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**Experiment no.: 86020005.**

**Title: The effectiveness of sheep grazing and herbicides for control of leafy spurge.**

**Peterson ranch, Judith Gap, Montana.**

**CROP INFORMATION**

Crop: PASTURE	Seeding Depth:
Planted:	Row Width:
Experimental Design: RCB	Seeding Rate:
Replications: 2	Plot Size: 10 X 100

**SOIL INFORMATION**

Soil Type:	Previous Crop:
Organic Matter: pH:	Fertilizer Used:

**HERBICIDE APPLICATION JUNE 5 1986**

Mixed By: FAY	TREATMENTS 1-11
Applied By: FAY & DAVIS	Surfactant Used: NONE In Trt.
Sprayer: BACKPACK	Surfactant Rate:
Propellant: CO2	Pressure: 40 PSI Volume: 12.2 GPA
Time: 3:00 PM	Nozzles: 8002
Wind Speed: 5-7 MPH	Rel. Humidity: 65%
Wind Direction: NORTH	Air Temperature: 70° F
Note:	Soil Temp.: 2"-72° F; 4"-70° F
Crop Stage:	

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	VEG. 4-8 IN. TALL	HEAVY

**RATING INFORMATION number 01 OF 01 TOTAL RATINGS**

Rated By: FAY	Date: 6-19-86	Crop Stage:
Rating Method: 0=NO CONTROL 100=COMPLETE KILL		

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	VEG. 6-14 IN TALL	HEAVY

**REMARKS**

THE PURPOSE OF THIS EXPERIMENT IS TO MEASURE THE IMPACT OF SHEEP GRAZING OF SPURGE USED IN COMBINATION WITH HERBICIDE APPLICATIONS. THE HERBICIDES WERE APPLIED ON JUNE 5, 1986 TO 4 TO 8 INCH SPURGE ABOUT 1 WEEK AFTER THE SHEEP WERE REMOVED.

HALF OF THE EXPERIMENTAL AREA WAS FENCED AFTER SPRAYING TO EXCLUDE SHEEP. THE EXPERIMENT WILL BE MONITORED EACH YEAR FOR SEVERAL YEARS.

LOW RATES OF TORDON ALONE AND IN COMBINATION WITH STARANE AND 2,4-D PROVIDED GOOD TO EXCELLENT CONTROL OF SPURGE. STARANE ALONE AND OUST WITH 2,4-D PROVIDED EXCELLENT SPURGE CONTROL. THE EXPERIMENTAL AREA WAS GRAZED IN LATE SUMMER SO FALL RATINGS WERE NOT TAKEN.

**Experiment 86020005**

**The effectiveness of sheep grazing and herbicides for control of leafy spurge. Peterson ranch. Judith Gap.**

TREATMENT					PERCENT CONTROL 6-19 SPURGE CONTROL
TRT NO.	CHEMICAL	FORM	RATE LB/A	TIMING	
1	TORDON	2 EC	.125	FLOWERING	.0
2	TORDON	2 EC	.25	FLOWERING	32.5
3	TORDON	2 EC	.5	FLOWERING	75.0
4	TORDON + STARANE	2 EC + 1.67 EC	.125 + .125	FLOWERING	77.5
5	TORDON + STARANE	2 EC + 1.67 EC	.25 + .25	FLOWERING	95.0
6	TORDON + 2,4-D	2 EC + 4 EC	.25 + 1.0	FLOWERING	96.5
7	TORDON + 2,4-D	2 EC + 4 EC	.125 + 1.0	FLOWERING	91.3
8	TORDON	2 EC	1.0	FLOWERING	92.5
9	STARANE	1.67 EC	.50	FLOWERING	97.5
10	CHECK				.0
11	OUST + 2,4D	75DF + 4EC	1 OZ + 1.0	FLOWERING	98.0
				C.V. -	2.92
				LSD 5% -	4.46

**Experiment no.: 86020004.**

**Title: Combinations with Oust for leafy spurge control. Ray Gillespie Farm, Whitehall, Montana.**

**CROP INFORMATION**

Crop: PASTURE	Seeding Depth:
Planted:	Row Width:
Experimental Design: RCB	Seeding Rate:
Replications: 3	Plot Size: 7 X 25

**SOIL INFORMATION**

Soil Type:	Previous Crop: PASTURE
Organic Matter: pH:	Fertilizer Used: NONE

**HERBICIDE APPLICATION JUNE 17, 1986 TREATMENTS 1-4**

Mixed By: LINDQUIST	Surfactant Used: X-77	In Trt. 1-?
Applied By: FELLOWS	Surfactant Rate: .25%	
Sprayer: BACKPACK	Pressure: 40 PSI	Volume: 12 GPA
Propellant: CO2	Nozzles: 8002	
Time: 9:30 AM	Rel. Humidity: 40%	
Wind Speed: 0 MPH	Air Temperature: 83° F	
Wind Direction:	Soil Temp.: 2"-66° F; 4"-62° F	
Note:		
Crop Stage: GRASSES	12 IN. TALL	

