Spray nozzle and adjuvant effects on bentazon efficacy. Ramsdale, Brad K., Sam J. Lockhart, and Calvin G. Messersmith. The experiment was conducted to examine the influence of drift-reducing nozzles and adjuvants on bentazon efficacy. Bioassay species were planted as 6-ft-wide strips side-by-side. Plots 12 ft wide were laid out perpendicular to the strips so that each plot contained all bioassay species. Treatments were applied at 10 gpa with an all-terrain vehicle equipped with a four-nozzle boom (20-inch spacing) offset to one side. 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 death of assay species.

Experiment location	Fargo	Casselton
Planting date	May 22	May 24
Treatment date	June 18	June 20
Air temperature (F)	75	72
Relative humidity (%)	65	40
Wind (mph)	12-15	5
Sky (% clouds)	80	40
Sunflower		
variety	F_2 oilseed	F_2 oilseed
height (inch)	5-7	6-8

The Extended Range nozzle at 40 psi represented a standard flat-fan nozzle application. Sunflower control by bentazon plus petroleum oil applied through Turbo TeeJet nozzles was less than when applied through Extended Range nozzles at Fargo. However, bentazon efficacy was generally similar for all nozzles when applied with methylated vegetable oil or basic pH blend adjuvants. Bentazon applied through drift reducing nozzles provided similar sunflower control compared to application through an Extended Range nozzle at Casselton. Bentazon was generally most effective when applied with a methylated vegetable oil adjuvant. Sunflower control by bentazon plus the basic pH blend adjuvant was generally similar to bentazon plus petroleum oil. (This material is based upon work supported by the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture, under Agreement No. 00-34361-9038. Dept. of Plant Sciences, North Dakota State University, Fargo)

Table 1. Spray nozzle and adjuvant effects on bentazon efficacy, Fargo, ND. (Ramsdale, Lockhart, and Messersmith)

Treatment[ab]	Rate	Nozzle[c]	Pressure	Speed	Sunflower control	
					June 27	July 8
	(lb/A)		(psi)	(mph)	(%)	(%)
Bentazon + PO	0.5 + 1.5 pt	XR 11002	40	6	71	33
Bentazon + PO	0.5 + 1.5 pt	TT 11002	20	4.2	39	11
Bentazon + PO	0.5 + 1.5 pt	AI 11002	60	7.1	56	25
Bentazon + PO	0.5 + 1.5 pt	TDXL-110-02	60	7.1	64	25
Bentazon + MVO	0.5 + 1.5 pt	XR 11002	40	6	71	33
Bentazon + MVO	0.5 + 1.5 pt	TT 11002	20	4.2	66	29
Bentazon + MVO	0.5 + 1.5 pt	AI 11002	60	7.1	75	39
Bentazon + MVO	0.5 + 1.5 pt	TDXL-110-02	60	7.1	75	38
Bentazon + BB	0.5 + 1%	XR 11002	40	6	60	26
Bentazon + BB	0.5 + 1%	TT 11002	20	4.2	63	26
Bentazon + BB	0.5 + 1%	AI 11002	60	7.1	59	26
Bentazon + BB	0.5 + 1%	TDXL-110-02	60	7.1	60	26
LSD (5%)					14	9

[a] PO = Herbimax petroleum oil concentrate; MVO = Scoil methylated vegetable oil; BB = Quad 7 basic pH blend adjuvant.
[b] All treatments were applied at 10 gpa.
[c] XR = extended range; TT = Turbo TeeJet; AI = AI TeeJet; TDXL = TurboDrop XL.

Table 2. Spray nozzle and adjuvant effects on bentazon efficacy, Casselton, ND. (Ramsdale, Lockhart, and Messersmith)

Treatment[ab]	Rate	Nozzle[c]	Pressure	Speed	Sunflower control	
					July 1	July 9
	(lb/A)		(psi)	(mph)	(%)	(%)
Bentazon + PO	0.5 + 1.5 pt	XR 11002	40	6	81	50
Bentazon + PO	0.5 + 1.5 pt	TT 11002	20	4.2	76	49
Bentazon + PO	0.5 + 1.5 pt	AI 11002	60	7.1	74	44
Bentazon + PO	0.5 + 1.5 pt	TDXL-110-02	60	7.1	78	46
Bentazon + MVO	0.5 + 1.5 pt	XR 11002	40	6	86	58
Bentazon + MVO	0.5 + 1.5 pt	TT 11002	20	4.2	86	56
Bentazon + MVO	0.5 + 1.5 pt	AI 11002	60	7.1	85	56
Bentazon + MVO	0.5 + 1.5 pt	TDXL-110-02	60	7.1	84	54
Bentazon + BB	0.5 + 1%	XR 11002	40	6	88	55
Bentazon + BB	0.5 + 1%	TT 11002	20	4.2	81	53
Bentazon + BB	0.5 + 1%	AI 11002	60	7.1	77	49
Bentazon + BB	0.5 + 1%	TDXL-110-02	60	7.1	78	50
LSD (5%)					NS	NS

[a] PO = Herbimax petroleum oil concentrate; MVO = Scoil methylated vegetable oil; BB = Quad 7 basic pH blend adjuvant.
[b] All treatments were applied at 10 gpa.
[c] XR = extended range; TT = Turbo TeeJet; AI = AI TeeJet; TDXL = TurboDrop XL.