1979

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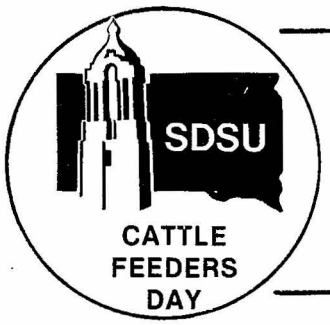

DUST-IMPREGNATED EAR TAGS FOR HORN FLY CONTROL OF PASURE CATTLE

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A.S. Series 79-7

Introduction

Fly control is a problem to all cattlemen during the summer months. The irritation of flies has been shown to cause decreased weight gains and loss in milk production. Cattlemen are continually looking for economical and effective means of controlling flies under various management systems. Among the more recently developed fly control possibilities has been an insecticide dust-impregnated ear tag. The idea was developed for control of ear ticks in Texas. The tags are white, about 2 by 2 1/2 inches in size and about the same weight as a standard, plastic tag commonly used for identifying cattle. They are applied with a standard Allflex pliers. Rabon (2-chloro-1-(2,4,5-trichlorophenyl)) vinyl dimethyl phosphate (13.7% w/w) is impregnated in the plastic ear tag in such a way that the tag continually "dusts" the animal as it moves its head. Marking paint on the tags lasted up to 5 months in these studies.

Experiment With Yearling Heifers Fed Grain on Pasture

The heifers were treated on June 8, 1978, and turned into alfalfa-brome-intermediate wheatgrass pastures near Brookings. The pretreatment fly count was less than 10 flies per head. The ear-tagged heifers (treated) were balanced as to pasture treatment with an equal number of untreated controls. Fly counts were recorded at intervals up to 86 days and the weight gains on pastures are shown for 133 days. Table 1 shows the results of horn fly counts in number of flies per side and table 2 shows the weight gain comparisons.

Table 1. Horn Fly Counts
(40 yearling heifers per group)

Date of count	Days post-treatment	Rabon ear tag	Control (no treatment)	Apparent control (%)
6-20-78	12	<10	75	>86
6-29-78	21	<10	75	>86
7-25-78	47	<10	200	>95
8- 1-78	53	<10	150	>93
8-17-78	70	<10	170	>94
9- 2-78	86	<10	210	>95

Table 2. Summer Weight Gains

	Rabon ear tag	Control (no treatment)
No. animals	40	40
Filled wt. June 7, lb.	581	586
Filled wt. Aug. 2, lb.	673	667
Avg daily gain, lb. (6/7 to 8/2, 56 days)	1.61	1.44
Filled wt. Sept. 5, lb.	723	716
Avg daily gain, lb. (8/2 to 9/5, 34 days)	1.52	1.45
Avg daily gain to date, lb. (6/7 to 9/5, 90 days)	1.58	1.45
Shrunk wt. Oct. 19, lb.	755	760
Avg daily gain last period, lb. (9/5 to 10/19, 44 days)	.73	1.00
Avg daily gain to date, lb. (6/7 to 10/19, 133 days)	1.48	1.50

Results

Rabon insecticide-impregnated ear tags showed an apparent 86 to 95% reduction in horn flies over the untreated controls for 86 days beginning on June 7, 1978. Fly counts after September 2 are not reported as they were extremely variable due to cool weather. Accurate fly counts are difficult to obtain. Binoculars were used at close range. Wind and temperature greatly affect counts. Note the high numbers for the controls on July 25 and then another build-up about September 2. These highs are generally preceded by a few weeks of hot and humid weather.

Pasture weight gains for the treated heifers showed a gain of .17 lb. daily over the untreated controls for the first 56 days or 10 lb. per head. The treated heifers held a 12 lb. advantage for the first 90 days. The untreated heifers gained .27 lb. per day more during the last 44 days of the pasture season, resulting in similar gains during the 133-day experiment for treated and control heifers. This compensatory gain occurred from September 5 to October 19 or after the heavy fly numbers that irritate cattle. The Rabon-impregnanted ear tag had no apparent effect on control of face flies. Some sore ears were observed but not considered a problem. Marking ink numbers put on the tags were readable after 5 months. No tags were lost during the study.

