Cheatgrass control in winter wheat.   Peterson, Dallas E. and David L. Regehr.   An experiment was conducted near Manhattan, KS on a Reading silt loam soil with 2.5% organic matter and a pH of 5.7 to evaluate several herbicide treatments for cheatgrass control in "2137" hard red winter wheat seeded with a double disk drill on October 8, 2001.   Preemergence treatments were applied to the soil surface on October 8, with 72 F and 59% relative humidity. Precipitation of 0.9 inch was received within 1 week after planting, resulting in uniform germination and emergence of crop and weeds. Early fall postemergence (EFP) treatments were applied to 2- to 3-leaf wheat and 1- to 3-leaf cheat and downy brome on November 1 with 68 F, 48% relative humidity, and clear skies. Fall postemergence (FP) treatments were applied to 4-leaf and 2- to 4-tiller wheat, and 1- to 3-tiller cheat and downy brome on November 15 with 67 F, 57% relative humidity, and clear skies. Early spring postemergence (ESP) treatments were applied to tillering wheat and weeds on March 16, 2002 with 42 F, 49% relative humidity, and clear skies. Spring postemergence (SP) treatments were applied to fully tillered wheat and cheatgrass on April 4 with 53 F, 21% relative humidity, and mostly clear skies. Treatments were applied with a CO_2 back-pack sprayer delivering 20 gpa at 25 psi through XR8002 flat fan spray tips to the center 6.3 ft of 10- by 20-ft plots. The experiment was a randomized complete block design with three replications. Wheat injury was evaluated November 21 and May 14. Cheat and downy brome control was visually estimated on May 14 and June 7. Wheat was harvested on June 26.

Several treatments caused minor stunting after application, but injury disappeared with time. AEF 130060 caused severe wheat injury and stand reduction with the fall application, but was applied without a safener that is normally included to reduce the risk of wheat injury. Spring applied AEF 130060 was less injurious. MON-37500 preemergence did not give good cheat or downy brome control, despite good soil moisture following planting and application. Cheat control was generally better than downy brome control with most postemergence treatments. Treatments with MKH-6561 or MKH-6562 gave near complete cheat control from both spring and fall applications. Fall applied MON-37500 gave excellent cheat control, but control with spring applied MON-37500 tended to be slightly lower. Downy brome control was similar for MON-37500 and MKH-6561, which was better than with MKH-6562. Early fall postemergence treatments provided the best downy brome control. Wheat yield generally related to cheatgrass control and crop injury. (Dept. of Agronomy, Kansas State University, Manhattan)

Table. Cheatgrass control in winter wheat   (Peterson and Regehr).

Treatment[a]	Application Rate[b]	Time[c]	Wheat 11-21-01	Wheat 5-14-02	Cheat 5-14-02	Cheat 6-7-02	Downy Brome 5-14-02	Downy Brome 6-7-02	Wheat yield
	(oz/A)		-----(% injury)-----		------------------(% control)------------------				(Bu/A)
MON-37500	0.5	PRE	0	0	57	43	53	37	39
MON-37500+NIS	0.5+0.5%	EFP	10	3	100	99	87	87	43
MKH-6561+NIS	0.42+0.5%	EFP	9	3	100	100	92	93	37
MKH-6561+NIS	0.64+0.5%	EFP	15	5	100	100	95	98	43
MKH-6562+NIS	0.42+0.5%	EFP	6	1	99	100	50	33	42
MON-37500+NIS	0.5+0.5%	FP	4	0	99	100	67	65	36
MKH-6561+NIS	0.42+0.5%	FP	4	0	100	100	57	50	41
MKH-6561+NIS	0.64+0.5%	FP	4	1	100	100	73	63	39
MKH-6562+NIS	0.42+0.5%	FP	3	1	100	100	33	23	36
AEF 130060+MSO+28%N	0.21+1%+2%	FP	5	53	97	100	91	85	32
MON-37500+NIS	0.5+0.5%	ESP		4	96	96	53	50	39
MKH-6561+NIS	0.64+0.5%	ESP		2	99	100	57	60	40
MKH-6561+metribuzin+NIS	0.64+2.25+0.5%	ESP		4	100	100	68	67	40
MKH-6562+NIS	0.42+0.5%	ESP		2	98	100	43	23	36
MON-37500+NIS	0.5+0.5%	SP		3	87	91	75	68	39
MKH-6561+NIS	0.64+0.5%	SP		0	95	100	68	67	45
MKH-6561+metribuzin+NIS	0.64+2.25+0.5%	SP		5	95	100	65	67	34
MKH-6562+NIS	0.42+0.5%	SP		0	97	98	27	10	42
AEF 130060+MSO+28%N	0.21+1%+2%	SP		9	73	78	37	23	34
No treatment									
LSD (5%)			2	3	15	15	17	13	7

[a] NIS = Activate Plus nonionic surfactant from Agriliance; MSO = Destiny methylated seed oil from Agriliance; 28%N = 28% UAN liquid nitrogen fertilizer.
[b] % = % v/v.
[c] PRE = preemergence; EFP = early fall postemergence; FP = fall postemergence; ESP = early spring postemergence; SP = spring postemergence.