Herbicide Application Methods and Adjuvants

Acifluorfen: spray volume and adjuvants. Ramsdale, Brad K. and Calvin G. Messersmith. The experiment was conducted to examine the influence of spray volume and adjuvants on acifluorfen efficacy. Oilseed sunflower, 'Neche' flax, and 'Mancan' tame buckwheat were planted as 6-ft-wide strips side-by-side on May 25, 2003, near Fargo, ND. Plots 12 ft wide were laid out perpendicular to the strips so that each plot contained all three assay species. Treatments were applied on July 2 with an all-terrain vehicle equipped with a four-nozzle boom (20-inch spacing) offset to one side. All treatments were applied at 20 psi. Spray volumes at 2.5 and 5 gpa were applied with Turbo TeeJet 11001 nozzles and at 10 and 20 gpa were applied with Turbo TeeJet 11004 nozzles, and speed was adjusted to apply the correct volume with each nozzle. Conditions at application were 78 F, 70% RH, wind 8 to 10 mph, and sky 80% clouds. Sunflower was 8- to 12-inch, flax 8- to 12-inch, and buckwheat 8- to 15-inch. Experimental design was a randomized complete block with four replicates. Weed control was evaluated visually where 0 equaled no visible injury and 100 equaled complete control of assay species.

Acifluorfen efficacy was generally the highest when applied with Scoil at 1.5 pt/A in 5, 10, or 20 gpa spray volume, or when applied with Quad 7 at 1% v/v in 10 or 20 gpa spray volume. Broadleaf control by acifluorfen plus Herbimax at 1.5 pt/A or Activator 90 at 0.25% v/v was not influenced by spray volume, but control was less than by acifluorfen plus Scoil or Quad 7. (Dept. of Plant Sciences, North Dakota State University, Fargo)

Table. Acifluorfen: spray volume and adjuvants. (Ramsdale and Messersmith)

			July 16			July 23		
Treatment[a]	Rate	Volume[b]	Sunflower	Tame buckwheat	Flax	Sunflower	Tame buckwheat	Flax
	(lb/A)	(gpa)	(%)	(%)	(%)	(%)	(%)	(%)
Acifluorfen + Scoil	0.13 + 1.5 pt	2.5	35	60	56	30	51	53
Acifluorfen + Quad 7	0.13 + 1%	2.5	25	53	45	21	46	44
Acifluorfen + Activator 90	0.13 + 0.25%	2.5	30	49	46	29	46	46
Acifluorfen + Herbimax	0.13 + 1.5 pt	2.5	34	55	39	36	55	45
Acifluorfen + Scoil	0.13 + 1.5 pt	5	45	75	64	46	76	65
Acifluorfen + Quad 7	0.13 + 1%	5	35	69	51	33	71	54
Acifluorfen + Activator 90	0.13 + 0.25%	5	30	46	50	26	41	48
Acifluorfen + Herbimax	0.13 + 1.5 pt	5	34	61	50	29	55	53
Acifluorfen + Scoil	0.13 + 1.5 pt	10	43	61	61	44	65	63
Acifluorfen + Quad 7	0.13 + 1%	10	41	76	64	41	80	64
Acifluorfen + Activator 90	0.13 + 0.25%	10	28	44	49	25	43	54
Acifluorfen + Herbimax	0.13 + 1.5 pt	10	34	53	54	29	49	50
Acifluorfen + Scoil	0.13 + 1.5 pt	20	46	70	64	44	70	61
Acifluorfen + Quad 7	0.13 + 1%	20	45	70	65	41	71	64
Acifluorfen + Activator 90	0.13 + 0.25%	20	36	50	56	30	41	55
Acifluorfen + Herbimax	0.13 + 1.5 pt	20	30	54	46	30	48	49
LSD (5%)			8	10	9	7	8	8

[a] Scoil = methylated seed oil; Quad 7 = basic pH blend adjuvant; Activator 90 = nonionic surfactant; Herbimax = petroleum oil concentrate.

[b] Spray volumes at 2.5 and 5 gpa were applied with Turbo TeeJet 11001 nozzles and at 10 and 20 gpa were applied with Turbo TeeJet 11004 nozzles.