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Efficacy of Ectrin® (Fenvalerate) for sarcoptic mange control in swine

Abstract

A trial was conducted to determine the efficacy of fenvalerate (Ectrin®) for control of sarcoptic mange mites in swine. Artificially infested pigs were treated with two sprayings of Ectrin at 0.05% concentration with 1 wk interval between sprayings. One week after the first spraying, mite numbers and clinical signs of mange had decreased in treated animals but remained elevated in infested-nontreated pigs. Four weeks after the first spraying (3 wk after the second spraying), no mites were found in scrapings from the Ectrin-treated pigs and the amount of scratching and rubbing in those pigs decreased compared with the infested- nontreated pigs. It was concluded that Ectrin is an effective control for sarcoptic mange in pigs at the 0.05% level when two sprayings are used.; Swine Day, Manhattan, KS, November 15, 1984

Keywords

Swine day, 1984; Kansas Agricultural Experiment Station contribution; no. 85-132-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 461; Swine; Ectrin; Sarcoptic mange; Efficacy

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K**S****U****EFFICACY OF ECTRIN® (FENVALERATE) FOR
SARCOPTIC MANGE CONTROL IN SWINE**Elizabeth L. Wooten¹, Alberto B. Broce¹,
and D. Steven Pollmann

Summary

A trial was conducted to determine the efficacy of fenvalerate (Ectrin®) for control of sarcoptic mange mites in swine. Artificially infested pigs were treated with two sprayings of Ectrin at 0.05% concentration with 1 wk interval between sprayings. One week after the first spraying, mite numbers and clinical signs of mange had decreased in treated animals but remained elevated in infested-nontreated pigs. Four weeks after the first spraying (3 wk after the second spraying), no mites were found in scrapings from the Ectrin-treated pigs and the amount of scratching and rubbing in those pigs decreased compared with the infested-nontreated pigs. It was concluded that Ectrin is an effective control for sarcoptic mange in pigs at the 0.05% level when two sprayings are used.

Introduction

Sarcoptic mange mites are most difficult to control of the swine ectoparasites. Its residence in the epidermis of pig skin provides protection from various environmental factors, such as temperature and moisture changes, and from some chemical control methods that do not penetrate the skin effectively. Irritation of infested pigs may cause a decrease in overall feeding time and increase in deterioration of equipment such as fences and farrowing crates. Few products are available to producers that will effectively control sarcoptic mange in swine. For example, toxaphene has been discontinued from use for livestock, and restrictions have been placed on the uses of lindane. This study was conducted to evaluate the efficacy of Ectrin for control of sarcoptic mange mites in experimentally infested pigs.

Procedures

Forty-eight 5-wk-old pigs were assigned randomly to three groups of 16 pigs each: 1) Infested and treated with Ectrin® (E), 2) Infested non-treated (I) and 3) Uninfested (U). All pigs in the infested-treated and infested-nontreated groups were artificially infested with sarcoptic mange mites obtained from encrusted ears of pigs in a packing plant. One week after infestation, pruritis and encrusted lesions, evidence of a sarcoptic mange mite infestation, were observed.

The infested-treated group was sprayed twice with the first spraying 2 wk after artificial infestation and the second spraying 3 wk after infestation. A 0.05% solution of Ectrin WDL (Wettable Dispersible Liquid) was applied to each pig in the infested-treated group. The infested-nontreated and uninfested groups were sprayed with a water solution in the same manner. A hand sprayer with a fan pattern nozzle was used and solutions were applied to each animal to the point of run-off.

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Mite populations were assessed by scrapings taken from the right ear and back of eight pigs in each treatment group. Scrapings were observed under a dissecting microscope and mite and egg counts were recorded. Observations of clinical signs, including lesion size, severity of encrustations, and amount of reddening of the body were used for a scoring index: 0 = no encrustations or reddening of skin or papules on entire animal; 1 = lesions 3 cm squared or less, light crusting (crusts dispersed), reddening skin on sides of body; 2 = lesions covering 1/4 pig's ear, lesions somewhat thickened but dispersed, reddened skin on sides of body; 3 = lesions covering 1/2 pig's ear, encrustations thick, concentrated, skin reddened, papules formed on underline and sides of body; and 4 = lesions covering the entire ear, encrustations thick, concentrated, papules formed on underline and sides of body.

Pigs were observed for 6 wk after infestation and skin scrapings and observations of clinical signs were taken on days 14, 21, 28, and 35 post-infestation. Body weights and feed consumption were recorded throughout the experiment to compare feed efficiency, average daily gain, and average daily feed intake between infested and uninfested animals.

Results and Discussion

Table 1 summarizes mite, egg, and lesion scores obtained in this study. Prior to treatment, pigs designated for Ectrin treatment (E) showed an average clinical sign score of 2.4, infested-nontreated pigs (I) 2.0, and uninfested pigs (U) 0. Scrapings from the E pigs and I pigs showed similar numbers of mites. On day 21, 1 wk after the first spraying and the day of the second spraying, average mite and egg counts and scores had decreased for the E pigs, increased for the I, and remained zero for U pigs. On days 28 and 35, no mites were found in scrapings from the E pigs or U pigs but mites were found in I pigs. Clinical sign scores behaved similarly on days 28 and 35. Mite and egg counts and scores were higher ($P < .05$) in I pigs than the E and U pigs after two treatments with Ectrin. Further observations indicated a decrease in the amount of scratching and rubbing after Ectrin sprayings and a decrease in the crust thickness in the ears. No significant differences were observed between groups in weights, average daily feed intake, average daily gains, and feed efficiency.

Table 1. Average Number of Mite Counts and Average Observations of Clinical Signs on Pigs in the Infested-treated (E), Infested-nontreated (I), and the Uninfested (U) Groups on Days 14, 21, 28, and 35 after Infestation.

Group	Days Post-Infestation					
	Day 14			Day 21		
	Mites	Eggs	Score ^a	Mites	Eggs	Score ^a
E	13	9	2.4	9	5	2.0
I	19	8	2.0	26	13	3.0
U	0	0	0.0	0	0	0.0

Group	Days Post-Infestation					
	Day 28			Day 35		
	Mites	Eggs	Score ^a	Mites	Eggs	Score ^a
E	0	0	1.25	0	0	.625
I	4	3	3.50	7	2	2.75
U	0	0	0.0	0	0	0.0

^aLesion scores (0= no clinical signs of mange to 4= severe clinical signs of mange).

A 1981 Indiana survey of market weight hogs indicated that 25% of the 1500 animals sampled were infested with the sarcoptic mange mite. This pest has been a problem for producers for many years and new chemicals for effective control are needed.

According to the results obtained from this trial, Ectrin (fenvalerate) is an effective treatment for sarcoptic mange control in swine. The 0.05% concentration of Ectrin WDL with two treatments 1 wk apart relieved most of the clinical signs of mange and decreased numbers of mites in skin scrapings in pigs artificially infested.