

3. Sheep are, as a rule, poorly housed and fed, resulting in severe losses. Information regarding successful feeding and management is badly needed. Dipping, docking and castration must be intelligently undertaken by the breeders.

4. Study of meat-market demands, as to age, size and quality. Present irregularities and anomalies of supply and demand are held to be due largely to lack of foresight on part of breeder and feeder.

5. Definite information as to requirement of best markets for wool, including a full explanation regarding care of fleece.

6. Wool exhibits at leading exhibitions, in charge of well-informed demonstrators.

7. Carefully-arranged wool displays at agricultural colleges, and active co-operation of these institutions.

8. Demonstration farms in various parts of the Dominion, furnishing practical examples of the advantages to be derived from the keeping of sheep under their respective local conditions.

9. Further distribution in isolated districts of pure-bred sheep, especially rams. Canadian breeders have neglected the home trade.

10. Co-operative summer grazing, especially in the Eastern Provinces.

11. Co-operative marketing of sheep and lambs should be organized in specially-selected districts, in order to ascertain the feasibility of the more general adoption of such a system.

12. Settlement of abandoned farms, where sheep-raising could be made a specialty, should be encouraged. Provincial Government loans to farmers to enable them to clear the land and effect necessary improvements, are proposed.

13. A Departmental suggestion to the various Provincial Governments, urging the necessity of rigorous enforcement of existing dog laws, and their amendment where necessary. Suppression of dog ravages would remove the greatest obstacle to successful sheep-raising, and restore a sense of security in and confidence to the industry. The commissioners recommend a regular dog tax to discourage the keeping of useless canines and provide funds to compensate sheep owners for losses. Every dog should be compelled to wear a collar with a small metal disk attached, bearing on one side the owner's name and address, and on the other the license number.

14. Special assistance to sheep-breeders' associations to enable them to forward experimental consignments of wool to British markets.

15. After carefully studying the various methods of handling wool in successful sheep-farming countries, the commissioners have concluded that Canadian wool should be handled on co-operative lines, so as to combine the advantages possessed by the marketing system of Great Britain with those secured through the organization of Australasia, together with such as would likely be obtained through the adoption of improved methods recently undertaken in other countries. As a means to this end, central wool depots or receiving stations should be established in suitable localities for collecting, warehousing, grading and classing Canadian-grown wool for shipment to the home or to the export trade.

THE FARM.

Six Renewal Hints.

Editor "The Farmer's Advocate":

With my renewal subscription, I am sending a few hints which may be of some use to other readers. To lead a cow or heifer, such as our old friend Peter McArthur described a short time ago, take a rope plow-line, tie around the cow's neck, then make a loop, slip it through the rope on her neck and in her mouth, and you can lead her anywhere and not hurt her a bit.

I noticed, in a bulletin, a short time ago, that coal ashes would kill lice on hens. We tried it last winter, but failed to get results. This year we put the ashes in a barrel and keep them covered, and made a screen, using wire window screen. When the barrel is half-full, sift them into a box in the hen pen. Try it.

I like to sow as clean seed as I can, and with only a boy to help run the grain through the fanning mill three or four times, it means work for the boy, so we run through as many bags as we will need, and stand them in a convenient place, without tying. Now, by having the mill placed cross-wise of the barn floor, and tacking a cleat across the front of mow, I place two granary boards from cleat to mill, giving them a good slant to mill. Now place two bags at a time on the boards, and the boy has a snap.

We sowed four rows of sunflower seeds across our corn field last summer with a grain drill, and in the summer and fall were surprised to find the sunflowers literally covered with bumblebees. Don't fail to sow a few rows for the hens and bees.

You occasionally receive inquiries how to get rid of groundhogs. Your recipe is all right, but I have tried a cheaper one for five years, for I get a fresh supply from my neighbors every summer, and find it infallible. Ground-hogs, like bad weeds, can't stand good farming or a short rotation of crops, and if all their burrows are properly closed up in the fall, they will never come out.

If your grandfather followed the Old Country custom, and built your buildings on the center of your farm, don't envy your neighbor because his buildings are situated near the road. Remember, the old man has saved you thousands of steps every year, and modern inventions have removed the least advantage he had, while the automobile man is giving him a run that is simply appalling.

Freezing Ice in Collapsible Boxes.

