CLETHODIM FORMULATIONS IN OILSEED CROPS AND SUGARBEET. Richard K. Zollinger, Kirk A. Howatt, and Alan G. Dexter, Weed Scientists, Department of Plant Sciences, North Dakota State University, Fargo, ND 58105.

Field research was conducted in 2003 at several locations to evaluate efficacy of clethodim formulations applied alone or with broadleaf herbicides. All or some clethodim formulations, including Select (2 lb/gal), Arrow (2 lb/gal), V-10117 (1 lb/gal), V-10137 (1 lb/gal), and V10137 (1 lb/gal) were applied alone or with sugarbeet herbicides, alone on conventional canola, with glufosinate on Liberty Link canola, with glyphosate on Roundup Ready soybean, and with tribenuron on Express Resistant sunflower.

Select, V-10137, and V-10139 applied once alone with MSO adjuvant or four times at seven day intervals with desmedipham&phenmedipham + triflusulfuron + clopyralid + MSO adjuvant at 0.08 + 0.004 + 0.031 lb/A + 1.5% v/v (micro-rate) gave 100% control of foxtail millet, durum wheat, tame oat, and corn. However, MSO adjuvant cannot be used with conventional rates of sugarbeet herbicides two to four times higher than the micro-rate, due to the excessive risk of sugarbeet injury. Select and V-10139 without MSO applied in the last of three or in all three conventional rate applications gave 68 to 89% grass control. V-10137 without MSO applied in the last of three or in all three conventional rate applications gave 90 to 98% grass control, better than Select or V-10139 plus conventional rates without MSO but not as good as Select, V-10139 or V-10137 plus the micro-rate plus MSO. V-10137 without MSO gave 100% grass control when applied without other herbicides. These results suggest that V-10137 does not need MSO when used alone but including MSO would increase grass control from V-10137 when used in combination with other herbicides.

In conventional canola, by 30 DAT, Select, V-10117, and V-10137 formulations of clethodim at 1.5 oz/A plus PO or V-10137 without PO, gave 99% control of wheat and barley. However, speed of kill was faster with V-10137 without PO adjuvant. In Liberty Link canola, glufosinate at 6 oz/A plus ammonium sulfate (AMS) applied with Select, V-10117, V-10137, and V-10139 at 1 oz/A also gave 99% grass control at 28 DAT.

In Roundup Ready soybean, by 14 DAT, Select, Arrow, and V-10139 formulations of clethodim at 1.25 oz/A with or without nonionic surfactant (NIS) plus AMS applied alone or with glyphosate gave 99% volunteer corn and yellow foxtail control. V-10137 at 1.25 oz/A with no adjuvants provided 99% volunteer corn and yellow foxtail control but when applied with either PO or NIS alone or with AMS, yellow foxtail control was reduced to 70 to 85%. Initially, V-10137 without PO adjuvant produced a faster speed of kill but all treatments provided 99% grass control by 28 DAT.

In Express Resistant sunflower, tribenuron at 0.19 oz/A antagonized wheat and yellow foxtail control from Select, Arrow, V-10117, and V-10139 but not V-10137, applied at 1.5 oz/A. Grass control was reduced from 99% when clethodim formulations (except V-10137) were applied with PO to 50% to 80% when applied with tribenuron plus PO. V-10137 plus PO, or V-10137 plus tribenuron with or without PO gave 99%, 96%, and 92% grass control, respectively.

The results from clethodim formulations of V-10117 and V-10139 applied with PO in canola, soybean and sunflower suggest that control is similar to Select or Arrow plus PO applied at similar rates. However, V-10137 does not need oil adjuvant for grass control and can overcome tribenuron antagonism. Including an oil adjuvant with V-10137 may not increase grass control when used with tribenuron.

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