Evaluation of oat tolerance to herbicides. Wrage, Leon J., Darrell L. Deneke, David A. Vos, Brian T. Rook, and Shane M. Andersen. Plots were established at the Northeast South Dakota Research Farm near Watertown, South Dakota in 2003. The site had a Kranzburg silt loam soil with 3.0% organic matter and a pH of 6.1. The seedbed was prepared in soybean stubble using a fall chisel operation and a field cultivator prior to planting. Loyal oat was seeded May 12, 2003 using 100 lb/A seed with a press drill having 6 inch row spacings. Herbicide treatments were arranged in a randomized complete block design with four replications of plots 10 x 50 feet. Postemergence treatments were applied with a bicycle plot sprayer using compressed air equipped with 8002 flat fan nozzles spaced 20 inches set at 40 psi to deliver 20 gpa. Plots were visually evaluated for crop response. Yields were determined by harvesting a 5 by 45 foot area from the center of each plot using a plot combine. Application information and weather data are presented below.

Date	June 3, 2003	June 9, 2003
Treatment	POST	LPOST
Temperature (F.)	60°	75°
Soil Condition	adequate	adequate
Soil Temperature (F.)		
surface	58°	60°
2 inch	54°	56°
Oat		
height (inch)	6-8	8-10
leaf no.	5	6
Precipitation (inch)		
week 1	0.41	0.02
week 2	0.00	0.03

Results are summarized in the accompanying table. Crop emergence was uniform. Below normal mid and late season precipitation may have reduced recovery for treatments that affected the crop. Comparisons included X and 2X rates of labeled oat herbicides along with mesotrione at X and 2X rates. The X and 2X rates of herbicides provided similar crop vigor reduction. Yield data directly corresponds to crop vigor reduction. Late postemergence treatments did not affect crop vigor and yield to the degree of postemergence treatments. Plant Science Department, South Dakota State University, Brookings, SD.

Table. Evaluation of oat tolerance to herbicides. (Wrage, Deneke, Vos, Rook, and Andersen).

Treatment[a/]	Rate	Crop stage	Crop vigor reduction 7/9/03	Oat Yield	Oat Test Wt.
	(lb/A)		(%)	(bu/A)	(lb/bu)
Check	----	----	0	125	37
2,4-D amine[b/]	0.475	POST	20	67	29
2,4-D amine[b/]	0.95	POST	20	74	29
2,4-D ester[c/]	0.5	POST	20	70	29
2,4-D ester[d/]	0.5	POST	18	78	31
MCPA amine	0.5	POST	0	122	37
MCPA amine	1.0	POST	0	116	36
MCPA ester	0.463	POST	0	107	36
Bromoxynil&MCPA[e/]	0.25&0.25	POST	0	137	36
Bromoxynil&MCPA[e/]	0.5&0.5	POST	0	128	37
Dicamba+MCPA amine	0.094+0.25	POST	0	120	36
Fluroxypyr+NIS[f/]	0.126+0.25%	POST	0	120	36
Fluroxypyr+NIS[f/]	0.249+0.25%	POST	0	123	37
Carfentrazone+NIS[g/]	0.008+0.25%	POST	0	121	37
Carfentrazone+NIS[g/]	0.016+0.25%	POST	0	126	37
Mesotrione+COC+28% N	0.063+1%+2.5%	POST	0	124	37
Mesotrione+COC+28% N	0.125+1%+2.5%	POST	0	121	36
Thifensulfuron+NIS[g/]	0.014+0.25%	POST	0	131	37
Propanil&MCPA[h/]+COC	0.43&0.12+0.625%	POST	0	126	36
Propanil&MCPA[h/]+COC	0.86&0.24+0.625%	POST	0	124	36
MCPA amine	1	LPOST	0	124	36
Bromoxynil&MCPA[e/]	0.25&0.25	LPOST	0	126	36
2,4-D amine[b/]	0.475	LPOST	8	110	32
LSD (P=0.05)			1	26	3

[a/] Additives. COC is Premium COC petroleum oil concentrate by Van Diest Supply Company.
[b/] 2,4-D amine is Opti-Amine by Helena Chemical Company.
[c/] 2,4-D amine is Salvo by Platte Chemical Company.
[d/] 2,4-D ester is 2,4-D LV4 by Agriliance, LLC.
[e/] Premix=Bronate Advanced.
[f/] NIS=LI-700 non-ionic surfactant by Loveland Industries, Inc.
[g/] NIS=Cornbelt Premier 90 non-ionic surfactant by Van Diest Supply Company.
[h/] Premix=Stampede CM.