

noticed time after time, wherever foot rot is prevalent, the feet of the sheep have been entirely neglected, or only casually or not thoroughly been done.

Now, I will briefly turn back upon the question why they, the Southdowns, should be kept in preference to other breeds, and it is as follows:—1st—Because they of all sheep will produce more meat at a less cost from a given area than any other breed of sheep. You can keep thirty of these Southdowns where only twenty of the larger breeds can be kept, on the same food and area. They are small in size but great in value—they are big sheep in little room. They are sheep that produce the greatest weight where the best points are. Many of you may not be aware of the fact, but the hind quarters of Southdowns are always at least one to two pounds heavier than the fore quarters. This is a merit peculiar to them. They are producers of fine wool of the best quality, and although the weight of the fleece is not so much as of some other breeds, taken as a whole a farmer would receive in cash more from the produce of fifty Southdowns than from any other breed, if an account of the cost of food and attendance were properly kept.

Because of their hardiness, freedom from disease and adaptability to almost any soil or climate, as well as their ability to live and thrive in extremes of heat and cold, for they are to be found all over the world. They, on their native Downs, have great extremes of climate to endure, from the heat of summer to the almost Arctic cold of winter. Their fine thick wool, and close fleece is most essential to their well-being, which being impervious to either wet or snow, they are able to put up with the greatest hardships, cold and wet, without any ill-effects either to their bodily health or to the quality of their wool. Thus, not only do you, by keeping a flock of Southdowns, keep a sheep of the most valuable mutton breed, but you keep one whose wool is of the finest and best quality, and is not affected by the weather in the manner it affects other fleeces.

Because they will thrive and live well where other sheep would almost starve; because they are small eaters and rapid fatteners, and will come as early to maturity as any other breed of sheep in the world. Because of their small size, they produce just the joints that make the highest price in the market.

Another reason why Southdowns should be kept is, that if you could get your upper ten to taste a good mutton chop or joint of mutton as we produce in England, the demand for mutton would increase by "leaps and bounds." What keeps the fashion for eating mutton at so low an ebb is no doubt the poor quality of that sold. Increase the quality, and trade will certainly follow. And lastly, because rams and ram lambs of this breed are by far the best sheep for producing crossbred mutton from sheep whose pedigrees are not recorded, or to use on various other breeds for making better mutton sheep for the butcher.

A few words on importation of sheep. If a farmer is not able to come to England himself, let him get a friend to buy for him. If a breeder does not want show sheep, but breeding ones, there are plenty of the finest Southdowns to be found on farms where none are ever shown from. These may be purchased at a far less price, whilst for breeding purposes they are just as good, if not better, than show animals.

I would earnestly press upon all sheep breeders, whatever they do in the way of importing sheep, to buy only those whose pedigrees are duly and properly recorded in the books of their respective Flock Book Associations, for it is no use bringing to America sheep whose pedigree and breeding will not bear the stamp of publicity in being recorded in the flock book of its breed. I would also venture to express a hope that shortly the question of admission of stock for breeding purposes, both in the States and Canada, will be as follows:—Free admission to all animals that are duly recorded in the pedigree record of their breed, provided that they are each accompanied by an individual pedigree certificate duly signed by the Secretary of the breed, and have in their ears, or elsewhere on their bodies, the Society's registered trade mark tattooed in the flesh, together with their breeders' registered number in the record, thus having a permanent and certain means of identification which cannot be removed or erased; and the total prohibition of importation of all non-registered animals for breeding purposes. Why I hold this opinion is, that it is for your benefit only to receive animals whose pedigree and breeding are beyond dispute, whilst it is to your present as well as future detriment to receive here stock of whose pedigree there is no public record at all, and who may or may not be pure.

Finally, in addressing myself especially to Southdown breeders, once again let me urge you all not to buy a sheep without the English registered trade mark in the ear, and without obtaining with it the individual certificate; and, above all things, remember the Southdown sheep is small in size but great in value, and that it would be a sad event in the history of the oldest and purest of breeds if size should become preferred to quality, and mere weight of mutton to character and good wool.

Gentlemen, the last words I will utter are those which a countryman of yours, C. M. Clay, of Kentucky, used in a letter to myself in reference to Southdowns as compared with other breeds: "I prefer gold to dress."