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	FLOWER STAGE	HEAVY

**RATING INFORMATION number 01 OF 02 TOTAL RATINGS**

Rated By: FAY, FELLOWS	Date: 7-11-86	Crop Stage:
Rating Method: 0=NO CONTROL 100=COMPLETE KILL		

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	SEED FILL	HEAVY

**RATING INFORMATION number 02 OF 02 TOTAL RATINGS**

Rated By: FAY, MCKONE	Date: 8-22-86	Crop Stage:
Rating Method: 0=NO CONTROL 100=COMPLETE KILL		

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	RIPE	HEAVY

**REMARKS**

OUST ALONE DID NOT VISIBLY INSURE LEAFY SPURGE. ON JULY 11, 1986 IT WAS APPARENT THAT OUST ALONE DID DELAY FLOWERING. IN COMBINATION WITH 2,4-D IT PROVIDED EXCELLENT CONTROL OF LEAFY SPURGE. IT SHOULD BE NOTED THAT 2,4-D PERFORMED EXTREMELY WELL ALONE AT THIS LOCATION IN 1986 SO RATINGS WILL HAVE TO BE CLOSELY OBSERVED IN 1987. IT DID EITHER BLOCK SEED PRODUCTION OR DELAY FLOWERING.

**Experiment No. 86020004.****Combinations with Oust for leafy spurge control. Ray Gillespie Farm. Whitehall, Montana.**

TRT NO.	CHEMICAL	FORM	RATE AMT/A	TREATMENT		
				7-11-86 % SPURGE CONTROL	7-11-86 % CONTROL SEED PRO	8-22-86 % SPURGE CONTROL
1	OUST	75 DF	1 OZ	15.0	100.0	.0
2	OUST+2,4-D	75 DF + 4 EC	1 OZ + 1 LB	98.7	98.3	97.0
3	OUST+BANVEL	75 DF + 2 EC	1 OZ + 2 LB	23.3	56.7	28.3
4	OUST+TORDON	75 DF + 2 EC	1 OZ + .25 LB	30.0	40.0	20.7
5	CHECK			.0	.0	.0
			C.V.	18.10	9.91	20.27
			LSD 5%	11.72	11.01	11.14

**Experiment No.: 86020003.****Title: Banvel and Tordon combinations for leafy spurge control. Ray Gillespie Farm. Whitehall, Montana.****CROP INFORMATION**

Crop: PASTURE

Planted:

Experimental Design:

Replications: 3

RCB

Seeding Depth:

Row Width:

Seeding Rate:

Plot Size: 7 X 25

**SOIL INFORMATION**

Soil Type:

Organic Matter:

pH:

Previous Crop:

Fertilizer Used:

**HERBICIDE APPLICATION**

JUNE 17, 1986

TREATMENTS 1-14

Mixed By: LINDQUIST

Applied By: FELLOWS

Sprayer: BACKPACK

Propellant: CO2

Time: 9:30 A.M.

Wind Speed: 0 MPH

Wind Direction:

Note:

Crop Stage: PASTURE

Surfactant Used: NONE In Trt.

Surfactant Rate:

Pressure: 40 PSI Volume: 12 GPA

Nozzles: 8002

Rel. Humidity: 40%

Air Temperature: 83° F

Soil Temp.: 2"-66° F; 4"-62° F

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	FLOWER STAGE	HEAVY

**REMARKS**

THE COMBINATION OF BANVEL AND TORDON IN TREATMENT 7 PROVIDED 88% CONTROL, BETTER CONTROL OF LEAFY SPURGE THAN EITHER CHEMICAL ALONE. BANVEL OR TORDON IN COMBINATION WITH 2,4-D ALSO PROVIDED EXCELLENT CONTROL. EH 680, A PHENOXY MIXTURE WITH DICAMBA FROM PBI GORDAN LOOKED VERY GOOD AT A RATE OF 3 PINTS PER ACRE.

THE EXPERIMENT WILL BE RATED AGAIN IN 1987.

