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# SARCOPTIC MANGE OF PIGS

By C. R. TOOP, B.V.Sc., Chief Veterinary Surgeon.

**T**HE losses to the pig industry which may result from sarcoptic mange do not appear to be fully appreciated. This disease is already firmly established in Western Australia and every precaution should be taken to ensure that it does not become more general.

Sarcoptic mange is a contagious skin disease caused by a parasitic mite which forms burrows in the skin, producing symptoms of intense irritation with unthriftiness and stunted growth in young pigs, and delayed fattening in older animals.

The occurrence of the disease on a property is always associated with the introduction of infected animals, and pig raisers should take the precaution of carrying out a careful inspection for the presence of infection when new purchases either of stores or breeding stock are made. Once introduced the infection usually spreads steadily through the herd and becomes a source of serious loss. The disease is fortunately amenable to control and may be completely eradicated by simple and relatively cheap methods of treatment.

## CAUSE

The mange mite of the pig (*Sarcoptes scabiei*, var. *suis*) spends the whole of its life on the host animal obtaining its food requirements from the skin tissues and blood. The female mite is about 1/50th of an inch in length and the male somewhat smaller.

These parasites are white or yellowish in colour and while not visible to the naked eye, may readily be detected under a hand lens or the low power of the microscope. The body is rounded and the mature parasite has four pairs of short, thick legs. The female mites burrow into the skin, each making a separate gallery in which the eggs are laid. Each female lays 10 to 25 eggs which hatch out in three to 10 days giving rise to a new generation of mites which in turn form new burrows and commence laying when 10 to 12 days old. The complete life cycle occupies two to three

weeks and under favourable conditions, the mites continue to multiply rapidly so that in the space of six weeks, the whole skin surface of the body may become involved.

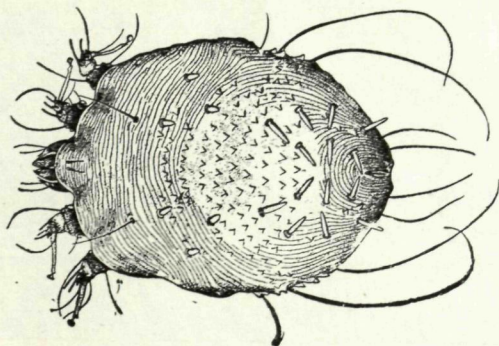


Fig. 1.—The mange mite of the pig, magnified 100 times.

## MODE OF TRANSMISSION

Sarcoptic mange is spread from pig to pig by direct contact and when the disease makes its appearance in a piggery, there is invariably a history of new pigs having been introduced at some time or other from a source to which the infection can be traced. The spread of the disease is usually more rapid when pigs are housed in close contact with one another than when running in paddocks or large enclosures. Infection may also result from contact with infected premises.

Although the mange mite is unable to propagate apart from its host it is able to survive for a short period after removal from an affected animal. Under cool, moist conditions, the parasite may survive in bedding and litter for as long as four weeks, but when conditions are hot and dry it does not live for more than a few



days and these factors need to be considered when eradication measures are being applied.

### SYMPTOMS

Pigs of all ages and breeds are susceptible but young pigs are most seriously affected, and this is especially the case if they are debilitated as the result of inadequate feeding or from the presence of other diseases. The predominant symptom is intense itching, resulting from injury and inflammation of the skin, caused by the burrowing female mites. Affected pigs continually rub themselves against posts, feed troughs, and other objects, and scratch at the body with their hind feet.



Fig. 2.—A young pig showing advanced symptoms of sarcoptic mange.

—(After Hutyra & Marek.)

The skin is scaly and studded with small nodules which form around the entrance to the burrows. From constant rubbing, parts of the body, particularly the sides, shoulders and thighs, become denuded of hair and as the result of mechanical injury to the skin, large scabs make their appearance while in advanced cases the skin becomes thickened and leathery and is thrown up into wrinkles or folds. The infection usually commences around the ears, eyes and nose and from there spreads along the neck, sides and back until the whole body becomes involved.

Because of the severe and constant irritation, young pigs cease to make normal growth becoming stunted and unthrifty, while in older animals in which fattening is delayed, the age of marketing is considerably increased. Death may occur in severe cases.

### DIAGNOSIS

Symptoms of skin irritation may result from other causes, lice if present cause considerable irritation accompanied by symptoms of frequent rubbing and scratching. Pig lice, however, on account of their large size will be detected without difficulty. Moreover the itching caused by the mange mite is much more severe and if in addition there is evidence of thickening and wrinkling of the skin, this will usually serve to place the diagnosis beyond doubt. If it is desired to confirm the diagnosis, skin scrapings should be submitted for microscopic examination. These should be obtained by scraping an affected area of skin with a blunt knife until the blood

just commences to show and the material so removed should be transferred to a small bottle and forwarded to the Department for examination.