### Raising Pigs from Birth till Six Months Old.

[Written for the Dominion Swine Breeders' Association, by F. J. Sleightholm, Guelph, Ont.]

Under existing conditions, we think that late winter or early spring, and late summer or early fall, are suitable times for sows to farrow.

**Late Winter and Early Spring.**—If the sow has had plenty of exercise and a fair amount of nutritious food, she should be in right condition for farrowing. See that suitable quarters are provided. I may be excused for digressing from my immediate subject to say what constitutes suitable quarters. First, a warm pen, free of draughts, and not more than eight feet square rather than larger, since a larger pen means greater danger of the young pigs straying from the dam and getting chilled. A shelf on that side on which the sow usually lies, this shelf to be eight or ten inches from the floor. If thought advisable, the shelf may be continued on three sides of the pen. A shelf or no shelf may mean the difference between profit and loss in the expected litter. Bedding is not desirable, but if any be given it should be cut short. When the newcomers are all safely to the teat the sow may be left alone for several hours. Do not induce her to rise until she evidences an inclination to feed or drink. Feed fluids largely at first—gruels made of bran, shorts, finely ground oats, or oatmeal with hot water are excellent. Feed light foods lightly for a week, gradually increasing to richer albuminous foods. This is necessary from a scientific as well as a practical standpoint, since the first milk of a sow is very rich in fat, while later it contains a greater proportion of albuminoids. If the sow is a copious milker feed carefully, otherwise permanent derangement of the digestive organs of the young pigs will often result. Especially is this necessary if there are few pigs in the litter. On the other hand, if the sow is a poor milker, boiled feed may be fed to advantage, giving all she can be induced to eat. In our experience we have found the following bill of fare to be quite satisfactory for a sow at this period:—

	Shorts.	Bran.	Barley.	Peas.	Wheat.
2nd week	1 (part)	1 (part)	2 (part)	1 (part)	
3rd week	1 "	"	2 "	1 "	
4th to 5th	1 "	"	2 "	1 "	1 (part)

We have not used oats much for pigs at any age, as we have found a combination of shorts and bran to be better even at customary prices. Give all the water she cares to drink three times a day. Exercise the sow daily. This is very important for both dam and litter. Some tonic should always be kept before the sow, and perhaps nothing is better than salt, ashes and charcoal, mixed and kept in a separate trough. The two former at least are always at hand. When the little pigs begin to eat it is best to give them milk, with shorts and bran, in an apartment separate from the dam. Attention to this arrangement will prevent any stagnation in the growth of the young at weaning time. We think it best to keep the youngsters in good thrift and flesh while suckling, but to avoid much fat, since we find that much fat at this period is not conducive to great weights at a marketable age of five or six months. Wean at seven or eight weeks. To leave two or three of the smallest of the litter with the sow a week longer is a commendable practice. From this time forward the pigs should continue to grow and feed rapidly till ready for market. If the greatest weights are desired, do not confine too closely nor yet allow an unlimited run. They should, however, have access to earth always, since it is the cheapest and best tonic and stomachic known in pig feeding to-day.

**Feed Generously.**—Withholding is poverty in this connection. Variety is better than any single feed. We have found the following a good mixture:—

Shorts.	Barley.	Bran.
2 parts.	3 parts.	1 part by measure.

Toward the finish we add a small proportion of peas, wheat, or wheat screenings. To feed largely of these latter heat-producing foods (say in July and August) is to increase the cost of the ration without a corresponding increase in the produce. Corn is especially objectionable at this season. The grain is ground and all mixed thoroughly in a large box or trough, then wet with water (milk or sweet whey is better when available) till of such a consistency that it will run readily from a pail. The feed for the whole day may be mixed in the morning, since a moderate souring is not objectionable. Add a single handful of salt a day for every ten pigs. Regularity in feeding is strictly essential. Avoid any approach to surfeiting, and allow one man only to attend to the feeding. Green fodder should be supplied daily. Clover, peas and corn in their respective seasons are as good as any. Fed as indicated above we have been enabled to reach live weights of one hundred and seventy to two hundred pounds at five months, and dressed weights of one hundred and thirty to fifty pounds, and corresponding weights, at six months. These are not weights of picked individual animals, but the averages of a number of animals sold at one time. As we are now turning off over two hundred pigs annually, we think the above, which is the result of much careful experiment and investigation, is fairly reliable. The cost of raising such an animal will vary in different districts. Four and three-quarters or five pounds of the above mixture for spring and summer feeding will produce a pound of pork. The cost of a pound of pork on foot would approximate three cents. This estimate includes the cost of the keep of the sow for six months, and it is based on a continued series of ex-

