoke at 0.10 oz/A alone or in combination with Gramoxone Inteon™ or glyphosate in the fall following harvest.
- Applications should be made with a minimum of 90 days prior to cotton planting, to avoid crop injury.
- Early preplant applications provide residual control or suppression of certain weeds including horseweed, shepherds-purse, henbit, and annual bluegrass (Rainfall required for activation).

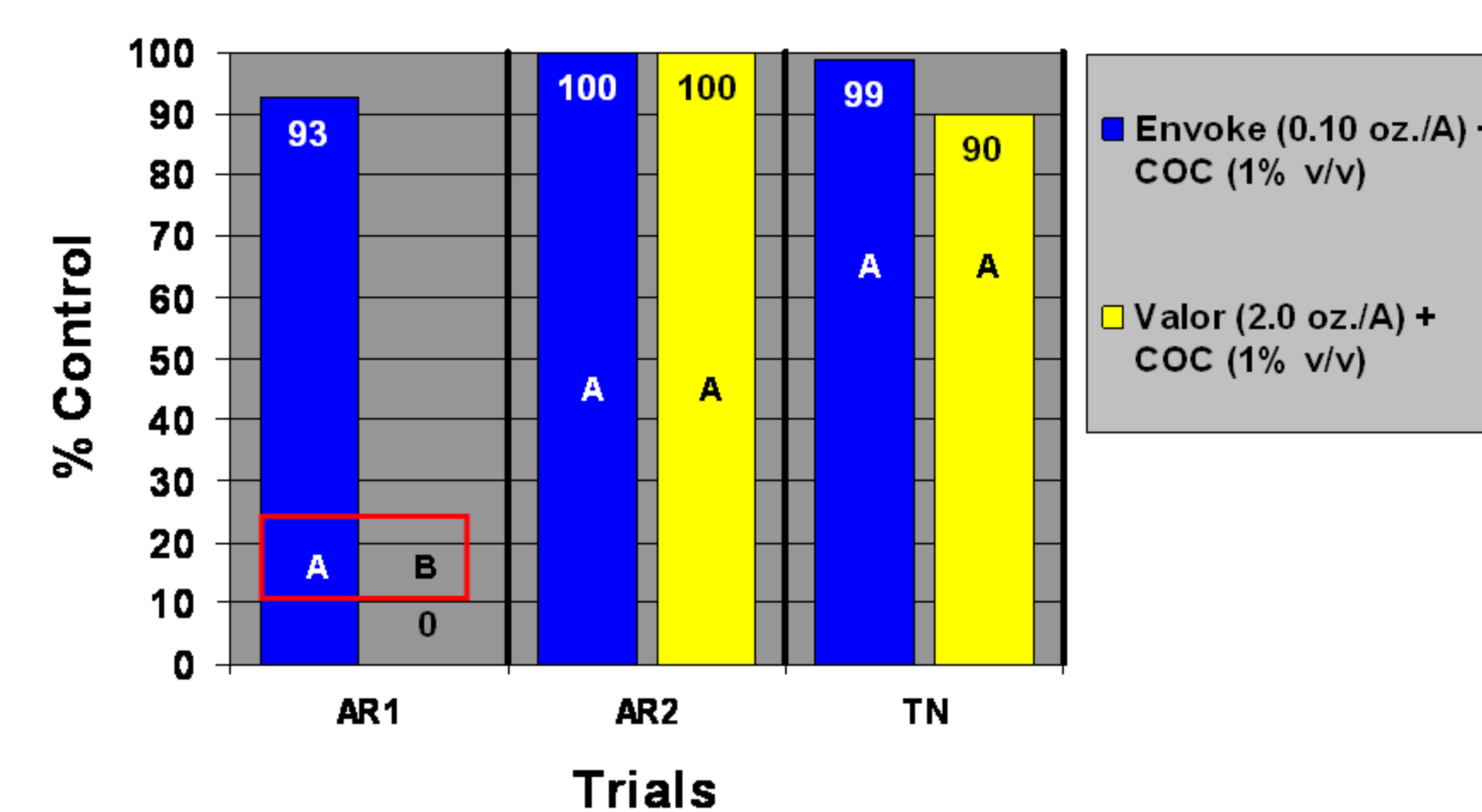


Results & Discussion

- Envoke at 0.10 oz/A consistently provided high levels of control of horseweed (≥92%), henbit (≥85%), shepherd's-purse (≥85%) and annual bluegrass (≥87%).
- Weed control with Envoke at 0.10 oz/A was significantly higher than Valor at 2 oz/A in the following proportion of trials: horseweed (33%), henbit (50%), shepherd's-purse (50%), and annual bluegrass (75%). In the remaining trials, Valor was not significantly different than Envoke.
- The residual activity of Envoke at 0.10 oz/A against all four weed species extended to 100-160 DAA in most trials.
- Envoke (0.10 oz/A) provided consistent, excellent, and broad-spectrum weed control when applied alone as a residual early preplant herbicide in cotton. In treatments not presented, the addition of Gramoxone Inteon™ or glyphosate to Envoke in early preplant applications maximized Envoke's effectiveness by aiding in the control of established weeds.
- An added benefit to Envoke's residual efficacy is the conservation of soil moisture that is provided by the early removal of winter annual weeds.

