ON-FARM MANAGEMENT OF PALMER AMARANTH IN WEST TEXAS USING RESIDUAL

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<u>Abstract</u>

Cotton (Gossypium hirsutum) is the most important agronomic crop in West Texas with over 5 million acres planted in 2014. Glyphosate-resistant Palmer amaranth (Amaranthus palmeri) is a relatively new and substantial threat to cotton production in this area. Trials were conducted at 3 locations in 2013 and 2014 where glyphosate-resistant Palmer amaranth was suspected. Four trials (designated 1-4) were located in Gaines County, and one trial was conducted in both Howard (location 5) and Martin (location 6) County, respectively. The purpose of these studies was to determine the effectiveness of 4 different residual herbicide programs in different environmental conditions as well as to provide on-farm demonstration plots in areas that would be available to County Extension Agents for use during field tours. Trials were established in fields after growers had made preplant incorporated applications immediately followed by cotton planting. Treatments included the growers choice of preplant incorporated herbicide (in these trials either trifluralin at 1.5 pt/A or Prowl at 1 qt/A) alone, preplant incorporated herbicide followed by (fb) Caparol (1.2 gt/A) preemergence, preplant incorporated herbicide fb Dual (1.2 gt/A) postemergence, and preplant incorporated herbicide fb Caparol preemergence fb Dual postemergence. Palmer amaranth populations were recorded 4 weeks after postemergence applications were made, fb removal of all weeds to prevent an increase in the weed seedbank in grower fields. Cotton seedling injury was recorded 1, 3, and 5 weeks after emergence in 2014. Treatment had a significant effect on Palmer amaranth populations at locations 1, 2, and 3. At location 1, Palmer amaranth populations were 18 plants/vd² when treated with trifluralin alone, and were reduced 83%, 44%, and 61%, by the addition of Caparol, Dual, and Caparol fb Dual, respectively. At location 2, Palmer amaranth populations were 12 plants/yd² when treated with trifluralin alone, and were reduced 92% with the addition of Caparol fb Dual. At location 3 Palmer amaranth populations were 15 plants/ yd^2 when treated with Prowl alone, and were reduced 73%, 73%, and 100%, by the addition of Caparol, Dual, and Caparol fb Dual, respectively. Cotton seedling injury 1 week after emergence was 15%, 25%, and 15% at locations 4, 5, and 6, respectively, when treated with Caparol preemergence. However, 5 weeks after emergence seedling injury was not visible at any location.