**Experiment No. 36020003.****Banvel and Tordon combinations for leafy spurge control. Ray Gillespie Farm. Bozeman, Montana.**

TREATMENT				
TRT NO.	CHEMICAL	RATE LB/A	7-11-86 % SPURGE CONTROL	8-22-86 % SPURGE CONTROL
1	BANVEL	2.0	20.0	10.0
4	BANVEL	4.0	46.7	35.0
3	TORDON	.25	15.0	6.7
4	TORDON	.5	33.3	36.7
5	TORDON	1.0	62.3	61.7
6	BANVEL + TORDON	1.0 + .25	57.3	65.3
7	BANVEL + TORDON	1.0 + .5	80.3	83.3
8	BANVEL + TORDON	.5 + .25	34.0	25.0
9	BANVEL + TORDON	.5 + .5	51.7	56.7
10	BANVEL + 2,4-D	.5 + 1.0	83.3	94.0
11	TORDON + 2,4-D	.25 + 1.0	71.7	98.3
12	EH 680	1.0 PT	85.0	80.7
13	EH 680	2.0 PT	84.7	87.0
14	EH 680	3.0 PT	98.3	96.7
15	CHECK		.0	.0
C.V. -			11.66	23.83
LSD 5% -			10.71	22.41

**Experiment No.: 85015006.**

**Title: Effect of herbicides on leafy spurge roots. Brass Lantern Estates. Bozeman, Montana.**

**CROP INFORMATION**

Crop: RANGE  
Planted:  
Experimental Design: RCB  
Replications: 1  
Seeding Depth:  
Row Width:  
Seeding Rate:  
Plot Size: 12 X 50

**SOIL INFORMATION**

Soil Type: GRAVELY LOAM  
Organic Matter: pH:  
Previous Crop: RANGE  
Fertilizer--Used: NONE

**HERBICIDE APPLICATION**

JUNE 20, 1985 TREATMENTS 1-6.  
Mixed By: FAY  
Applied By: CEL LACEY  
Sprayer: BACKPACK  
Propellant: CO2  
Time: 12:00 PM  
Wind Speed: 0-8 MPH  
Wind Direction: NORTH WEST  
Note:  
Crop Stage:  
Surfactant Used: NONE In Trt.  
Surfactant Rate:  
Pressure: 40 PSI Volume: 15.4 GP  
Nozzles: 8002  
Rel. Humidity: 25%  
Air Temperature: 85° F  
Soil Temp.: 2"-86° F; 4"-84° F

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	FULL BLOOM	HEAVY

**RATING INFORMATION** number 01 OF 01 TOTAL RATINGS

Rated By: FAY, DAVIS  
Rating Method: 0=NO CONTROL 100=COMPLETE KILL  
Date: 6-12-86  
Crop Stage: RANGE

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	FLOWERING	MODERATE

**REMARKS**

ONE YEAR AFTER APPLICATION, STARANE, 2,4-D AND BANVEL PROVIDED UNACCEPTABLE CONTROL OF LEAFY SPURGE. TORDON AT ONE AND TWO POUNDS PER ACRE WAS EFFECTIVE.

TREATMENT				
TRT NO.	CHEMICAL	FORM	RATE LB/A	6-12-86 % SPURGE CONTROL
1	TORDON	2EC	.5	40.3
2	TORDON	2EC	1.0	90.0
3	TORDON	2EC	2.0	95.0
4	BANVEL	4EC	4.0	30.0
5	2,4-D AMINE	4EC	2.0	.0
6	STARANE	1.67EC	1.0	10.0
7	CHECK			.0
			C.V. -	*****
			LSD 5% -	*****

**Experiment No.: 86020001.**

**Title: Testing DPD for control of leafy spurge. Ray Gillespie Ranch. Whitehall, Montana.**

**CROP INFORMATION**

Crop: PASTURE	Seeding Depth:
Planted:	Row Width:
Experimental Design: RCB	Seeding Rate:
Replications: 3	Plot Size: 7 X 25

**SOIL INFORMATION**

Soil Type:	Previous Crop:
Organic Matter: pH:	Fertilizer Used:

**HERBICIDE APPLICATION**

JUNE 20, 1986

**TREATMENTS 1-6**

Mixed By: DAVIS	Surfactant Used: LI-700	In Trt. 1-5.
Applied By: BIGLEN	Surfactant Rate: 2Q/100	
Sprayer: BACKPACK	Pressure: 40 PSI	Volume: 34 GPA
Propellant: CO2	Nozzles: 8006	
Time: 12:00 PM	Rel. Humidity: 60%	
Wind SDeed: 4-6 MPH	Air Temperature: 74° F	
Wind Direction: SOUTH	Soil Temp.: 2"-92° F; 4"-73° F	
Note:		
Crop Stage: PASTURE		

----- Weeds Present -----	----- Stage of Growth -----	----- Population Density -----
LEAFY SPURGE	FLOWERING	HEAVY

**RATING INFORMATION** number 01 OF 01 TOTAL RATINGS

Rated By: FAY/FELLOWS	Date: 7-11-86	Crop Stage:
Rating Method: 0 = NO CONTROL 100= COMPLETE KILL		

----- Weeds Present -----	----- Stage of Growth -----	----- Population Density -----
LEAFY SPURGE	SEED FILL	HEAVY

**REMARKS**

DPD ESTER, A MIXED ESTER FORMULATION FROM WEST CHEM, PROVIDED EXCELLENT CONTROL OF LEAFY SPURGE THROUGH AUGUST FOLLOWING A MAY 20 APPLICATION. THIS DEGREE OF CONTROL IS MORE THAN EXPECTED FROM A PHENOXY HERBICIDE.