Horseweed Control

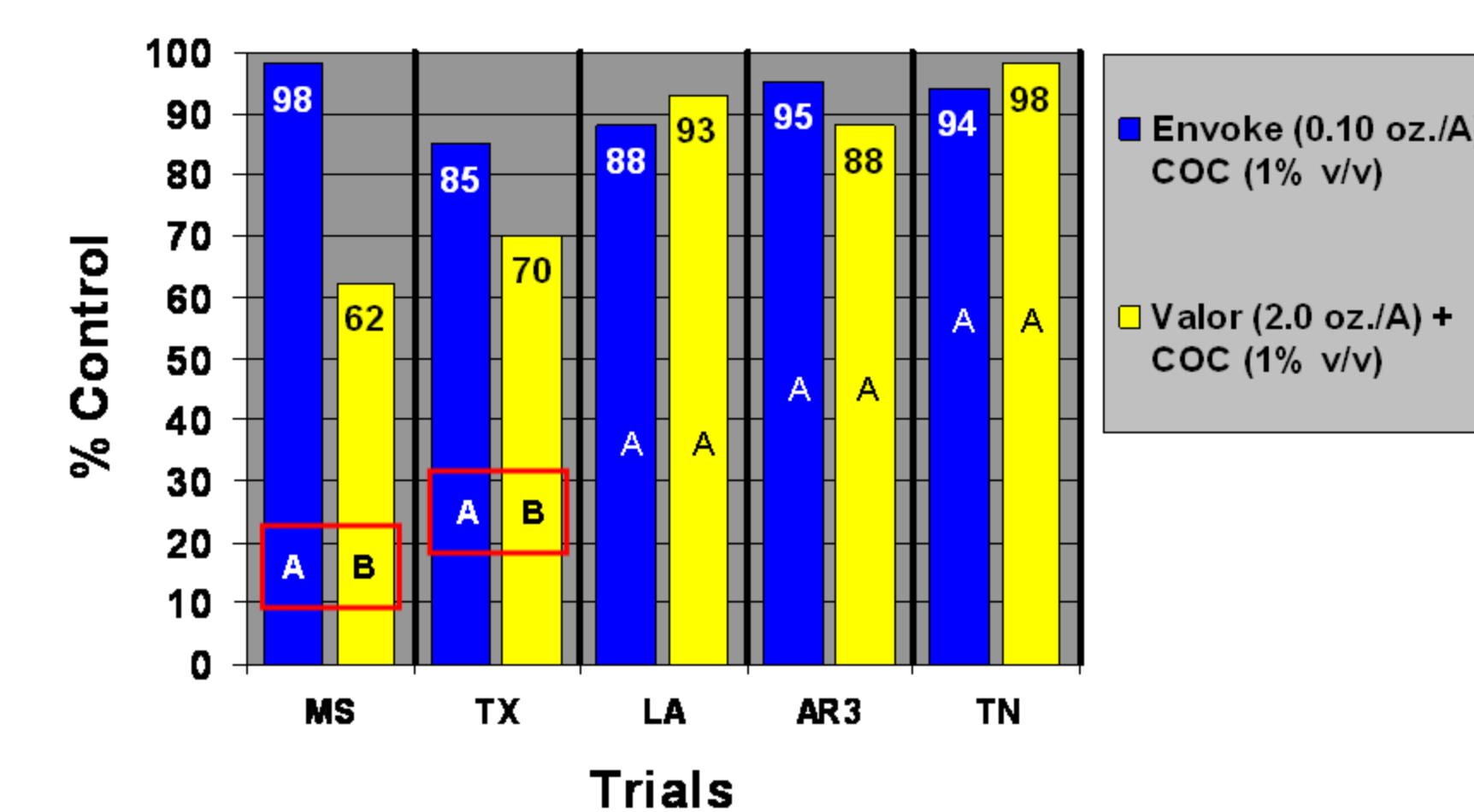
Envoke® vs. Valor™ comparison



The data were analyzed over individual trials due to a treatment by trial interaction, and includes 3 trials (AR1, AR2, and TN). The days after application (DAA) are as follows: AR1 (149), AR2 (115), and TN (157). Similar letters that follow means aren't significantly different and were ascertained using means separation tests.

Henbit Control

Envoke® vs. Valor™ comparison



The data were analyzed over individual trials due to a treatment by trial interaction, and includes 5 trials (MS, TX, LA, AR3, and TN). The days after application (DAA) are as follows: MS (140-166), TX (43), LA (30), AR3 (137), and TN (27). Similar letters that follow means aren't significantly different and were ascertained using means separation tests.

Results & Discussion

- Dual Magnum at 1.33 – 1.67 pts/Acre provides excellent preemergence control of Italian ryegrass.
- Weed control with Dual Magnum at 1.33 – 1.67 pts/Acre also provides residual control of other winter weeds typically found in these geographies.

References

Fairbanks, D.E., D.B. Reynolds, J.L. Griffin, D.L. Jordan, C.B. Corkern, P.R. Vidrine, and S.H. Crawford. 2001. Cotton tolerance and weed control with preplant applications of thifensulfuron plus tribenuron [Online]. J. Cotton Sci. 5:259-267. Available at <http://www.cotton.org/journal>.

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York, A.C., A.S. Culppepper, and A.M. Stewart. 2004. Response of strip-tilled cotton to preplant applications of dicamba and 2,4-D [Online]. J. Cotton Sci. 8:213-222. Available at <http://www.cotton.org/journal>.

Materials & Methods

