

VEGETATION BURNDOWN COMBINATIONS FOR COTTON

S.T. Kelly
LSU AgCenter
Winnsboro, LA
D.K. Miller
LSU AgCenter
St. Joseph, LA
P.R. Vidrine
LSU AgCenter
Alexandria, LA

Abstract

Four experiments were conducted in early spring of 2001 to evaluate herbicide combinations for winter vegetation removal prior to cotton planting.

Three large-plot experiments were established on producer fields in Morehouse, Caldwell, or Ouachita parish in northeast Louisiana. Treatments were applied using a tractor mounted sprayer delivering 10 gallons per acre. Plot sizes varied with location but were 8 rows wide (27 feet) and at least 200 feet in length. Experiment design was a randomized complete block with each treatment replicated 4 times. All plots contained native vegetation. Plots in Morehouse parish were established on March 22, 2001 and contained annual bluegrass (*Poa annua* L.), henbit (*Lamium amplexicaule* L.), common chickweed [*Stellaria media* (L.) Vill.], and Virginia pepperweed (*Lepidium virginicum* L.). Plots in Ouachita and Caldwell parish were established on April 5, 2001. Vegetation at the Ouachita parish location included cutleaf eveningprimrose (*Oenothera laciniata* Hill), annual bluegrass, mouseear chickweed (*Cerastium vulgatum* L.), and Carolina geranium (*Geranium carolinianum* L.). The Caldwell parish location included annual bluegrass, henbit, prickly lettuce (*Lactuca serriola* L.), and Carolina falsedandelion [*Pyrrhopappus carolinianus* (Walt.) DC.].

Treatments at the Morehouse parish location included Roundup Ultra (1.5 pt/A) applied alone or in combination with Clarity (8 oz/A), 2,4-D (1.5 pt/A), Aim (0.5 oz/A), Cotton Pro (1.0 pt/A), Direx (1.0 pt/A), or Goal (6 or 10 oz/A), and a combination of Boa + Direx (1.5 + 1.0 pt/A, respectively + 0.25% v/v nonionic surfactant). A reduction in control of annual bluegrass, henbit and chickweed were observed with combinations of Roundup Ultra + Cotton Pro or Direx at 7 days after treatment (DAT). However, this reduced control was not observed at 19 DAT, with any combination controlling weeds at least 97%.

Treatments at the Ouachita parish location included Roundup Ultra (2 pt/A) applied in combination with 2,4-D (13 oz/A), Clarity (8 oz/A), Aim (0.5 oz/A) or Goal (8 or 10 oz/A), and Boa (1.5 pt/A + 0.25% v/v nonionic surfactant) applied alone or in combination with Aim (0.5 oz/A) or Direx (1.0 pt/A). Primrose control was variable among the combinations applied. Any treatment containing Boa provided good initial control. However, only Boa + Direx controlled all weeds present at least 90% by 21 DAT. The addition of Direx to Boa greatly increased primrose control over Boa alone at 21 DAT. Roundup Ultra + 2,4-D controlled primrose 100%, while Roundup Ultra + Clarity controlled cutleaf eveningprimrose 87%. All treatments controlled annual bluegrass at least 97% at 6 (DAT), Carolina geranium at least 87% at 21 DAT, and mouseear chickweed 100% at 14 or 21 DAT.

Treatments at the Caldwell parish location included Roundup Ultra (2 pt/A) in combination with 2,4-D (13 oz/A), Clarity (8 oz/A), or Aim (0.5 oz/A). Boa (1.5 pt/A) or Gramoxone Max (1.25 pt/A) alone or in combination with Direx (1.0 pt/A) or Aim (0.5 oz/A) was also evaluated. Nonionic surfactant at 0.25%, v/v was added to the Boa or Gramoxone Max treatments. Roundup Ultra combinations with 2,4-D, Clarity, or Aim controlled all weeds present 100% by 14 DAT. No differences in weed control were observed between any of the treatments containing Boa or Gramoxone Max.

The fourth experiment was conducted at the Northeast Research Station near St. Joseph, LA on a silty clay loam soil. Experimental design was a randomized complete block with 4 replicates. Plot size was seven by 10 feet. Treatments were applied on February 26, 2001 using a CO₂ powered backpack sprayer delivering 15 GPA. Weeds present included shepherd's-purse [*Capsella bursa-pastoris* (L.) Medicus], smallflowered bittercress (*Cardamine parviflora* L.), swinecress (*Coronopus didymus* (L.) Sm.), henbit, common chickweed, and cutleaf eveningprimrose. Treatments included Roundup Ultra (1.5 pt/A) in combination with Valor (2 or 4 oz/A), Linex or Direx (1.0 pt/A), Aim (0.32, 0.5, or 0.7 oz/A), Clarity (8 oz/A), Harmony Extra (0.32 or 0.5 oz/A), or Goal (12.8 or 24 oz/A). Roundup Ultra at 2 pt/A was also included as a comparison treatment. Linex or Direx antagonized Roundup Ultra on Shepherd's-purse, henbit and smallflowered bittercress at 14 DAT but was not observed at 35 DAT. By 35 DAT, no differences in control of shepherd's purse, henbit,

smallflowered bittercress, common chickweed or swinecress were observed between any treatments. The addition of Valor to Roundup Ultra initially increased control of all weeds present over Roundup Ultra alone at 14 DAT, but by 35 DAT no differences were observed. The addition of Valor, Linex, Direx, or Clarity to Roundup Ultra increased cutleaf eveningprimrose control to 95% or greater, compared to Roundup Ultra alone (83%). Valor provided good residual control of Pennsylvania smartweed (*Polygonum pennsylvanicum* L.) (89%) at 59 DAT while Goal provided 78 to 88% control.

Results of these experiments indicate that these treatments may be used to effectively control winter vegetation in Louisiana. The addition of herbicides with residual activity may allow producers to chemically remove vegetation from cotton, corn or grain sorghum fields at the same time, thus avoiding drift situations that may arise when applying herbicides to cotton fields when nearby corn or grain sorghum is germinating or growing.