periments. We have thus shown that pork can be profitably raised at a much lower price than is generally believed. We have also practised a less rigid system of summer feeding with profit. When weaned turn out, give access to clover and grass, and feed a modicum of some such additional feed as barley and peas, with an abundance of water and effective shade. In this way they will feed slower than in the former case, but there may still be reaped a nice profit. One objection to this system in our section is, that they are hardly heavy enough for the early markets and consequently the highest price is not obtained. When taken up and fed on soft feed they will, however, usually gain rapidly. Of a number fed in this manner we have put pork on the market at a cost of two cents a pound live weight, when six months old. For young sows that are to be kept over for breeding purposes, and for pigs to be kept for home use and slaughtered the following winter, we think this latter a very satisfactory system of feeding. The culls of the different litters, which as a rule do not pay well for high feeding, might perhaps be most profitably handled by some such system.

**Late Summer and Early Fall Litters.**—Our remarks upon the care of spring litters will also apply here. If, however, it is found desirable, the young pigs may run out with the dam. As the cold weather approaches, the feeding must be entirely different from that of the summer. In the first place, the feed should be fed dry, since wet feed loads the stomach with a cold mass that is decidedly injurious. The colder the weather, the richer and more concentrated should be the feed. We have found any of the appended rations very suitable and profitable:—

Peas.	Wheat.	Barley.
1	1	2 by measure.
2	1	1 "
1	2	1 "

Grain always ground. Where corn can be matured, it might very profitably be made a part of the ration at this season to pigs over four months old. With such rations, as much gain per day may be made as during summer, at but a slight advance in the cost. Warm, clean, well-ventilated quarters, water given separately from the feed, and a supply of salt and ashes are essentials in winter feeding. We have known a gain of a pound a day dressed weight to be made at this season, by a ration of oats and peas equal quantities, oats and fall wheat equal quantities, and even almost as great a gain from a ration of barley alone. In fact the number of varying rations that may be fed to swine at a profit are legion. There are other factors which have much to do with the amount of profit to be derived from an investment in swine, as the breed, manner of breeding, etc., but these are outside the province of this paper.

[\*Many would not concur with this very low estimate of the cost of production.—ED.]

## ENTOMOLOGY.

### Injurious Insects.

BY JAMES FLETCHER, DOMINION ENTOMOLOGIST, OTTAWA.

#### THE PEA WEEVIL (*Bruchus pisi*, L.)

The Pea Weevil, or as it is more generally called, the Pea Bug, is a pest which, notwithstanding the fact that seedsmen do much to reduce its numbers, by treating their seed pease, still is the cause of much loss every year in the districts where it breeds. This is by no means a wide area in Canada. As far as my experience goes, it has not been found breeding anywhere in Canada outside of Western Ontario. This means that there are large districts where uninjured pease can be obtained for seed.

The life-history of the Pea Weevil (Fig. 1) is briefly as follows:—The mature insects emerge from the pease either late in autumn or the following spring. At the time the young pea plants appear above the ground, the beetles fly to the fields and feed upon the foliage; and, when the young pods are formed, the females lay eggs upon them. The young grub on hatching eats its way into the pod and enters one of the peas. Here it remains until fully developed, eating out during its larval life the greater part of the contents of the seed, and as a general thing, but not always, destroying it for all purposes. It is sometimes stated that weevily pease are as good for seed as sound ones. This, however, is undoubtedly, as it is easy to understand, not the case; although it is true, when the germ is not injured, the seeds will germinate, the plants are much weaker from having been robbed of a large proportion of the nourishment originally laid up by nature in each pea as necessary for the sustenance of the young plant, until it is able to take its own food from the air and soil.

#### REMEDIES.

There are several remedies which may be used effectively according to circumstances:—

1. **Clean Seed.**—Of great importance is the sowing of uninfested seed.

2. **Holding Over Seed.**—A certain remedy, and one which does not apparently injure the seed, is holding over seed pease until the second season. The beetles, being fully developed at the end of the first autumn, must emerge either then or the fol-



FIG. 1.