

PROJECT TITLE: COMBINATION HERBICIDE STUDY

YEAR/PROJECT: 1991/754

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OBJECTIVE: To determine the effectiveness of broadleaf and wild oat herbicides in tank mixes for broad-spectrum weed control.

RESULTS: Significant yield, test weight, and percent plump reductions were a result of inadequate wild oat control in several treatments of a combination herbicide evaluation performed in Gallatin spring barley. Diclofop, imazamethabenz, and fenoxaprop gave 62%, 81%, and 88% wild oat control, respectively, and had equal yields (84-91 bu/a). The check variety yielded 26.46 bu/a. 2,4-D, when mixed with diclofop, imazamethabenz, or fenoxaprop, caused reduction in wild oat control and resulted in significant yield losses in most cases. Tribenuron combined with either imazamethabenz or fenoxaprop caused reduction in wild oat control. A yield loss was also observed in the tribenuron + imazamethabenz treated plots. Reduction of wild oat control was observed in plots treated with bromoxynil/MCPA plus imazamethabenz or diclofop, yet not when bromoxynil/MCPA was mixed with fenoxaprop. Thifensulfuron + tribenuron did not cause reduction in wild oat control when combined with the wild oat herbicides. All broadleaf herbicides gave consistent broadleaf weed control when combined with the wild oat herbicides. Broadleaf weed control recorded in the check (Table 3) was in response to extreme wild oat competition.

SUMMARY: In testing various broadleaf and wild oat herbicide combinations it was found that some herbicide combinations caused reduction of wild oat control and resulted in significant yield loss.

FUTURE PLANS: Wild oat and broadleaf herbicide evaluations will continue to be a part of the weed management program at the Northwestern Agricultural Research Center in Kalispell.

Table 1. Agronomic data from the Broadleaf and Wild Oat Combination Herbicide Study on spring barley - NWARC, Kalispell, MT in 1991.

Treatment	Rate AI/A	YIELD Bu/A	TEST WT Lbs/Bu	% PLUMP	HEIGHT (IN)
Thifensulfuron+ tribenuron+ diclofop	.25oz .75#	92.08	52.47	83.25	38.39
Bromoxynil/MCPA+ diclofop 1/	.375# .75#	78.40	51.78	85.75	39.37
Tribenuron + diclofop 1/	.125oz .75#	87.33	51.83	81.50	40.35
2,4-D + diclofop 1/	.375# .75#	54.47	48.78	75.75	41.34
Thifensulfuron+ tribenuron+ fenoxaprop	.25oz .66	81.39	51.63	83.25	39.37
Bromoxynil/MCPA+ fenoxaprop	.375# .66#	91.61	53.02	91.50	42.81
Tribenuron+ fenoxaprop	.125oz .66#	86.88	52.67	89.25	40.35
2,4-D + fenoxaprop	.375# .66#	68.15	50.60	85.75	37.89
Thifensulfuron+ tribenuron + imazamethabenz 2/	.25oz .45#	78.91	52.08	87.25	36.91
Bromoxynil/MCPA+ imazamethabenz 2/	.375# .45#	73.53	51.68	86.00	39.86
Tribenuron+ imazamethabenz 2/	.125oz .45#	65.32	51.15	84.50	39.37
2,4-D + imazamethabenz 2/	.375# .45#	84.56	52.22	90.25	38.39
Diclofop 1/	.75#	83.94	52.87	89.00	39.86
Imazamethabenz 2/	.45#	86.10	52.63	88.25	39.86
Fenoxaprop	.66#	90.89	52.35	87.75	37.89
Check	----	26.46	48.60	75.25	40.85
OVERALL MEAN =		76.88	51.65	85.27	39.55
LSD(0.05 by t)=		17.47	1.549	6.160	NS

1/ Surfactant added at 1 pt R-11/Acre

2/ Surfactant added at .25% v/v R11/Acre

Table 2. Agronomic data from the Broadleaf and Wild Oat Combination Herbicide Study on Spring Barley - NWARC, Kalispell, MT in 1991.