THE EXPERIMENT WILL BE MONITORED IN 1987.

**Experiment No. 86020001****Testing DPD ester for leafy spurge control. Ray Gillespie Farm. Whitehall, Montana.**

TREATMENT					
TRT NO.	CHEMICAL	RATE LVA	TIMING	7-11-86 % SPURGE CONTROL	8-22-86 % SPURGE CONTROL
1	DPD ESTER	2.0	FLOWERING	86.7	96.7
2	DPD ESTER	4.0	FLOWERING	99.3	99.0
3	DPD ESTER + TORDON	2.0 + 2.5	FLOWERING	96.7	99.3
4	DPD ESTER + BANVEL	2.0 + .5	FLOWERING	93.7	100.0
5	DPD ESTER + TORDON	4.0 + .25	FLOWERING	99.0	100.0
6	TORDON	1.0	FLOWERING	79.0	89.3
7	CHECK			.0	.0
			C.V. -	5.50	4.48
			LSD 5% -	7.76	6.65



**Experiment no.: 86020002.**

**Title: Herbicides for leafy spurge control. Ray Gillespie Farm. Whitehall, Montana.**

**CROP INFORMATION**

Crop: PASTURE	Seeding Depth:
Planted:	Row Width:
Experimental Design: RCB	Seeding Rate:
Replications: 3	Plot Size: 7 X 25

**SOIL INFORMATION**

Soil Type:	Previous Crop: PASTURE
Organic Matter: pH:	Fertilizer Used: NONE

**HERBICIDE APPLICATION**

JUNE 17, 1986

**TREATMENTS 1-14**

Mixed By: DAVIS	Surfactant Used: X-77 In Trt.
Applied By: COBLE	Surfactant Rate: .25%
Sprayer: BACKPACK	Pressure: 40 PSI Volume: 14.5GPA
Propellant: CO2	Nozzles: 8002
Time: 9:30 AM	Rel. Humidity: 40%
Wind Speed: 0 MPH	Air Temperature: 83° F
Wind Direction:	Soil Temp.: 2"-66° F; 4"-62° F
(Note: * X-77 WAS ADDED TO TREATMENTS 1-9, 12 & 13 AT A RATE OF .25%)	
Crop Stage: GRASSES 12 IN.TALL	

----- Weeds Present -----	----- Stage of Growth -----	----- Population Density -----
LEAFY SPURGE	FLOWERING	HEAVY

**RATING INFORMATION** number 01 OF 02 TOTAL RATINGS

Rated By: FAY, FELLOWS	Date: 7-11-86	Crop Stage: PASTURE
Rating Method: 0=NO CONTROL 100=COMPLETE KILL		

----- Weeds Present -----	----- Stage of Growth -----	----- Population Density -----
LEAFY SPURGE	SEED FILL	HEAVY

**RATING INFORMATION** number 02 OF 02 TOTAL RATINGS

Rated By: FAY, MCKONE	Date: 8-22-86	Crop Stage: PASTURE
Rating Method: 0=NON CONTROL 100=COMPLETE KILL		

----- Weeds Present -----	----- Stage of Growth -----	----- Population Density -----
LEAFY SPURGE	RIPE	HEAVY

**REMARKS**

OUST AND ESCORT ALONE AND IN COMBINATION DID NOT PROVIDE EFFECTIVE CONTROL OF LEAFY SPURGE. KRENITE S CONTINUES TO BE UNEFFECTIVE IN OUR TRIALS. THE DUPONT COMPANY OBTAINED A LABEL FOR SPURGE CONTROL BASED ON COMPANY RESULTS WHICH ARE VERY PROMISING. THIS DISCREPANCY IS VERY PERPLEXING.

OUST WITH 4 OZ. OF 2,4-D PROVIDED GOOD SPURGE CONTROL. THE POSSIBLE-INTERACTION BETWEEN PHENOXYs AND SULFONYLUREAS MUST BE STUDIED MORE CLOSELY SINCE ENORMOUS POTENTIAL EXISTS IF SYNERGISM IS A REALITY.

