ATROPHIC RHINITIS—EPIDEMIOLOGY AND EFFECT OF THE DISEASE ON MATURITY TIME OF MARKET PIGS

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Introduction

Precise information on the epidemiology of atrophic rhinitis (AR) and its effect on the maturity time of pigs is not readily available.

Since 1960 a certified herd program, designed to establish herds free of virus pneumonia and AR, has been in operation in Ontario (2). Since its inception, 50 herds have been enrolled and 18 herds have been certified free of these diseases. In late 1963, AR appeared in one herd and apparently spread to three other certified herds. The course of the disease in these herds and the effect of the disease on the maturity time of affected pigs compared with their normal litter mates is described herein. The effect of the disease on the maturity time of non-specific pathogen free (non-S.P.F.) pigs reared at a Federal Record of Performance Test station (R.O.P.) is also reported. Present knowledge regarding epidemiology and the economic effect of AR has been reviewed (3, 4).

Methods

Pigs from primary S.P.F. herds were examined over a period of two years. These herds were populated originally with caesarean-derived colostrum-deprived stock (1). Under the provisions of the certified herd program, 30% of the pigs from every litter were examined for the presence or absence of virus pneumonia and AR. Test pigs were marketed at approximately 200 lb. liveweight. The snout was cut in transverse section at right angles to the hard palate at the level of the first premolar cheek teeth. The nasal septum and turbinate bones were examined. Depending on the degree of septal deviation, softening or distortion of the turbinates or gross signs of atrophy, the noses were further classified as having moderate or severe changes. In one large herd (A), it was possible to check the incidence of the disease on a herd basis, on a litter basis, and within litters. A minimum of three pigs were examined in each litter before the litter was considered to be free of AR. Two other S.P.F. herds (B and C) were examined and the pattern of the disease in each herd was established.

Results

It was found that the incidence of AR in herds previously free of the disease rose rapidly from 0 to approximately 45%, and then declined to an average level of about 35% (Figures 1–4). Of 153 litters examined in herd A, 70% were found to be affected. Within litters which had AR, 38% of the pigs were affected. There was no significant difference in the maturity time from birth to 200 lb. body weight between affected pigs and their normal litter mates (Table 1).

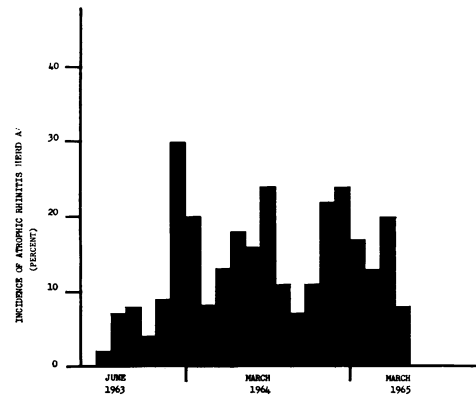

Figure 1. The monthly incidence of Atrophic Rhinitis in herd A.

Discussion

The pattern of AR in the three S.P.F. herds is consistent with the spread of an infectious disease in a susceptible population. In each herd there was a peak incidence (2 to 11 months) after the disease

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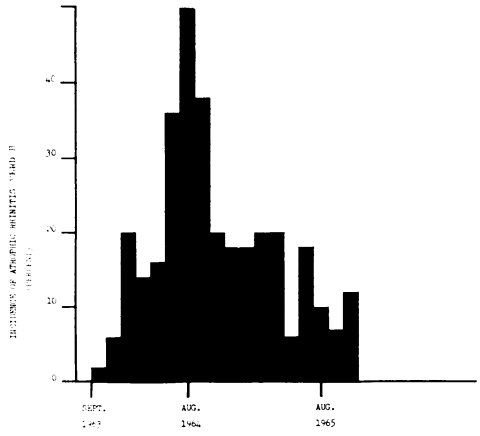

FIGURE 2. The monthly incidence of Atrophic Rhinitis in herd B.

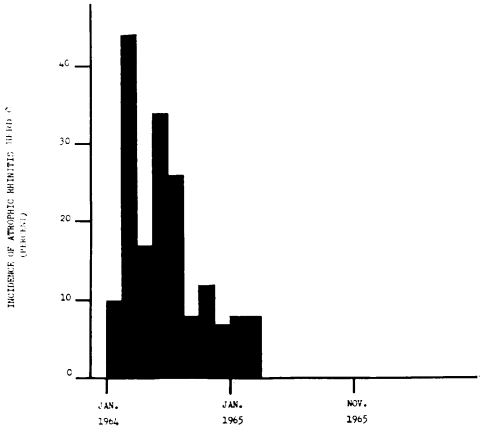

FIGURE 3. The monthly incidence of Atrophic Rhinitis in herd C.

