

PROJECT TITLE: Bedstraw Herbicide Study

YEAR/PROJECT: 1989/754

PROJECT PERSONNEL: Leader - Vern R. Stewart, Todd K. Keener - Research Specialist, NWARC - Kalispell, MT  
Chemical cooperators

OBJECTIVE: Evaluate Assert, Bronate and combinations of these herbicides for bedstraw control.

SUMMARY: Assert and Bronate alone, as well as in combination, provided very good control of bedstraw at each of the three application dates.

RESEARCH METHODS:

Plots were established in a field of Gallatin spring barley in a randomized complete with four replications. Treatments were applied either June 6, June 22, or June 28. Applications were made using a research-type, tractor mounted sprayer using 24.85 gpa, 8002 nozzles, and 32 psi.

Application data:	June 7	June 22	June 28
Air temp:	79 F	62 F	81 F
Soil temp:	74	69	74
Rel humid:	4 %	15%	4%
Wind (mph):	0-2	3-4	4-5
Cloud cover:	clear	overcast	clear
Soil moisture:	top/good	top/fair	top/dry
	sub/v.good	sub/good	sub/good
Crop stage:	3 lf	8 "	8-10 "
Bedstraw-	2-4 lf	seedling - 1"	1-2 "
Fanweed -	4-8 lvs	2-3 "	4 "
W. buck -	cotylydons	4-8 lvs	none

RESULTS:

It was an objective of this study to find if timing of herbicide applications is effective in the control of bedstraw. Bedstraw was prevalent in the initial stages of this test but was thinned out by the grain, and probably, non-conducive growing conditions.

Similar rates of Assert and Bronate alone, and in combinations, resulted in lower yields with the later application dates. The yield differences were significantly less than the check in the two later application dates of Assert alone and the second application date of Bronate. It appears the later applications of Assert were more injurious than those of Bronate. Yield differences in the combination treatments did not vary greatly because of application dates.

Test weights were significantly less than the check for each treatment except for Assert and Bronate applied alone at the first application date. Height was significantly less for all Assert treatments except where Assert and Bronate were combined at the early application.

With out having the weed pressure from bedstraw through out the growing season it is impossible to pick the most effective application date. Even with the potential for crop injury with Assert, Bronate, or combination treatments later in the season, the proper timing for a herbicide treatment of this nature would be very beneficial. We hope to deter-

mine the exact effects of these treatments on grain yields and the most beneficial time of applications in further research. Table 1 and 2.

FUTURE PLANS:

The weed, Bedstraw, continues to encroach upon some fields in western Montana. It is a very difficult weed to control with the tools and herbicides we now have, therefore this study should continue in order to find a method to control this species.

Table 1. Agronomic data from Bedstraw Herbicide Study grown on Mahugh farm, Kalispell, MT in 1989.

		Planting date: April 24, 1989	Harvested: Sept. 14, 1989		
Treatment	Appln. Date	Rate lb ai/A	Yield Bu/A	Test wt Lb/Bu	% Plump
Assert	6/7	.47	89.45	50.60	98.40
Assert	6/22	.47	80.78 b	49.80 b	96.70
Assert	6/28	.47	74.50 b	49.77 b	96.90
Bronate	6/7	.375	91.88	50.90	99.37
Bronate	6/22	.375	87.60	50.57 b	98.93
Bronate	6/28	.375	82.08 b	50.63 b	98.67
Assert	6/7	.47 +	88.33	50.47 b	95.40
	+ Bronate	.375			
Assert	6/22	.47 +	86.33	50.00 b	97.53
	+ Bronate	.375			
Assert	6/28	.47 +	85.70	49.57 b	96.87
	+ Bronate	.375			
Check			92.40	51.03	99.30
OVERALL MEAN	=		85.90	50.33	97.81
F-RATIO TRTS	=		2.695*	19.81**	1.702
P-VALUE TRTS	=		.0323	.0000	.1566
CV (SE/MEAN)	=		3.886	.2280	1.039
LSD(0.05 by t)=			9.918	.3410	3.019

\* or \*\* Indicates statistical significance at the .05 and .01 level respectively  
b/ Value significantly less than the check

Table 2. Agronomic data from Bedstraw Herbicide Study grown on the Mahugh farm, Kalispell, MT in 1989.

Planting date: April 24, 1989 Date harvested: Sept. 14, 1989

Treat- ment	Appln. Date	Rate lb ai/A	--- % Weed Control 7/19--- BEDSTRAW	WILD BUCK /1	HEIGHT 8/11 (Inches)
Assert	6/7	.47	95.67	100.0	30.84 b
Assert	6/22	.47	78.33	100.0	30.44 b
Assert	6/28	.47	91.67	100.0	30.44 b
Bronate	6/7	.375	78.33	99.67	31.23
Bronate	6/22	.375	98.33	100.0	30.97 b
Bronate	6/28	.375	98.67	100.0	31.10
Assert	6/7	.47 +	99.67	100.0	31.89
		+ Bronate .375			
Assert	6/22	.47 +	98.33	100.0	30.05 b
		+ Bronate .375			
Assert	6/28	.47 +	98.33	100.0	29.40 b
		+ Bronate .375			
Check			.0000	.0000	32.02
OVERALL MEAN	=		83.73	93.30	30.84
F-RATIO TRTS	=		25.15**	4.000**	4.711**
P-VALUE TRTS	=		.0000	.0052	.0022
CV (SE/MEAN)	=		7.272	11.29	1.194
LSD(0.05 by t)=			18.09	31.30	1.094

1/ % Weed control by ocular rating  
 Bedstraw = Galium aparine  
 Wild buckwheat = Polygonum convolulus

\*\* Indicates statistical significance at the .01 level  
 b/ Values significantly less than the check at the .01 level.