### TREATMENT

In the control and eradication of mange in pigs, excellent results may be obtained from the application of crude oil or used lubricating oil. Oils from

which the lubricating constituents have been removed are unsuitable. Sump oil which is cheap and readily obtainable is very effective. The oil may be applied by dipping, spraying or hand dressing. Dipping, however, provides the only practical and really effective method of control when the treatment of large herds is involved. It presents no great difficulty and provided the dip is equipped with a strong, well-constructed entrance race and exit ramp, the pigs will run quite freely.

The dip which is re-produced in the accompanying photograph has been used with very satisfactory results. It is built of concrete, the walls being 4½ in. in thickness. It is 21 ft. long, 2 ft. 6 in. wide and 5 ft. 6 in. deep and is provided on either side with a closely boarded wall 2 ft. 6 in. high to prevent splashing. A dip of these dimensions will contain sufficient fluid to



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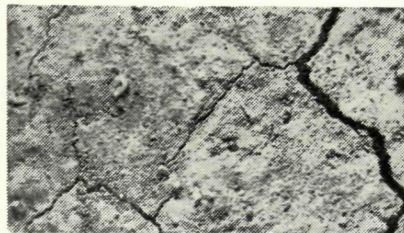
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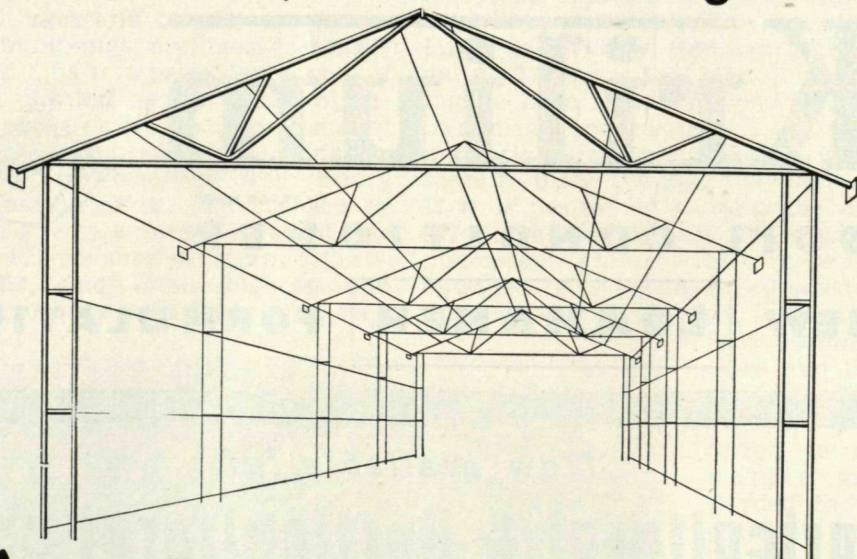
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completely immerse large boars and breeding sows and could, with advantage, be installed on all large piggeries. It will also serve for the control and eradication of lice.

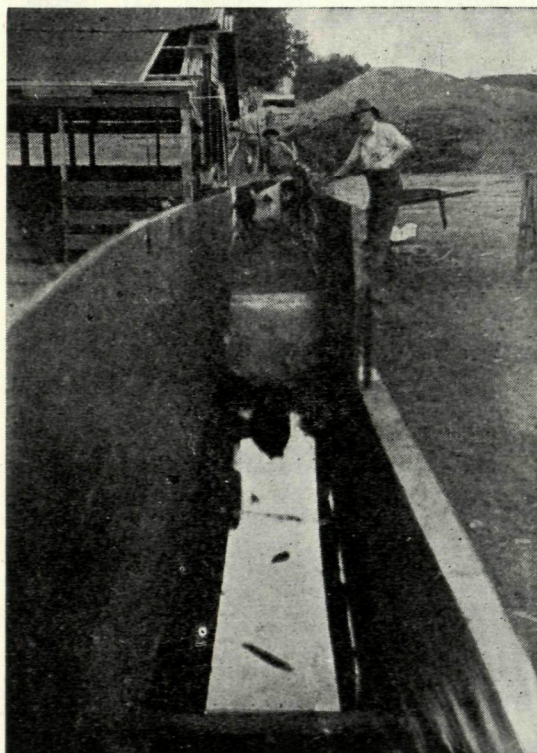


Fig. 3.—An oil dip as used for the control of sarcoptic mange and pig lice.

In preparing the dip for use, it should be filled to the required level with water following upon which sump oil or crude oil should be added until it forms a layer 6in. in depth floating on the surface of the water. As they swim through the dip the bodies of the pigs become completely coated with oil but in order to destroy mange mites which have become established around the ears, eyes and nose, the head of each animal should be ducked by means of a crutch or forked stick. Each pig removes a quantity of oil from the dip and in the treatment of mixed herds an allowance of  $1\frac{1}{2}$  pints per head should be made and the dip should be replenished from time to time as required. A draining pen should be provided for the collection of the surplus oil which drips from the animals.

After dipping with oil, care should be taken to prevent exposure to bright, hot sunshine. The pigs should be handled quietly and allowed to rest for 24 hours in well-shaded yards.

