SPECIAL PAMPHLET *No. 34*

PREVENTION OF COMMON LOSSES IN YOUNG PIGS

Because efficient methods of control of serious infectious diseases have been carried out by the Health of Animals Division, such scourges as hog cholera rarely occur in Canada. There are, nevertheless, several preventable conditions which when present cause great loss.

Nutritional anaemia, protein deficiency, goitre, rickets and worm infections are very common causes of loss. The relationship of these conditions to one another is probably closer than most breeders suspect. The first four are caused by a diet lacking essential substances. One or more of these conditions present in a small degree and combined with poor sanitation allows young pigs to become highly susceptible to microbes or parasites. Another danger to pigs not usually recognized is the weakling or "runt". This animal serves as a reservoir for worms and other invaders; therefore it should be destroyed soon after birth.

Anaemia

During favourable seasons in Canada when young pigs can roam out of doors they eat small amounts of soil and grass or green leafy plants which contain iron. *This substance is absolutely essential for the development of blood.* Through the cold months, however, when animals must be raised in pens the source of iron referred to is not available and the reserves of this mineral present in their bodies at birth are used up by the time the pigs are about three weeks of age. Feeding the sow iron is not a protection since this mineral is not excreted in the milk in amounts which satisfy the requirements of nursing pigs. If the young pig is not supplied with iron it is unable to obtain this blood building element until it commences to eat solid food by which time it is liable to have fallen a victim to anaemia, which either proves fatal or leaves a stunted unprofitable pig, readily susceptible to infection. *Iron must therefore be supplied in some form to piglets raised in pens.*

An excellent way to accomplish this is to put up sods in the autumn sufficient to supply each nursing pig with one square foot of sod per week. These sods must be obtained from a source free from pig manure in order that dangerous parasites may be avoided. They should be sprinkled lightly with a solution of sulphate of iron (copperas) dissolved in one quart of water. This reinforces the amount of iron in the soil. A creep should be built which permits the young pigs access to the sods and keeps the sow away. Another satisfactory way of preventing anaemia is to place on the tongue of each young pig, a day or two following birth, about three grains of reduced iron. This should be followed with three further doses given about a week apart. Since this form of iron is

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a powder which will not dissolve in water, many have a three-grain sample of the drug weighed out by a druggist. With this as a guide the proper quantity for each pig may be calculated by appearance. If reduced iron is not available powdered sulphate of iron may be similarly employed except that 10-grain doses are administered.

If these preventive measures are neglected and the condition becomes sufficiently pronounced to be recognized, then the same methods must be used for treatment. The symptom which marks the advanced disease is a sudden whitening of the ears of young pigs, which is particularly striking in white breeds. Death often takes place.

Protein Deficiency

In some parts of Canada a deficiency of animal protein is the most serious single cause of losses in growing pigs. Swine are not by nature vegetarians but require some animal matter as soon as they are weaned. Absence of this results in the animals becoming stunted. They require more time and much more feed to attain a satisfactory degree of growth; also their vitality is so lowered that they become infected with bacteria which would not harm healthy pigs and many die. This gives the impression that some specific infectious disease is at work, whereas the trouble is due to the lowered resistance of the animals. Animal protein is supplied by milk, tankage, or a reliable supplement such as that described below.

Goitre and Hairlessness (Iodine deficiency)

In many districts the soil and consequently the feed is lacking in iodine. It is there that hairlessness of new born pigs and goitre occur. The latter is characterized by a firm enlargement in the neck. Affected litters may be born dead or die shortly after birth. Unlike anaemia, this condition can be prevented by supplying the sow with the missing mineral, because iodine is excreted in the milk. Pregnant and milking sows should receive iodized salt or a reliable mineral mixture containing iodine. Where there is extreme deficiency of iodine in the soil, a more dependable method is to prepare a solution of one ounce of potassium iodide or sodium iodide in one gallon of water and to place a tablespoonful of this solution on the sow's food daily.

Rickets or Crippling

This common trouble chiefly attacks pigs from 2½-3 months of age and is due generally to calcium deficiency combined with a lack of vitamin D. The condition is first noticed when the pigs show inactivity, rough coats and pain in the joints. It develops rapidly. The affected animals exhibit great pain when they move. Sometimes convulsions occur. The legs become crooked and the joints enlarged. Death may result from complications such as pneumonia or diarrhoea. Pigs that have been affected even slightly are seldom thrifty in later life.

Calcium is the mineral usually deficient in grain rations. This can be supplied in the form of ground limestone which may be included in a reliable supplement such as that described below. Vitamin D is supplied by direct sunlight, which is the cheapest form obtainable. In its absence one tablespoonful of a reliable feeding oil (400 D, 1850 A) must be given daily until the pig is 100 pounds in weight.

An approved supplement which will prevent rickets and also balance farm feeds, is as follows:—

	Per Cent
Meat meal or tankage	30
Alfalfa meal	25
Linseed oilmeal	35
Ground limestone	5
Salt	5

Use the supplement as 12 per cent of the ration until the pigs are 100 pounds in weight. From this time until they are 125 pounds, 6 per cent should be used after which it may be discontinued except for the limestone.

