

**PREPLANT HORSEWEED CONTROL IN REDUCED TILLAGE COTTON  
IN THE TEXAS HIGH PLAINS**

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**Abstract**

Horseweed (*Conyza canadensis*), also known as maretail, is an annual plant native throughout most of North America. It can be found in agricultural fields, meadows, and garden areas and has been declared a noxious weed in some states. Horseweed has become a troublesome weed in the Texas High Plains because of a shift in production practices towards reduced or no-till systems. Horseweed populations resistant to glyphosate have been discovered in the U.S., but even non-resistant populations have an inherent ability to tolerate glyphosate. This weed can complete its life cycle as either a winter or summer annual, which adds to the difficulty of control. 2,4-D or glyphosate are standard preplant treatments, but tank-mix combinations and new active ingredients may help improve the control of this weed. The objective of this research was to identify effective spring applied preplant burndown treatments for control of early- and mid-season horseweed populations. Field trials were conducted in 2010 and 2011 in Crosby County, Texas in a terminated-wheat cotton production system. Plot sizes were 4 rows by 30 feet with three replications and were randomized in a densely populated horseweed field containing an overhead center pivot irrigation system. Applications on March 29, 2010 and April 1, 2011 were made using a CO<sub>2</sub>-pressurized backpack sprayer calibrated to deliver 10 gallons per acre (GPA) at 3 MPH using water as the carrier. TurboTee 110015 spray tips were used. Horseweed control and cotton injury were observed throughout the growing season. Data were analyzed using ANOVA and means separated using Duncan's new Multiple Range Test. In 2010, horseweed control following 2,4-D (16 or 32 oz/A) or Roundup PowerMax (22 or 32 oz/A) was similar regardless of rate. However, a tank mix combination of 2,4-D + Roundup at 32 + 22 oz/A, respectively, controlled horseweed 94% 67 days after treatment (DAT). The addition of Clarity at 2 oz/A to this tank mixture did not improve control. Outlaw (24 oz), which is a combination of 2,4-D and dicamba, controlled horseweed 94% at this same evaluation period. Combinations of Valor + Sharpen + Roundup PowerMax (2 + 1 + 22 oz/A) + MSO (1% v/v), Firstshot + 2,4-D + Clarity (0.66 + 16 + 2 oz/A) + NIS (0.5% v/v), Firstshot + Roundup PowerMax (0.75 + 22 oz/A) + NIS, and 2,4-D + Roundup PowerMax (16 + 22 oz/A) controlled horseweed at least 80%. No treatment caused cotton stand loss or visible cotton injury. In 2011, this production region experienced record heat, drought, and relentless winds. These environmental factors likely played a significant role in the overall reduction in horseweed control. 2,4-D alone at both 16 and 32 oz/A and Roundup PowerMax alone at 22 and 32 oz/A controlled horseweed no greater than 23% at 56 DAT. However, a tank mix combination of 2,4-D + Roundup PowerMax (32 + 22 oz/A) controlled horseweed 72% at 56 DAT. The addition of Clarity at 2 oz/A improved control up to 83%. Sharpen + Roundup PowerMax (1 + 22 oz/A) + MSO controlled horseweed 98% at 56 DAT. The addition of 2,4-D to this tank mix did not improve control. Outlaw controlled horseweed 88-93%. In summary, Roundup PowerMax at 22 oz/A in a tank-mix combination with 2,4-D (32 oz/A) or Sharpen (1 oz/A) + MSO, and Outlaw (24 oz/A) were most effective at controlling horseweed following spring applications over this two year study.