**Experiment No. 86020002.****Herbicides for leafy spurge control. Ray Gillespie Farm. Whitehall, Montana.**

TREATMENT					
TRT NO.	CHEMICAL	RATE AMT/A	7-11-86 % SPURGE CONTROL	7-11-86 % CONTROL SEED PRODUCTION	8-22-86 % SPURGE CONTROL
1	OUST	.7 OZ	10.0	91.7	3.3
4	OUST	1.5 OZ	16.7	97.7	5.0
3	ESCORT	.3 OZ	3.3	74.3	2.3
4	ESCORT	6 OZ	6.7	83.3	5.0
5	OUST+ESCORT	.75 OZ + .3 OZ	6.7	91.7	.0
6	OUST+ESCORT	.75 OZ + .6 OZ	10.0	97.1	3.3
7	OUST+ESCORT	1.3 OZ + .3 OZ	15.0	100.1	10.0
8	OUST+ESCORT	1.0 OZ + .6 OZ	16.7	92.7	1.7
9	OUST+ROUNDUP	1.0 OZ + 1 QT	31.7	85.0	10.7
10	KRENITE S	1 GAL	18.3	73.3	8.3
11	KRENITES S	2 GAL	36.3	100.0	20.7
12	OUST+KRENITES	1.5 OZ + 1 GAL	40.0	100.0	18.3
13	OUST+2,4-D	1 OZ + 4 OZ	82.3	95.0	80.7
14	TORDON	1 LB	67.0	73.3	83.7
15	CHECK		.0	.0	.0
C.V. -			30.45	13.96	35.75
LSD 5%. -			12.24	19.61	10.08

**Experiment No.: 86020006.**

**Title: Starane combinations for leafy spurge control. Ray Gillespie Ranch. Whitehall, Montana.**

**CROP INFORMATION**

Crop: PASTURE  
Planted:  
Experimental Design: RCB  
Replications: 3

Seeding Depth:  
Row Width:  
Seeding Rate:  
Plot Size: 7 X 25

**SOIL INFORMATION**

Soil Type:  
Organic Matter: PH:

Previous Crop: PASTURE  
Fertilizer Used: NONE

**HERBICIDE APPLICATION** JUNE 17, 1986

Mixed By: DAVIS  
Applied By: COBLE  
Sprayer: BACKPACK  
Propellant: CO2  
Time: 10:30 AM  
Wind Speed: 0 MPH  
Wind Direction:  
Note:  
Crop Stage:

TREATMENTS 1-10  
Surfactant Used: X-77 In Trt. 9&10  
Surfactant Rate: .25%  
Pressure: 40 PSI Volume: 14.5GPA  
Nozzles: 8002  
Rel. Humidity: 40%  
Air Temperature: 83° F  
Soil Temp.: 2"-66° F; 4"-62° F

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	FLOWERING	HEAVY

**HERBICIDE APPLICATION** JULY 29, 1986

Mixed By: WOOD  
Applied By: DAVIS  
Sprayer: BACKPACK  
Propellant: CO2  
Time: 10:30 AM  
Wind Speed: 3-5 MPH  
Wind Direction: SOUTH  
Note:  
Crop-Stage:

TREATMENTS 11-20  
Surfactant Used: X-77 In Trt. 19,20  
Surfactant Rate: .25%  
Pressure: 40 PSI Volume: 14 GPA  
Nozzles: 8002  
Rel. Humidity: 50%  
Air Temperature: 84° F  
Soil Temp.: 2"-70° F; 4"-65° F

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	LATE FLOWER-SEED FILL	HEAVY

**HERBICIDE APPLICATION** SEPTEMBER 17, 1986

Mixed By: TOWNSEND

Surfactant Used: LI-700 In Trt. 29,30

Applied By: DAVIS

Surfactant Rate: .25%

Sprayer: BACKPACK

Pressure: 40 PSI

Volume:15 GPA

Propellant: CO2

Nozzles: 8002

Time: 12:00 PM

Rel. Humidity: 32%

Wind Speed: 3-6 MPH

Air Temperature: 73° F

Wind Direction: NORTH

Soil Temp.: 2"-60° F; 4"-55° F

Note:

Crop Stage:

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	SENESCENCE	HEAVY

**RATING INFORMATION** number 01 OF 02 TOTAL RATINGS

Rated By: FAY, FELLOWS

Date: 7-11-86

Crop Stage:

Rating Method: 0=NO CONTROL 100=COMPLETE KILL

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	SEED FILL	HEAVY

**RATING INFORMATION** number 02 OF 02 TOTAL RATINGS

Rated By: FAY, MCKONE

Date: 8-22-86

Crop Stage:

Rating Method: 0=NO CONTROL 100=COMPLETE KILL

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	RIPE	HEAVY

**REMARKS**

STARANE WAS TESTED ALONE AND - IN COMBINATION WITH TORDON OR 2,4-D IN SPURGE. TEN TREATMENTS WERE APPLIED ON JUNE 17, JULY 29, AND SEPTEMBER 17.