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Treatment	Rate AI/A	% INJURY	% W Oat CONTROL	LODGING PREV. 3/	LODGING SEVER 4/
Thifensulfuron+ tribenuron+ diclofop 1/	.25oz .75#	.0000	69.50	67.50	7.250
Bromoxynil/MCPA+ diclofop 1/	.375# .75#	.2500	48.75	45.00	6.000
Tribenuron + diclofop 1/	.125oz .75#	.1250	60.00	72.50	7.500
2,4-D + diclofop 1/	.375# .75#	.0000	6.250	77.50	7.500
Thifensulfuron+ tribenuron+ fenoxaprop	.25oz .66#	.3750	78.50	73.75	6.250
Bromoxynil/MCPA+ fenoxaprop	.375# .66#	.0000	85.25	26.25	4.500
Tribenuron+ fenoxaprop	.125oz .66#	.3750	49.50	62.50	5.750
2,4-D + fenoxaprop	.375# .66#	.6250	28.75	51.25	5.000
Thifensulfuron+ tribenuron + imazamethabenz 2/	.25oz .45#	1.000	75.25	59.75	6.500
Bromoxynil/MCPA+ imazamethabenz 2/	.375# .45#	.0000	48.75	63.75	7.000
Tribenuron+ imazamethabenz 2/	.125oz .45#	.3750	43.50	78.50	7.000
2,4-D + imazamethabenz 2/	.375# .45#	.8750	67.75	2.500	1.000
Diclofop 1/	.75#	.1250	61.50	17.50	4.250
Imazamethabenz 2/	.45#	.6250	81.00	32.50	5.750
Fenoxaprop	.66#	.5000	87.50	28.75	5.250
Check	----	.0000	.0000	76.25	7.500

OVERALL MEAN = .3281 55.73 52.23 5.875
LSD(.05 by t) = NS 31.30 35.46 2.487

1/ Surfactant added at 1 pt R-11/Acre

2/ Surfactant added at .25% v/v R11/Acre

3/ Lodging Prev. = prevalence (%) of plot lodged

4/ Lodging Sever.= severity, 0 = none, 9 = lodged to ground

Table 3. Broadleaf weed control scores, Broadleaf and Wild Oat Combination Herbicide Study on Spring Barley - NWARC, 1991.

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Treatment	Rate AI/A	% Weed Control		7/18/91 Fanweed	3/ W.Buck
		Chickweed	Silene		
Thifensulfuron+ tribenuron+ diclofop 1/	.25oz .75#	100.0	100.0	100.0	100.0
Bromoxynil/MCPA+ diclofop 1/	.375# .75#	20.00	.0000	100.0	100.0
Tribenuron + diclofop 1/	.125oz .75#	100.0	99.50	100.0	73.75
2,4-D + diclofop 1/	.375# .75#	65.00	57.50	100.0	97.50
Thifensulfuron+ tribenuron+ fenoxaprop	.25oz .66#	100.0	97.50	100.0	100.0
Bromoxynil/MCPA+ fenoxaprop	.375# .66#	25.00	17.50	100.0	77.50
Tribenuron+ fenoxaprop	.125oz .66#	100.0	98.75	100.0	76.25
2,4-D + fenoxaprop	.375# .66#	45.00	43.75	100.0	45.00
Thifensulfuron+ tribenuron + imazamethabenz 2/	.25oz .45#	99.50	97.25	100.0	100.0
Bromoxynil/MCPA+ imazamethabenz 2/	.375# .45#	70.00	37.50	100.0	100.0
Tribenuron+ imazamethabenz 2/	.125oz .45#	100.0	68.75	100.0	100.0
2,4-D + imazamethabenz 2/	.375# .45#	12.50	32.50	75.00	100.0
Diclofop 1/	.75#	.5000	.0000	.0000	.0000
Imazamethabenz 2/	.45#	7.500	.0000	100.0	100.0
Fenoxaprop	.66#	25.00	30.00	100.0	37.50
Check	----	98.75	98.75	98.75	98.75
OVERALL MEAN =		60.55	54.95	92.11	81.64
LSD(0.05 by t)=		41.35	40.90	17.84	33.40

1/ Surfactant added at 1 pt R-11/Acre

2/ Surfactant added at .25% v/v R11/Acre

3/ % Weed control by ocular rating;

Chickweed (Stellaria media), Silene = Nightflowering catchfly (Silene noctiflora), Fanweed (Thlaspi arvense), and Wild buckwheat (Polygonum convolvulus).