In order to completely eradicate the disease, dipping of the whole herd is necessary. If treatment is restricted only to those animals which are obviously affected this will result in pigs in the early stages of the disease escaping attention and they will continue to transmit infection to other animals with which they are in contact. Sows within two weeks of farrowing should not be dipped but they may be safely treated, together with their litters, when the young pigs are four weeks old. If treatment is undertaken early, it is possible to completely eradicate mange from a herd of pigs by a single dipping. When the disease is more advanced and there is evidence of thickening and wrinkling of the skin together with scab formation, two or more dippings repeated at intervals of 10 days will be necessary before this result can be achieved.

In the absence of a dip the oil may be applied by spraying. A stirrup pump fitted with a hose and a Bordeaux nozzle may be used for this purpose. Sump oil will pass freely through a nozzle of this type. This method of treatment, however, is much slower and more wasteful of material and since it is difficult to completely cover the body of the animal with oil it is less efficient than dipping.

Hand dressing is even less satisfactory and is only practicable when the treatment of a very small number of animals is involved. Equally good results may be obtained by dipping or spraying with a gammexane (benzene hexachloride) preparation containing not less than 0.1 per cent. Gamma B.H.C. Any of the gammexane sheep dips used at 10 times the strength recommended for the dipping of sheep, will provide a mixture of the required concentration. Care must be taken to ensure that all parts of the skin are thoroughly saturated and that the solution reaches the insides of the ears where mites may be concealed. Treatment should be repeated after an interval of 7-10 days.

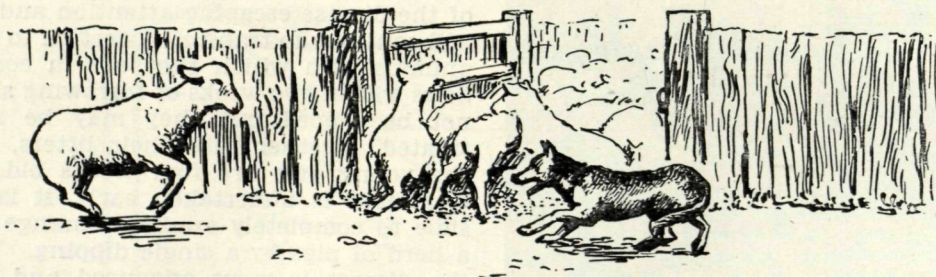
After dipping, the pigs should be transferred to clean quarters but, should this not be possible, the quarters which they occupy should be cleansed by gathering



together and burning all bedding and litter and spraying the walls and floor with 5 per cent. Lysol solution (8 oz. of Lysol to 1 gallon of water). This will destroy mange mites remaining on the premises which under favourable conditions would be capable of surviving for several weeks and of reinfecting the treated animals.

When the disease has been eradicated the precaution should be taken of dipping all newly-purchased animals before their introduction into the piggery is permitted.

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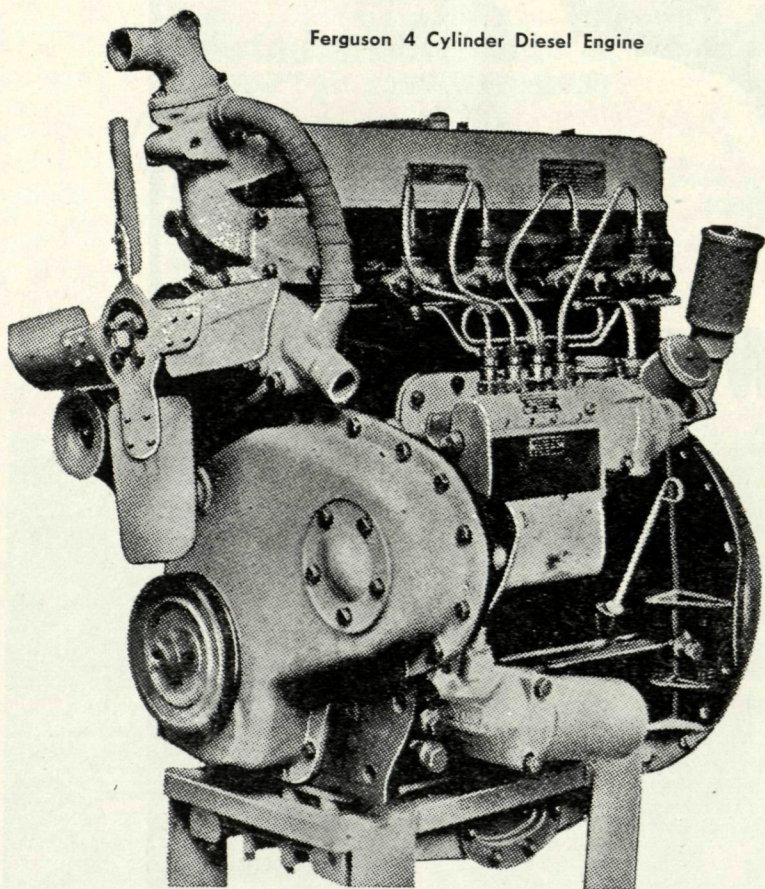
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