RATINGS TAKEN THIS YEAR INDICATE EFFECTIVE CONTROL WAS ACHIEVED WITH ALL OF THE STARANE TREATMENTS. OUST ALONE AND IN COMBINATION WITH TORDON WAS INEFFECTIVE.

**Experiment No. 36020006.****Starane combinations for leafy spurge control. Ray Gillespie Farm. Whitehall, Montana.**

TREATMENT					
TRT NO.	CHEMICAL	RATE LB/A	TIMING	7-11-86 % SPURGE CONTROL	8-22-86 % SPURGE CONTROL
1	STARANE + TORDON	.25 + .25	JUNE 17	70.3	88.3
2	STARANE + TORDON	.25 + .50	JUNE 17	79.7	96.7
3	STARANE + TORDON	.25 + 1.0	JUNE 17	82.3	94.0
4	STARANE + 2,4-D	.0	JUNE 17	91.0	91.7
5	STARANE + 2,4-D	.50 + 1.0	JUNE 17	97.7	88.3
6	STARANE + 2,4-D	.50 + 2.0	JUNE 17	89.3	94.7
7	STARANE	.50	JUNE 17	91.0	90.7
8	TORDON	.50	JUNE 17	23.3	10.0
9	OUST	1 oz	JUNE 17	10.0	.0
10	OUST + TORDON	1 oz + .125	JUNE 17	16.0	5.0
31	CHECK			.0	.0
			C.V. -	12.12	10.75
			LSD 5% -	12.21	10.97

TREATMENT				
TRT NO.	CHEMICAL	RATE LB /A	TIMING	8-22-86 % SPURGE CONTROL
11	STARANE + TORDON	.25 + .25	JULY 29	99.0
12	STARANE + TORDON	.25 + .50	JULY 29	100.0
13	STARANE + TORDON	.25 + 1.0	JULY 29	100.0
14	STARANE + 2,4-D	.25 + 1.0	JULY 29	66.7
15	STARANE + 2,4-D	.50 + 1.0	JULY 29	100.0
16	STARANE + 2,4-D	.50 + 2.0	JULY 29	100.0
17	STARANE	.50	JULY 29	98.3
18	TORDON	.50	JULY 29	85.7
19	OUST	1 oz	JULY 29	6.7
20	OUST+TORDON	1 oz + .125	JULY 29	18.3
31	CHECK			.0
			C.V. -	25.80
			LSD 5% -	30.95

**Experiment No.: 86015001.**

**Title: Testing granular formulations of Tordon for leafy spurge control. Brass Lantern Estates. Bozeman, Montana.**

**CROP INFORMATION**

Crop: RANGE  
Planted:  
Experimental Design: RCB  
Replications: 3

Seeding Depth:  
Row Width:  
Seeding Rate:  
Plot Size: 7 X 25

**SOIL INFORMATION**

Soil Type: GRAVELY LOAM  
Organic Matter: pH:

Previous Crop: RANGE  
Fertilizer Used: NONE

**HERBICIDE APPLICATION**

MAY 14, 1986

TREATMENTS 2-8, 10-16

Mixed By: FAY  
Applied By: DAVIS  
Sprayer: SHAKER  
Propellant:  
Time: 10:00 AM  
Wind Speed: 8-20 MPH  
Wind Direction: SOUTH WEST  
Note:  
Crop Stage:

Surfactant Used: In Trt.  
Surfactant Rate:  
Pressure: Volume:  
Nozzles:  
Rel. Humidity: 40%  
Air Temperature: 27° F  
Soil Temp.: 2"-27° F; 4"-27° F

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	PREBLOOM	HEAVY

**HERBICIDE APPLICATION**

MAY 20, 1986

TREATMENTS 1 & 9

Mixed By: DAVIS  
Applied By: DAVIS  
Sprayer: BACKPACK  
Propellant: CO2  
Time: 10:00 AM  
Wind Speed: 1-3 MPH  
Wind Direction: WEST  
Note:  
Crop Stage:

Surfactant Used: NONE In Trt.  
Surfactant Rate:  
Pressure: 40 PSI Volume: 14 GPA  
Nozzles: 8002  
Rel. Humidity: 45%  
Air Temperature: 55° F  
Soil Temp.: 2"-50° F; 4"-49° F

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	PREBLOOM	HEAVY

**RATING INFORMATION** number 01 OF 01 TOTAL RATINGS

Rated By: FAY, DAVIS Date: 6-12-86  
Rating Method: 0=NO CONTROL 100= COMPLETE KILL

Crop Stage:

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	FLOWERING	HEAVY

**REMARKS**

THE LOSS OF TORDON 2K PELLETS WILL BE FELT IN MONTANA THEREFORE "DRY" HERBICIDE FORMULATIONS WERE PREPARED IN ORDER TO TEST THE POTENTIAL OF LOCALLY FORMULATED SUBSTITUTES.