Crippling in Older Pigs

Vitamin D requirements are much less in pigs that are nearing market weight but, in such animals, the need remains for green feed to supply vitamin A. Calcium is very important. The absence of either of these results in the breakdown of the animals, especially if they are penned up. It usually occurs in pigs which have been rapidly grown and are in excellent condition. Prevention and treatment consist of giving the missing substance, which in most cases proves to be vitamin A. Two ounces of feeding oil (3000 A units) added daily to the feed of each lot of eight pigs, or abundance of alfalfa or red carrots is the remedy.

Hygiene and Sanitation

Strict attention to the aforementioned means of preventing loss will build strong resistant animals but no animal is sufficiently rugged to withstand the stress which bad hygiene may place upon it. To avoid loss and have profitable production of pigs, cleanliness must be observed.

If respiratory diseases are to be avoided pens must be dry, reasonably warm, well ventilated and without draught. Ample sunlight should be allowed. When a new building is constructed, provision should be made to meet these requirements, and in remodelling an old building to house pigs these conditions should be insisted upon.

Worms in Pigs

Management which controls worms also prevents many other diseases. Routine treatment for worms is not advisable for the following reasons: when a pig is badly infected with worms much damage has been done already, and efficient treatment requires a drench composed of chenopodium and castor oils; drenching pigs is not easy, and when attempted by an inexperienced person, part of the dose may reach the lungs, resulting in pneumonia. In properly managed piggeries there should be no reason for such treatments, since worms can be prevented with but little extra work.

Worms seldom affect pigs that were born vigorous and of normal size, that received adequate nutrition from the sow, and that were kept free of goitre, anaemia, and rickets. However, it is important to combine proved methods of sanitation with other preventive measures if losses are to be avoided.

A practical routine, suitable for conditions in Canada, may be summarized as follows:—

(a) ***During the summer season***

Prepare farrowing pens by removing all manure from the floors, walls, farrowing rails, platforms, and troughs. Thoroughly scald the parts freed from manure with liberal amounts of very hot water. The addition of one or two tablespoonfuls of lye to each pail of water makes it more efficient. Allow the pen to dry and then bed it with clean straw. Two or three days before a sow is due to farrow, brush her off thoroughly and wash her teats and udder with warm water and soap, remembering to dry her afterwards. Move her into the clean pen. A few days after farrowing, move the sow and litter out to clean pasture, away from the barnyard. Keep the young pigs on clean pasture, providing a temporary shelter, feed and water, until they are at least 14 weeks old.

(b) ***During the cold weather***

Prepare the sow and the farrowing pen as before. When the pigs are about seven days old, the pen should be scalded again; this can be done by dividing

the pen by means of an old gate, moving the sow and litter over to one side. Then clean and scald the empty part, allow it to cool and dry, bed it with straw, and then move the sow and litter back. The other part should be attended to in a similar manner.

Sterilization with hot water should be repeated once every three weeks, in order to destroy worm eggs before they are capable of infecting the young pigs. When the pigs are from 55 to 60 days old, move the sow away, leaving the young pigs in the clean pen until they are about 14 weeks old and resistant to infection.

The logic of the above method is illustrated by consideration of our knowledge regarding the eggs of roundworms. If a sow harbours ten female roundworms, the dung she passes each day will contain almost one million worm eggs. Under suitable conditions of moisture and temperature, worms are formed in these eggs and when swallowed are capable of infecting other pigs. Under average conditions in this country it takes about 25 days for these to form in the eggs so that sterilization at intervals of three weeks effectively breaks the cycle. Recent tests have shown that contact with water at 155° F. for less than one-half of a second destroys these eggs. Worm eggs are not easily destroyed by cold solutions of strong disinfectants, but the additional use of disinfectants to destroy microbes is always advisable. A syrup boiler or similar large vessel can be used to boil water outside the barn. Boiling water carried a reasonable distance in cold weather is still hot enough to destroy worm eggs when it reaches the pen. When hot water cannot be prepared in any way, then this highly efficient system must be replaced by extreme cleanliness and dryness.

Permanent exercising yards may be used for breeding stock and pigs over 14 weeks old; these should be ploughed frequently and kept well drained. Wallows are sources of infection and should be avoided.

Lice should not be allowed to remain on pigs. They are easily controlled by many of the commercial insecticides, which should be applied three times, at eight-day intervals. A sack soaked in crank-case oil and wrapped around a rubbing-post serves as an easy and fairly effective way of controlling lice in large herds.

Weaning

A sudden change at weaning time to a "growing ration" may cause serious digestive disturbances, the symptoms of which are a persistent yellowish diarrhoea and loss of appetite followed by general unthriftiness. Prevent this trouble by making only gradual changes of diet and do not wean until the pigs are fully accustomed to solid food. Affected pigs, if treated promptly, will usually recover; an exclusive diet of clotted sour milk, some ground alfalfa, and water, for a short period is usually effective.

Summary of Loss Prevention

1. Provide iron to prevent anaemia in suckling pigs.
2. Pigs are not vegetarians. See that the diet contains a sufficient amount of animal protein.
3. Provide minerals and sunlight (or feeding oil) to prevent rickets in weanlings.
4. Give iodine to the sow to prevent goitre and hairlessness in the young.
5. Sterilize the farrowing pen with scalding water to prevent worms.
6. Change diets gradually to prevent digestive disturbances.
7. Avoid respiratory diseases by housing pigs in buildings reasonably warm, dry and free from draughts.

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