

**COMPARISONS OF LIBERTY-LINK, ROUNDUP-READY, AND  
NON-TRANSGENIC COTTON WEED MANAGEMENT SYSTEMS**

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**Abstract**

Studies were conducted at the Upper Coastal Plain Research Station near Rocky Mount, NC and the Cherry Research Station near Goldsboro, NC to evaluate weed management systems in Liberty-Link, Roundup-Ready, and non-transgenic cotton. Cotton varieties included Fibermax 989, Fibermax, 989RR, and Fibermax 958LL. Preemergence option for all systems included no herbicide or Prowl at 1.8 pints/acre. For Liberty-Link systems, early postemergence (EPOST) options included no herbicide, Ignite at 2 pints/acre, or Ignite at 2 pints/acre plus Dual Magnum at 1 pint/acre. Similarly, Roundup-Ready EPOST options included no herbicide, Roundup Weathermax at 1.1 pints/acre, or Roundup Weathermax at 1.1 pints/acre plus Dual Magnum at 1 pint/acre. For conventional systems, EPOST options included no herbicide, Envoke at 0.1 oz/acre, Staple at 1.2 oz/acre, or Envoke at 0.05 oz/acre plus Staple at 0.6 oz/acre. A non-ionic surfactant (Induce) at 0.25% v/v was included in all treatments containing Envoke or Staple. LAYBY options for all systems were no herbicide or Caparol at 2 pints/acre plus MSMA at 2.4 pints/acre plus Induce at 0.25% v/v. A mid-POST application of Select at 1 pint/acre plus Agridex at 1.0% v/v was applied to conventional systems for annual grass control. Systems were evaluated for early, mid, and late season cotton injury, weed control, yield, and fiber quality parameters. Weeds present included purple nutsedge, common ragweed, sicklepod, Palmer amaranth; entireleaf, pitted, and tall morningglories; large crabgrass, and goosegrass.

Early season injury for Liberty-Link and Roundup Ready systems was less than 5% for all treatments and injury was only seed in Dual Magnum containing systems. Injury was a surfactant-type cosmetic speckling that was transitory. For conventional systems, Envoke at 0.1 oz/acre and Envoke at 0.05 oz/acre plus Staple at 0.6 oz/acre caused 35 and 21% early season cotton injury. Staple alone at 1.2 oz/acre caused less than 6% early season cotton injury. Late-season injury ratings indicated that all early-season injury were transitory. The addition of Dual Magnum to either Ignite or Roundup Weathermax EPOST only systems increased late-season control of all weeds present except for entireleaf morningglory control in Roundup Ready systems. Ignite or Roundup Weathermax (with or without Dual Magnum) followed by a LAYBY treatment controlled all weeds at least 95%. For late-season weed control in conventional systems, Envoke alone controlled common ragweed, purple nutsedge, sicklepod, entireleaf morningglory, pitted morningglory, and tall morningglory 67, 79, 52, 76, 51, and 80%, respectively. Staple alone provide 62% control of Palmer amaranth. The addition of a LAYBY treatment to any conventional EPOST system increased control to 95% for sicklepod and all morningglory species. In conventional systems, adequate control (> 95%) of common ragweed and purple nutsedge required an Envoke containing treatment plus a LAYBY treatment. Conversely, a Staple containing treatment plus a LAYBY treatment was required for excellent (> 96%) control of Palmer amaranth. At the Rocky Mount location, Liberty-Link and Roundup Ready systems yielded similarly with systems with the equivalent input of herbicides. For example, Prowl PRE fb Ignite EPOST fb LAYBY and Prowl PRE fb Roundup Weathermax EPOST fb LAYBY yielded 962 and 1,009 lb/acre, respectively. Conventional systems yielded less which was attributed to early season grass interference. Cotton fiber quality characteristics were similar among the Fibermax varieties at Rocky Mount. Fiber quality data has not been generated for the Goldsboro location.