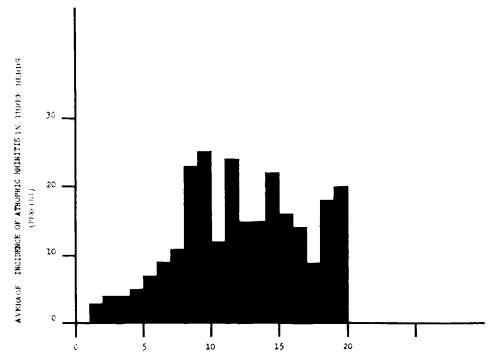

FIGURE 4. The monthly average incidence of Atrophic Rhinitis in three herds after the onset of the disease.

first appeared, followed by a moderately consistent fall in incidence. The average incidence from all three herds indicates that this fall leveled out at about 18 to 20%. AR appears to have had no effect on the maturity time of affected pigs (Table I). This would tend to illustrate that AR does not deserve its invidious reputation. Since the incidence of AR within a litter averaged 38%, it would appear that approximately 30 to 40% of the pigs in a litter should be examined during control programs.

SUMMARY

Atrophic rhinitis (AR) appeared in three of 50 S.P.F. swine herds which were examined periodically over a period of two years for a certified herd program.

TABLE I

THE EFFECT OF ATROPHIC RHINITIS ON THE MATURITY TIME[1] OF MARKET WEIGHT PIGS

	With Atrophic Rhinitis				Normal			
Herd	Pigs examined	No.	Mean[1] Maturity	Std. Deviation	No.	Mean[1] Maturity	Std. Deviation	't' Test
A #1*	403	109	182	27	294	186	27	0.08
A #2†	334	40	176	35	294	186	27	0.60
B	69	23	179	22	46	177	30	0.40
C‡	69	39	176	31	30	181	25	0.08

[1]Days from birth to 200 lb. body weight.
*Comparison of maturity time of pigs with any nasal abnormality and their normal litter mates.
†Comparison of maturity time of pigs with pronounced turbinate atrophy and their normal litter mates.
‡R.O.P. pigs.

The incidence of AR in herds previously free of the disease rose rapidly from zero to approximately 45% and then declined to an average of 35%. AR did not cause a significant difference in the maturity time from birth to 200 lb. of weight.

The pattern of AR in these three S.P.F. herds was consistent with the spread of an infectious disease.

Résumé

La rhinite atrophiante (AR) se déclara dans trois élevages de porcs S.P.F. (Specific pathogen free), sur 50 troupeaux examinés régulièrement au cours d'une période de deux ans, aux fins d'un programme de certification.

La taux de rhinite atrophiante, dans les troupeaux précédemment exempts de la maladie, s'éleva rapidement de zéro jusqu'à approximativement 45% pour ensuite décliner jusqu'à une moyenne de 35%. Entre le moment de la naissance et celui où les sujets atteignaient un poids de 200 livres, l'affection n'influença pas pour la peine le développement normal.

L'évolution de la rhinite atrophiante dans les trois élevages S.P.F. fut comparable à l'envahissement d'une autre maladie infectieuse.

References

1. Alexander, T. J., and C. K. Roe. Attempts at establishing swine herds free from atrophic rhinitis and virus pneumonia. II. Repopulation with specific pathogen free pigs. Can. vet. J. 3: 299. 1962.
2. Livestock Commissioner's Office, Parliament Bldgs., Toronto. Records and Regulations. 1960–62.
3. Pearce, H. G., and C. K. Roe. Infectious porcine atrophic rhinitis: a review. Can. vet. J. 7: 243. 1966.
4. Switzer, W. P. Studies on infectious atrophic rhinitis of swine. III. Review of the literature. J. Am. vet. Med. Ass. 127: 340. 1955.

BOOK REVIEW

Meat Hygiene. 3rd Edition. Paul J. Brandly, George Migaki, and Kenneth E. Taylor. Published by Lea and Febiger, Philadelphia, Pennsylvania and the Macmillan Company of Canada Limited, Toronto, Ontario. 1966. 789 pages, 216 illustrations. Price $16.50.

This book is the result of a recognized need to keep veterinarians and veterinary students abreast of the many changes in the meat industry. Meat hygiene, which began primarily as a matter of ante mortem and post mortem inspection for veterinarians, has been greatly enlarged in scope. The book recognizes this development and discusses such current problems as humane slaughter, food borne illness (chemical and microbial), deteriorative changes in meat, residues and preservatives in meat, and effects of exposure to ionizing radiation. In addition, organized meat hygiene at various levels of government and meat grading are considered.

Chapter 3, which deals with post mortem inspection, has many illustrations of conditions commonly observed, and tables summarizing the major reasons for carcass condemnation. Chapter 5 is devoted entirely to trichinosis and provides a clear description of the history, importance, and control of this disease.

Veterinary students who require a well-organized and understandable body of knowledge on meat hygiene, will find this book a valuable asset. It also provides a good reference for veterinarians who have a role in meat inspection programs. *W. R. Mitchell.*