

Broadleaf Weed Control With BXN (Bromoxynil) Transgenic Tolerant Cotton

Ron Vargas¹, Steve Wright², Brian Marsh³, Tomé Martin-Duval¹, Mark Keeley³

¹ University of California Cooperative Extension, Madera County, ² University of California Cooperative Extension, Tulare County, ³ University of California Cooperative Extension, Shafter Research and Extension Center, Kern County

Abstract: Broadleaf weeds including annual morningglory (*Ipomoea spp.*), black and hairy nightshade (*Solanum spp.*), lambsquarter (*Chenopodium album*), and pigweeds (*Amaranthus spp.*) are major weed pest of cotton in California. Chinese thornapple (*Datura furox*), though not as common, is becoming more prevalent. BXN transgenic tolerant cotton has been developed which allows over the top applications of bromoxynil (Buctril) throughout the season. Control of these and other broadleaf weed species has been excellent.

Buctril was applied to Stonville BXN 47 cotton in several trials over the top at the 2 to 4 leaf stage and post directed at various timings at rates of 0.5 to 1.0 lb ai/A during the 1997, 98 and 99 seasons. Buctril was also tank mixed with Bueno6 (MSMA), Staple (pyrithiobac sodium), Prism (clethodim), Poast (sethoxydim) and Fusilade (fluazifop-p-butyl). Trials were conducted in Madera, Fresno, and Kern counties.

In 1997, Buctril exhibited excellent control when applied alone over- the-top of 2 to 4 leaf cotton to seedling morningglory or followed by a post directed Buctril application at 90 to 96 percent control 35 days after the initial treatment(DAT). Staple followed by MSMA also provided excellent control. There was no adverse effect to cotton growth and development with any of the treatments tested.

In 1998, at 7 DAT, the Buctril treatments exhibited significantly greater control of morningglory than Staple at 68 percent compared to 40 and 48 percent. From 14 to 43 DAT, the Staple treatments exhibited significantly greater control at 80% compared to Buctril followed by MSMA at 45%. With no further treatments morningglory growth in all treatments completely over grew the cotton resulting in entire crop loss.

In 1999, Buctril + Bueno 6 provided the greatest control (87%) of morningglory at 7 DAT with the Buctril Staple tank mix providing 60% control. After cultivation and hand removal of morningglory Buctril and Bueno6 applied to morningglory with 2 or less true leaves again exhibited the greatest control at 100 percent at 7 DAT to 95 percent at 16 DAT. When applied to morningglory greater than 2 true leaves, control was reduced by 50 to 70%.

In other studies, at 21 DAT, all treatments except Bueno 6 alone exhibited excellent control of Chinese thornapple at 97 to 100 percent. At 14 DAT, Buctril (either alone or tank mixed) exhibited excellent control of black and hairy nightshade and lambsquarter at 95 to 100 percent. When tank mixed with any of the grass herbicides, the efficacy of Buctril on pigweed was severely reduced at 4 to 5 percent control.