

PROJECT TITLE: Bedstraw weed control in Gallatin spring barley.

YEAR/PROJECT: 1990/754

INVESTIGATORS: Leader - Vern R. Stewart, Todd Keener - Research Specialist

OBJECTIVE: To evaluate timing of the herbicide applications of Assert, Bronate, and the combinations of those herbicides for control of bedstraw ( Galium aparine ).

SUMMARY: Yield, test weight and percent plump were not significantly different when comparing applicatons of Assert, Bronate and the combinations of those herbicides at three application dates. Bedstraw was effectively controlled by Bronate and Assert plus Bronate at all application dates.

#### RESULTS:

The experiment was established in a field of Gallatin spring barley. Plots 10 feet by 20 feet were laid out in a randomized complete block with four replications. Treatments were applied May 17, May 26 and June 3. Applications were made with a research-type, tractor mounted sprayer using 24.85 gpa, 8002 nozzles, and 32 PSI.

Application data:	May 17	May 26	June 3
Air temp	63 F	59 F	55 F
Soil temp	60 F	60 F	53 F
Rel Hum.	18 %	31 %	42 %
Wind ( MPH )	2-4	0-3	0
Cloud cover	CLDY	Clear	CLDY
Soil moisture	Top - v good	good	dry
	Sub - v good	good	good
Crop stage:	5 lf	5-7" tillered	7-10 "
Bedstraw(25/ft <sup>2</sup> )	1/4-1/2"	1/2-1 1/2"	1-5"
Fanweed (12/ft <sup>2</sup> )	1" tall	10-12 lvs, 2"	5-8"

Similar rates of Assert and Bronate applied alone, or in combination at three application dates had no effect on yield, test weight or percent plump.

Slight crop injury was observed where Assert and Assert plus Bronate applications were made. Early height readings were significantly less in all Assert treatments as well as for the two later application dates of Assert plus Bronate. The height reductions were not seen in the later height measurements. In a similar study done last year significant height reductions were recorded as late as harvest in all treatments.

Heavy bedstraw populations were effectively controlled by Assert plus Bronate as well as Bronate alone at all three appliction dates. Assert alone failed to provide effective bedstaw control. The later application of Assert plus Bronate was least effective of the three treatment dates (90%). All applications, except Assert applied on 6/3, effectively controlled fanweed. A low level of chickweed control was observed with all herbicide applications.

In a similar study conducted last year seeding and applications were three weeks later in the season. Plant injury was greater

and there were significant differences in all components ( yield, test weight and weed control ) except percent plump. The study this year was initiated earlier and had better yields, good weed control and less plant injury.

Table 1. Agronomic data from the Bedstraw Herbicide Study, Mahugh farm. Kaispell, MT in 1990.

Planting date: May 8, 1990      Harvested: August 10, 1990

Treatment	Rate	Appln Date	Yield Bu/A	Test Wt Lb/Bu	% Plump	Crop /1 Injury	Height (In)6/21	Height (In)8/3
Assert	1.2 pts	5/17	124.3	52.13	96.33	.6667	25.59	38.45
Assert	1.2 pts	5/26	127.5	52.47	96.67	.3333	25.59	38.71
Assert	1.2 pts	6/3	118.8	52.23	96.33	.1667	24.15	37.14
Assert + Bronate	1.2 pts 1.5 pts	5/17	130.8	52.30	95.67	.1667	25.85	38.32
Assert + Bronate	1.2 pts 1.5 pts	5/26	136.7	52.40	95.00	.5000	25.07	38.19
Assert + Bronate	1.2 pts 1.5 pts	6/3	131.7	52.37	95.67	.6667	25.20	38.98
Bronate	1.5 pts	5/17	135.9	52.40	96.00	.0000	25.98	39.76
Bronate	1.5 pts	5/26	131.9	52.67	96.33	.5000	24.93	38.58
Bronate	1.5 pts	6/3	131.0	52.37	94.33	.1667	26.90	38.45
Check	----	---	138.5	52.97	96.00	.0000	27.43	38.32
	Mean		130.7	52.43	95.83	.3167	25.67	38.49
	F Ratio		.9809	.9228	1.038	1.030	2.439	.3890
	P Value		.4921	.5347	.4522	.4582	.0479	.9351
	CV (S/Mean)		4.611	.4674	.7241	79.04	2.382	2.740
	LSD (.05)		17.91	.7281	2.062	.7437	1.816	3.134

1/ Crop Injury: 0-10 rating, 0 = no injury, 10 = dead plants. Rated 6/12/90

Table 2. Weed control data from the Bedstraw Herbicide Study, Mahugh farm.  
 Kaispell, MT in 1990.  
 Planting date: May 8, 1990 Harvested: August 10, 1990

Treatment	Rate	Date	Percent Weed Control 1/					
			BS 6/12	BS 7/12	FW 6/12	FW 7/12	CW 6/12	CW 7/12
Assert	1.2 pts	5/17	35.00	46.67	68.33	96.67	.0000	33.33
Assert	1.2 pts	5/26	15.00	30.00	37.33	100.0	.0000	31.67
Assert	1.2 pts	6/3	.0000	20.00	6.667	33.33	.0000	33.33
Assert + Bronate	1.2 pts 1.5 pts	5/17	97.67	98.67	99.33	100.0	10.00	93.33
Assert + Bronate	1.2 pts 1.5 pts	5/26	87.67	96.33	93.33	100.0	16.67	65.00
Assert + Bronate	1.2 pts 1.5 pts	6/3	61.67	90.00	71.67	100.0	.0000	50.00
Bronate	1.5 pts	5/17	95.67	93.33	98.67	100.0	33.33	66.67
Bronate	1.5 pts	5/27	94.33	98.33	99.00	100.0	33.33	66.67
Bronate	1.5 pts	6/3	61.67	98.33	66.67	100.0	.0000	66.67
Check	----	---	.0000	.0000	.0000	.0000	.0000	.0000
Mean			54.87	67.17	64.10	83.00	9.333	50.67
F Ratio			22.32	24.62	10.13	221.5	.7642	1.695
P Value			.0000	.0000	.0000	.0000	.6602	.1584
CV (S/Mean)			15.34	11.63	18.42	2.902	169.9	40.18
LSD (.05)			25.00	23.21	35.09	7.157	47.11	60.49

1/ Percent Weed Control taken on two dates, 6/12/1990 and 7/12/1990  
 BS = Bedstraw ( Galium aparine ) FW = Fanweed ( Thlaspi arvense )  
 CW = Chickweed ( Stellaria media )