
K**S****U**GROWTH PERFORMANCE OF PIGS INFESTED
WITH SARCOPTIC MANGEElizabeth L. Wooten¹, Alberto B. Broce¹,
and Frank Blecha²

Summary

Two trials were conducted to determine the effect of sarcoptic mange on growth performance of pigs. Results from previous experiments with weaned pigs artificially infested with sarcoptic mites indicated no alteration of growth performance (average daily gain, average daily feed intake, and feed efficiency) in infested pigs. Two trials were conducted to further evaluate the effect of sarcoptic mange on pig growth performance. The first trial used 36, 90-lb pigs artificially infested twice or once with sarcoptic mites. Twice-infested pigs had higher average daily gain and improved feed efficiency 6 weeks after infestation than non-infested pigs. No alterations of growth performance were observed during the final 4 weeks of the trial. The second trial used 36, 30-lb pigs infested twice with sarcoptic mites (but mange was not as severe as in the first trial). No differences in growth performance were noticed during the 4-week observation period. These results suggest that, at some levels of infestation, sarcoptic mange does not affect pig growth performance.

Introduction

Sarcoptic mange is an ectoparasitic infestation that is often considered ubiquitous among swine herds, unless eradication procedures have been employed. The presence of adult females below the surface of the skin and rapid reproductive cycle make this pest difficult to control. Reports of the effects of mange on pig growth performance are conflicting. In studies conducted with heavily infested pigs, decreases in feed efficiency were observed. Conversely, the growth performance of pigs with lower levels of mange was not affected. The objective of these experiments was to quantify the effects of sarcoptic mange on growth performance of pigs.

Procedure

Trial 1. Thirty-six crossbred gilts, averaging 88 lbs were used. Three gilts of similar weights were assigned randomly to each of 12 pens. Pen weights were equalized among the treatment groups. Four pens were assigned to each of three treatment groups: non-infested control or once- and twice-infested with sarcoptic

¹Dept. of Entomology²Dept. of Anatomy and Physiology

mites. Pigs were housed in concrete-floored, 4 x 16 ft pens, provided with straw bedding, and fed a standard growing-finishing diet ad libitum. Treatment groups were separated with boarding and caulking to prevent cross-infestation. Pigs were weighed on days 0, 11, 42, 56, and 71 and average daily gain (ADG), average daily feed intake (ADFI), and feed efficiency (F/G) were monitored.

Trial 2. Thirty-six crossbred pigs, averaging 31 lbs. were used. Pigs were identified by gender and randomly assigned to pens with one barrow and two gilts of similar weights per pen. Pen weights were equalized among the treatments. Pigs were housed and fed as in Trial 1. Six pens each were designated for twice-infested and non-infested treatment groups with a partition placed between treatments to prevent cross-infestation. Pigs were weighed on days 0 and 35, and ADFI, ADF, and F/G were monitored.

Artificial infestation. Pigs were artificially infested with encrusted ear sections from chronically infested pigs. Ear sections were placed in the ears of designated pigs for 24 hrs. Approximately 4000 mites (a mixture of all stages) were available to each pig per infestation.

Results and Discussion

Pigs exposed to encrusted ear sections developed clinical signs of sarcoptic mange within 4 to 7 days. Twice-infested pigs had higher levels of infestation than once-infested pigs. Non-infested pigs did not exhibit clinical signs of sarcoptic mange.

Data on the cumulative performance of pigs in Trial 1 are presented in Table 1. No differences were observed in final weight or feed intake at any level of infestation. Twice-infested pigs had higher ($P<.05$) ADG than non-infested pigs for period 1 and 2 (2.34 vs 1.57 lbs and 2.70 vs 2.32 lbs). Twice-infested pigs had improved ($P<.05$) feed efficiency compared to non-infested pigs during periods 1 and 2 (2.29 vs 3.72 lbs and 2.50 vs 3.03 lbs respectively). No differences were observed during periods 3 and 4 or in overall ADG or F/G.

Results from Trial 2 are summarized in Table 2. Sarcoptic mange infestation was not as severe as in Trial 1, but no differences were observed in final weight, ADFI, ADG, or F/G.

Economic injury levels and economic thresholds have not been determined for many livestock pests, including sarcoptic mites. Results from this study indicated that certain levels of sarcoptic mange do not cause economic damage and that excessive or expensive treatments may not be necessary. Sarcoptic mange is a problem that must be controlled in the herd but more research is necessary to determine at what level of infestation treatment is most economically effective.

Table 1. Mean Weight (wt), Average Daily Feed Intake (ADFI), Average Daily Gain (ADG), and Feed Efficiency (F/G) for Twice-, Once- and Non-infested Pigs in Trial 1.

| Item and Period ^a | Treatment ^b | | | SEM ^c |
|------------------------------|------------------------|--------------------|-------------------|------------------|
| | Twice-Infested | Once-Infested | Non-Infested | |
| Initial Wt (lb) | 83.55 | 90.60 | 91.18 | 4.45 |
| Final Wt (lb) | 234.26 | 233.51 | 226.41 | 7.21 |
| ADFI (lb): | | | | |
| 1 | 5.36 | 5.60 | 5.84 | .26 |
| 2 | 6.75 | 6.95 | 7.03 | .22 |
| 3 | 9.83 | 9.61 | 9.77 | .22 |
| 4 | 8.05 | 8.18 | 8.29 | .22 |
| Overall | 7.45 | 7.54 | 7.67 | .20 |
| ADG (lb): | | | | |
| 1 | 2.34 ^a | 1.94 ^{ab} | 1.57 ^b | .18 |
| 2 | 2.70 ^a | 2.49 ^{ab} | 2.32 ^b | .07 |
| 3 | 1.32 | 1.46 | 1.94 | .18 |
| 4 | 1.46 | 1.54 | 1.12 | .18 |
| Overall | 2.09 | 1.98 | 1.90 | .07 |
| F/G: | | | | |
| 1 | 2.29 ^a | 2.89 ^{ab} | 3.72 ^b | 1.44 |
| 2 | 2.50 ^a | 2.79 ^{ab} | 3.03 ^b | 3.14 |
| 3 | 7.45 | 6.58 | 5.04 | .51 |
| 4 | 5.51 | 5.31 | 7.40 | 1.2 |
| Overall | 3.56 | 3.81 | 4.04 | 2.86 |

^aPeriods 1 = 0-11 d
 2 = 11-42 d
 3 = 42-57 d
 4 = 57-71
 Overall = d 0-71

^bMeans within the same item and period, followed by different letters are different (P<0.05).

^cSEM = Standard Error of Mean.

Table 2. Mean Weight (wt), Average Daily Feed Intake (ADFI), Average Daily Gain (ADG), and Feed Efficiency (F/G) for Twice-Infested and Non-infested Pigs in Trial 2.

| Item | Treatment ^a | | SEM |
|-----------------|------------------------|--------------|------|
| | Twice-infested | Non-infested | |
| Initial Wt (lb) | 31.97 | 31.53 | 2.18 |
| Final Wt (lb) | 79.38 | 82.25 | 4.48 |
| ADFI (lb) | 3.10 | 3.00 | .20 |
| ADG (lb) | 1.32 | 1.43 | .07 |
| F/G | 2.34 | 2.10 | 2.86 |

SEM = Standard error of the mean.