Summary

Impressive horn fly control was obtained from Rabon dust-impregnated ear tags, reducing fly numbers from 86 to 95% in comparison to untreated controls over an 86-day period starting June 7, 1978. The treated heifers had outgained their untreated controls by 12 lb. per animal or .13 lb. per day at 90 days following the June 7 treatment. The untreated heifers caught up in weight gain, however, during the last 44 days or after the major fly annoyance had passed.

Experiment With Yearling Heifers Under Range Conditions

On June 2, 1978, 56 head of Hereford heifers on the Mark Keffeler ranch located about 20 miles east of Sturgis in western South Dakota were ear tagged. The tags were put in the ears with the standard plier tool. Excess hair was trimmed out of the ear and the tool was dipped in alcohol between each use. Fly counts on the day of treatment averaged 80 flies per animal. The heifers were pastured in adjacent pastures, but the pastures were large. The untreated animals (52 head) were grazed in a 640-acre pasture. The single ear tagged group (27 head) were in a 320-acre pasture and the double ear tagged heifers (28 head) in a pasture of similar size. Subsequent fly counts were made at close range from a pickup truck using binoculars. An attempt was made to count the same 10 animals in each treatment group at each count, and the counts are reported as flies per side. Table 1 shows count dates and fly number comparisons.

Table 1. Horn Fly Counts--Keffeler Ranch

Count date	Days post-treatment	Single tag	Double tag	Control (no treatment)	Apparent control (%)
6-18-78	16	<10	<10	42	>75
7- 5-78	33	< 5	< 5	47	>89
7-31-78	59	<12	<12	200	>94
8- 6-78	65	12[a]	12[a]	154	>92
8-21-78	80	9[a]	9[a]	102	>91
9- 9-78	99	75[a]	75[a]	300	75[b]

[a] Single and double ear tagged groups mixed together.
[b] Considered inadequate for fly control treatment.

Summary

The ear tag treatment successfully reduced horn fly numbers in this study to a satisfactory degree for about 90 days. Horn fly count reductions varied from 75 to 94% when compared with untreated animal counts from June 2 through September 9. For the first 59 days of this study before the two treated groups were mixed, there were no noticeable fly number differences between one or two tags per animal. Some infected ears were observed due

to the tags but no more than from conventional marking tags according to the herd's owner. The few face flies observed on this ranch showed no differences between treated and control animals.

Experiment With Stock Cows Under Range Conditions

Sixty-three Angus cows were double-tag treated on the Greg Weber ranch in west-central South Dakota on July 1, 1978. A neighboring herd of heifers located about 1 1/2 miles from the treated herd was used as the untreated control. Pretreatment horn fly counts were 250 flies per side on the test cows. An attempt was made to count the same 10 animals in each herd each time. The horn fly counts reported are flies per side of each animal. Fly counts were made at close range from a pickup truck using binoculars.

Table 1. Horn Fly Counts Per Side

Count date	Days post-treatment	Ear tag treated	Controls (untreated)	Apparent control (%)
7- 5-78	4	10	116	91
8- 7-78	33	3.5	115	97
8-20-78	46	6.5	60	89
9- 8-78	65	<15	>200	>92

Summary and Results

Horn fly control was very good over the 65-day observation period. Control varied from 89 to 97% when compared to the untreated animals. The rancher liked the method of treatment for horn flies and was satisfied with it. Of the 62 animals treated only two tags were lost and 12 tags resulted in slight infections. Marking ink numbers on the tags were easily readable but somewhat faded. These observations were made on October 25, about 4 months after treatment.

ACKNOWLEDGMENT

The ear tags and partial financing for this study are gratefully acknowledged by South Dakota State University to the Shell Development Company, Biological Services Research Center, Modesto, California, 95352.