THE FOLLOWING MATERIALS WERE COATED WITH TORDON 22K, THE LIQUID FORMULATION: BLENDED FERTILIZER (14-14-14), AMMONIUM SULFATE FERTILIZER (34-0-0), "TIDY CAT" CAT LITTER, "HAGEN" CAT LITTER, AUTOCLAVED (DEAD) OAT KERNELS, AN ORGANIC KITTY LITTER PRODUCT MADE FROM WOOD CHIPS.

THE FERTILIZER CONTAINED 0.43% ACTIVE INGREDIENT (PICLORAM) THE CONVENTIONAL KITTY LITTERS CONTAINED 2% ACTIVE INGREDIENT AND THE ORGANIC KITTY LITTER AND THE DEAD OAT KERNELS CONTAINED 1% ACTIVE INGREDIENT. THESE FORMULATIONS WERE COMPARED TO TORDON 22K AND TORDON 2K.

THE RESULTS AT THE BOZEMAN LOCATION WERE UNFORTUNATELY NOT RATED IN AUGUST. THE EARLY JUNE RATINGS INDICATE THAT TIDY CAT AT 1 LB. PICLORAM PER ACRE WAS VERY EFFECTIVE. DEAD OAT KERNELS WHICH WORKED WELL AT WHITEHALL DID NOT PROVIDE ACCEPTABLE CONTROL AT BOZEMAN.

**Experiment No. 8601500I.****Testing granular formulations for leafy spurge control. Brass Lantern Estates. Bozeman Montana.**

TREATMENT				
TRT NO.	CHEMICAL	FORM	RATE LB/A	SPURGE CONTROL
1	TORDON	22 K	0.5	84.3
2	TORDON	2 K	0.5	48.3
3	TORDON-BLENDED FERTILIZER	.43 G	0.5	35.0
4	TORDON-AMS04	.43 G	0.5	36.7
5	TORDON-TIDY CAT	2 GM	0.5	26.7
6	TORDON-HAGEN KITTY LITTER	2 G	0.5	40.0
7	TORDON-DEAD OATS	1 G	0.5	42.7
8	TORDON-ORGANIC KITTY LITTER	1 G	0.5	45.0
9	TORDON	22 K	1.0	98.3
10	TORDON	2 K	1.0	65.0
11	TORDON-BLENDED FERTILIZER	.43 G	1.0	58.3
12	TORDON-AMS04	.43 G	1.0	66.7
13	TORDON-TIDY CAT	2 G	1.0	94.0
14	TORDON-HAGEN KITTY LITTER	2 G	1.0	70.7
15	TORDON-DEAD OATS	1 G	1.0	36.7
16	TORDON-ORGANIC KITTY LITTER	1 G	1.0	75.0
17	CHECK			.0
C.V. -				33.86
LSD 5% -				30.59

**Experiment No. 86022001.**

**Title: Testing granular formulations of Tordon for leafy spurge control. Ray Gillespie Ranch. Whitehall, Montana.**

**CROP INFORMATION**

Crop: PASTURE

Planted:

Experimental Design: RCB

Replications: 3

Seeding Depth:

Row Width:

Seeding Rate:

Plot Size: 7 X 25

**SOIL INFORMATION**

Soil Type:

Organic Matter: pH:

Previous Crop: PASTURE

Fertilizer Used: NONE

**HERBICIDE APPLICATION MAY 14, 1986**

Mixed By: FAY

Applied By: DAVIS

Sprayer: SHAKER

Propellant:

Time: 3:00 PM

Wind Speed: 4-15 MPH

Wind Direction: SOUTH WEST

Note:

Crop Stage:

**TREATMENTS 2-8, 10-16**

Surfactant Used: NONE In Trt.

