

CONTROLLING PRIMROSE WITH LOW RATES OF 2,4-D ALONE AND IN TANK MIXTURES

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Abstract

Conservation tillage practices are continually being adopted across the Southeast. Burndown herbicides to desiccate cover crops or winter vegetation are a necessary component of the management program. Most winter weeds and small grain cover crops have been relatively easy to kill. The major exception has been cutleaf eveningprimrose (*Oenothera laciniata*) due primarily to its tolerance to glyphosate (Roundup, others) and paraquat (Gramoxone). A number of potential tank mix partners with glyphosate or paraquat have been evaluated for primrose control. Reynolds et al. (2000), Poston et al. (2003), and Culpepper and York (2002) have shown that 2,4-D mixed with glyphosate or paraquat has been the most effective option for controlling primrose. Previous efforts focused on 2,4-D at rates equal to or above 0.5 lb ae/A. However, no data are available showing sensitivity of primrose to low rates of 2,4-D alone and in mixtures. The ability to lower the potential use rate of 2,4-D would be more economical for the grower and could potentially reduce the plant back time interval needed between applying 2,4-D and planting cotton.

Experiments were conducted in Rocky Mount, NC and Tifton, GA during 2003. Treatments were applied to 6- to 9-inch primrose in March. Treatments included 2,4-D (3.8 lb/gal dimethylamine salt formulation) alone at 4, 8, 12, or 16 fl oz/A. Additional treatments included Roundup WeatherMax (16 to 21 fl oz/A), WeatherMax + Valor (1 oz/A), or Gramoxone (1 qt/A) plus Caparol (1 qt/A) all alone or mixed with 4 fl oz/A of 2,4-D. An additional study in Tifton included 2,4-D at 4, 8, 12, or 16 fl oz/A on 20-inch primrose that was blooming in early April. Primrose control was visually estimated from 14 to 56 days after treatment.

Primrose control by 2,4-D alone, regardless of size, was excellent. However, the degree of control by 2,4-D was dependent on the amount of time that lapsed after treatment. At 15 days after treatment (DAT), primrose control was less than 62% by 2,4-D at all rates. By 30 DAT, primrose control with 12 and 16 fl oz/A of 2,4-D was greater than 95%, but less control was noted with 4 or 8 fl oz/A of 2,4-D. By 56 DAT, primrose control was at least 98% regardless of 2,4-D rate.

WeatherMax controlled primrose only 32 and 71% at 15 and 45 DAT, respectively. Addition of 4 fl oz/A of 2,4-D in mixture with WeatherMax improved control 25 to 27% at both evaluation timings. Gramoxone plus Caparol or WeatherMax plus Valor were more effective than WeatherMax alone. Control from these options ranged from 87 to 90% at 15 DAT. Although good control was noted, a few primrose plants from each of these treatments began to regrow approximately 21 DAT. By 45 DAT, control was only 81% by both Gramoxone plus Caparol or WeatherMax plus Valor. Mixing 4 fl oz/A of 2,4-D with Gramoxone plus Caparol or WeatherMax plus Valor did not improve control at 15 DAT but improved control by at least 18% at 45 DAT.

Citations

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