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Brief Summary of Prebaiting Study for Prairie Dog Control

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BRIEF SUMMARY OF PREBAITING STUDY FOR PRAIRIE DOG CONTROL

by

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Attached are two tables summarizing data collected during a prebaiting study for prairie dog control. The study was conducted in the Pryor, Montana area of Big Horn County, July 13-21, 1977, and in the Tongue River area of Custer County, Montana, August 24-September 3, 1977, and October 17-24, 1977. Applications of strychnine oats (Sebesta's .44%) and zinc phosphide oats (U. S. Fish and Wildlife Service, Pocatello Supply Depot, 2%) with and without prebait (steamrolled oats) were compared for effectiveness in the control of prairie dogs.

Weather conditions during the Pryor study were hot (near 100 degrees) and dry. Vegetative growth was greatly reduced compared to the previous year because of drought conditions. However, moderate amounts of green vegetation were still present on the study sites. During the first study in the Tongue River area, drought conditions were extreme and little, if any, green vegetation was present. Near normal rainfall occurred in late September and early October and vegetation growth was evident on the study sites during the second Tongue River study period.

Prebaiting proved to effectively increase acceptance of both strychnine and zinc phosphide baits. With the exception of the Pryor study, prebaiting resulted in approximately 90 percent or greater reduction in prairie dog activity. The poor results with zinc phosphide in the Pryor study may have been the result of bait shyness, since these plots were treated with zinc phosphide the previous year in a separate study. It should be noted, however, that prebaiting still greatly increases acceptance in this instance. Overall bait acceptance was greatest during the driest period of the summer when growth of green vegetation was minimal.

Cost analysis showed that prebait, bait, and labor costs varied from $ .26/acre to $1.60/acre, depending upon prairie dog density, amount of prebait and bait applied, type of bait applied, method of application, and wages. Prebaiting substantially increased control costs primarily due to the double labor effort required.

Considerable numbers of prairie dog carcasses were present on strychnine treated sites; only one carcass was found on the zinc phosphide sites. Tracks and signs of badgers and coyotes were evident on the study sites before and after treatment. One coyote pup carcass was found approximately 200 yeards from a strychnine treated site. Magpies and one Golden eagle feeding on prairie dog carcasses were active one week after treatment.

Table 1. Pre-and-post-treatment indices of activity and percent reduction in activity of black-tailed prairie dogs during prebait study, Pryor and Toungue River areas, Montana, summer-fall, 1977.

Study area and indices	Treatment				
	Strychnine only	Prebaited strychnine	Control	Zinc phosphide only	Prebaited zinc phosphide
Pryor area					
Pre-treatment[a] activity index	58.8	100.6	78.2	105.9	117.3
Post-treatment[b] activity index	9.9	4.3	63.4	96.9	39.6
Percent reduction[c]	83.2	95.7	-	8.6	66.2
Tongue River area A					
Pre-treatment[a] activity index	98.3	125.3	66.6	121.6	95.3
Post-treatment[b] activity index	10.9	4.7	74.7	19.3	.7
Percent reduction[c]	88.9	96.3	-	84.1	99.3
Tongue River area B					
Pre-treatment[a] activity index	84.2	97.8	33.3	106.7	91.7
Post-treatment[b] activity index	22.7	2.0	32.7	53.4	9.9
Percent reduction[c]	73.0	98.0	-	50.0	89.2

[a] Average of 9 counts of active prairie dogs during 3 days prior to baiting.

[b] Average of 9 counts of active prairie dogs during 3 days after baiting.

[c] Formula: $100 - \frac{\text{post-treatment index}}{\text{pre-treatment index}}$

Table 2. Baiting and labor costs per acre for prairie dog control, Pryor and Tongue River areas, Montana, summer-fall, 1977.

Study area	Costs and labor	Treatment				
		Strychnine only	Prebaited strychnine	Control	Zinc phosphide only	Prebaited zinc phosphide
Pryor						
	Area (acres)	28.0	16.5	20.8	12.7	18.0
	Prebait lbs./acre	-	0.55	-	-	0.50
	Bait lbs./acre	0.43	0.82	-	.61	0.72
	Prebait and/or bait cost/acre [a]	$ .26	$ .53	-	$ .15	$ .21
	Labor cost/acre [b]	$ .21	$ .52	-	$ .39	$ .47
	Total cost/acre	$ .47	$1.05	-	$ .54	$ .68
Tongue River A						
	Area (acres)	10.3	25.52	6.82	22.31	7.23
	Prebait lbs./acre	-	.63	-	-	.69
	Bait lbs./acre	.50	.59	-	.61	1.11
	Prebait and/or bait cost/acre [a]	$ .30	$ .39	-	$ .15	$ .32
	Labor cost/acre	$ .39	$ .39	-	$ .15	$ .73
	Total cost/acre	$ .69	$ .78	-	$ .30	$1.05

Table 2 (cont.)

Study area	Costs and labor	Treatment				
		Strychnine only	Prebaited strychnine	Control	Zinc phosphide only	Prebaited zinc phosphide
Tongue River B						
	Area (acres)	24.3	14.2	5.4	24.8	5.9
	Prebait lbs./acre	-	.56	-	-	1.14
	Bait lbs./acre	.33	.60	-	.40	1.36
	Prebait and/or bait cost/acre [a]	$ .20	$ .40	-	$ .10	$ .41
	Labor cost/acre [b]	$ .12	$ .47	-	$ .16	$1.19
	Total cost/acre	$ .32	$ .87	-	$ .26	$1.60

[a] Costs calculated at FOB prices of $ .60/lb. for strychnine oats, and $25/cwt for zinc phosphide oats, and $6.25/cwt for steam rolled oats.

[b] Labor costs calculated using Montana minimum wage of $2.00/hr.