Surfactant Rate:

Pressure: Volume:

Nozzles:

Rel. Humidity: 40%

Air Temperature: 60° F

Soil Temp.: 2"-60° F; 4"-58° F

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	PREBLOOM	HEAVY

**HERBICIDE APPLICATION**

Mixed By: DAVIS

Applied By: COBLE

Sprayer: BACKPACK

Propellant: CO2

Time: 9:00 AM

Wind Speed: 0 MPH

Wind Direction:

Note:

Crop Stage:

**JUNE 17, 1986**

Surfactant Used: NONE

Surfactant Rate:

Pressure: 40 PSI

Nozzles: 8002

Rel. Humidity: 40%

Air Temperature: 83° F

Soil Temp.: 2"-66° F; 4"-62° F

**TREATMENTS 1 & 9.**

In Trt.

Volume: 14.5GPA

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	FLOWERING	HEAVY

**RATING INFORMATION number 01 OF 02 TOTAL RATINGS**

Rated By: FAY, FELLOWS

Date: 7-11-86

Crop Stage:

Rating Method: 0=NO CONTROL 100-COMplete CONTROL

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	SEED FILL	HEAVY

**RATING INFORMATION number 02 OF 02 TOTAL RATINGS**

Rated By: FAY, MCKONE

Date: B-22-86

Crop Stage:

Rating Method: 0=NO CONTROL 100- COMPLETE KILL

Weeds Present	Stage of Growth	Population Density
LEAFY SPURGE	RIPE	HEAVY



**REMARKS**

THE LOSS OF TORDON 2K PELLETS WILL BE FELT IN MONTANA, THEREFORE "DRY" HERBICIDE FORMULATIONS WERE PREPARED IN ORDER TO TEST THE POTENTIAL OF LOCALLY FORMULATED SUBSTITUTES.

THE FOLLOWING MATERIALS WERE COATED WITH TORDON 22K, THE LIQUID FORMULATION: BLENDED FERTILIZER (14-14-14), AMMONIUM SULFATE FERTILIZER (34-0-0), "TIDY CAT" CAT LITTER, "HAGEN" CAT LITTER, AUTOCLAVED (DEAD) OAT KERNELS, AN ORGANIC KITTY LITTER PRODUCT MADE FROM WOOD CHIPS.

THE FERTILIZER CONTAINED 0.43% ACTIVE INGREDIENT (PICLORAM) THE CONVENTIONAL KITTY LITTERS CONTAINED 2% ACTIVE INGREDIENT AND THE ORGANIC KITTY LITTER AND THE DEAD OAT KERNELS CONTAINED 1% ACTIVE INGREDIENT. THESE FORMULATIONS WERE COMPARED TO TORDON 22K AND TORDON 2K.

ALL OF THE EXPERIMENTAL FORMULATIONS WORKED AS WELL AS THE COMMERCIAL FORMULATIONS WHEN RATED ON 8-22-86. TIDY CAT AND THE 2 FERTILIZER FORMULATIONS AT 1 LB/A WERE ESPECIALLY EFFECTIVE. DEAD OAT KERNELS SOAKED IN TORDON WERE VERY EFFECTIVE AT WHITEHALL. IT APPEARS THAT THE ABSORPTION PROPERTIES OF PICLORAM ARE AMENDABLE TO IMPREGNATION ON A WIDE RANGE OF SUBSTRATES.

**Experiment No. 86022001.**

**Testing granular formulations of Tordon for leafy spurge control . Ray Gillespie Farm. Whitehall, Montana.**

TREATMENT				7-11-86	3-22-8
TRT				%	%
NO.	CHEMICAL	FORM	RATE LB/A	SPURGE CONTROL	SPURGE CONTROL
1	TORDON	22K	0.5	43.3	15.0
2	TORDON	2K	0.5	30.0	66.3
3	TORDON-BLENDED FERTILIZER	.43 G	0.5	11.7	27.3
4	TORDON-AMS04	.43 G	0.5	37.3	61.7
5	TORDON-TIDY CAT	2 GM	0.5	26.0	56.7
0	TORDON-HAGEN KITTY LITTER	2 G	0.5	26.7	36.3
7	TORDON-DEAD OATS	1 G	0.5	16.7	40.0
8	TORDON-ORGANIC KITTY LITTER	1 G	0.5	16.7	41.7
9	TORDON	22K	1.0	30.0	53.3
10	TORDON	2K	1.0	62.7	31.7
11	TORDON-BLENDED FERTILIZER	.43 G	1.0	46.0	92.7
12	TURDON-AMS04	.43 G	1.0	71.7	95.3
13	TORDON-TIDY CAT	2 G	1.0	54.0	98.3
14	TORDON-HAGEN KITTY LITTER	2 G	1.0	43.3	80.0
15	TORDON-DEAD OATS	1 G	1.0	70.0	100.0
16	TORDON-ORGANIC KITTY LITTER	1 G	1.0	28.3	81.0
17	CHECK			.0	.0
C.V. -				46.30	43.06
LSD 5% -				27.83	42.62