- Field trials were initiated by university and Syngenta scientists in fall 2004 and 2005 to evaluate fall applied Envoke®.
- These trials were conducted across cotton growing areas as RCBD's (randomized complete block design) with 3 to 4 replications.
- Applications were made at 10-15 GPA, primarily in November.
- Percent Control of the following weeds was assessed:
 - horseweed *Conyza canadensis* (L.) Cronq. ERICA
 - henbit *Lamium amplexicaule* L. LAMAM
 - shepherd's-purse *Capsella bursa-pastoris* (L.) Medik. CAPBP
 - annual bluegrass *Poa annua* L. POAAN
- Detailed list of trials:

Trial	Year	Application Date	State	Weeds evaluated			
				ERICA	LAMAM	CAPBP	POAAN
MS	2004	Nov. 18	Mississippi		X	X	X
TX	2004	Jan. 14	Texas		X	X	
LA	2004	Dec. 20	Louisiana		X	X	X
AR1	2005	Nov. 16	Arkansas	X			X
AR2	2004	Nov. 27	Arkansas	X		X	
AR3	2005	Nov. 11	Arkansas		X		
TN	2004	Nov. 5	Tennessee	X	X		X

Dual Magnum® Label Update

- Section 24(c) registration was received for early preplant applications for control of Italian ryegrass in corn, soybean, and cotton.
- States included on this registration are Mississippi, Louisiana, and Arkansas.
- Apply Dual Magnum at 1.33-1.67 pts/Acre alone if Italian ryegrass is not emerged or in combination with Gramoxone Inteon™ at 3 to 4 pts/Acre + nonionic surfactant at 1 quart/100 gallons (0.25% v/v) if Italian ryegrass is emerged.
- Applications can be made September 1 to November 20.
- No more than one fall application and no more than 1.67 pts/A of Dual Magnum.
- The total amount of S-metolachlor applied (fall + spring) in cotton, corn, and soybean can not exceed 2.67 pts/A Dual Magnum.



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