The economy, to say nothing of the comfort, of having ice on the farm, particularly where milk or cream is to be kept, or where cellars are not first-class, can hardly be appreciated by one who has never experienced the boon, and has perhaps given it little thought. We consider it so great as to warrant the freezing of well water, where a supply of ice cannot expediently be obtained in the usual way. If the well water is what it should be, this so-called artificial ice has a decided advantage, in that it should be pure enough to put into drinking water. The average ice cake, even though it looks pure and clear, is no more fit to be put into a drinking glass than would be the unfiltered water from which it was congealed. Freezing does not purify water. It merely arrests the development of bacterial activity. Ordinary ice should never be put into water (or milk) that is to be used without boiling. The ice should merely be put into a surrounding pail, tub or other vessel filled with cold water, the can or pail of liquid to be cooled being set into the ice-water. It is, however, a distinct comfort to have ice made from pure water, and, while the labor is such as to render this practice inadvisable where a natural formation can be drawn upon, still, if one cannot get ice without freezing it by artificial effort, he may console himself that if it be pure water, he will have an exceptionally desirable supply of ice. A Saskatchewan correspondent recommends the following simple method of freezing water into ice-cakes:

"For the sake of the home and the public who purchase farm products, build some kind of an ice-house. If good natural ice cannot be had, make artificial well-water ice. Level off a piece of ground near the well, cover with ice by sprinkling water over it when very cold. Make a collapsible box five feet by twelve feet, one foot deep, out of two-inch plank, dressed on inside. Before commencing to fill, cover the ice-bottom each time with an inch of dry snow, and do not saturate this snow, but cover it with a layer of ice by sprinkling, then begin to fill the box with water, two inches at a time, letting each two inches freeze solid before putting in the next two. Repeat the operation until the box is full, remove the planks, and saw the ice into blocks. This is ideal ice, and most to be desired."

Co-operative Fertilizer Experiments.

Editor "The Farmer's Advocate":

As usual, at this season of the year the various newspapers are publishing, under large headings, the reports of the results of the co-operative experiments conducted by members of the Experimental Union, which held its annual session at Guelph last week.

Professor C. A. Zavitz, the Secretary of the Union, has always been the most prominent speaker at these meetings, and we heartily acknowledge his claims to recognition, on account of the work he has done towards the improvement of our cereal crops, but the results he has obtained from his fertilizer experiments, and the conclusions he has deduced from them are most unconvincing to those who are conversant with the principles of soil fertility and fertilizing.

The experimental plan which Prof. Zavitz adopted years ago, and has tenaciously adhered to ever since, is as follows:

- Plot 1.—Check plot; no fertilizer.
 - Plot 2.—160 pounds nitrate of soda per acre.
 - Plot 3.—160 pounds muriate of potash per acre.
 - Plot 4.—320 pounds acid phosphate per acre.
 - Plot 5.—Complete fertilizer (containing one-third of each of the above quantities).
 - Plot 6.—20 tons farmyard manure per acre.
- Without consideration to the nature of the crop, soil or other conditions, Prof. Zavitz has enforced this plan, without variation in sum or substance, and, like the laws of the Medes and Persians, it altereth not.

The famous "Law of Minimum" was promulgated by Liebig more than sixty years ago, and

has long been recognized by soil chemists. Briefly, this "law" states that the plant-food substance present in smallest quantity in a given soil governs the yield of crop in that soil. Another way of expressing the same law is: "The strength of a chain is that of its weakest link."

The plant-food ingredients applied in fertilizers are nitrogen, acid phosphate and potash, and sometimes lime, and, except under exceptional conditions, a fertilizer should be compounded proportionately of these; it is seldom advisable to apply them singly, for, if the other ingredients are deficient, the one applied would be ineffective. What benefit is derived by applying 160 pounds muriate of potash per acre, alone, to the oat crop, when, in presence of a sufficiency of other plant foods, the crop could only use profitably half of the potash applied? The "complete fertilizer" consists of a mixture of nitrogen, muriate of potash and acid phosphate—in all, 213 pounds, or just enough to give the potato crop an "appetizer." It is generally considered advisable to use fertilizers in conjunction with barnyard manure for hoed crops, but Prof. Zavitz loses sight of this in his experiments. True, there is one manured plot included in the plan, and the manure is applied at the rate of 20 tons per acre, the total value of this being given at \$6.00—surely a very low estimate of the average value of farmyard manure in Ontario, and there must also be reckoned the cost of haulage and application; perhaps this, too, is included in the \$6.00!

Perhaps Prof. Zavitz or some other authority would answer the following questions:

1. What would be an average price per ton of ordinary mixed cow and horse manure in Ontario, and what would be a fair estimate of cost of handling same?
2. Is Liebig's "Law of Minimum" considered generally applicable?
3. What problems in fertilizing is Prof. Zavitz's plan of experiment designed to elucidate?
4. What would be a more suitable and efficient plan than that at present employed by Prof. Zavitz in the co-operative tests?

We consider this subject of very great importance, and shall be glad to know the opinions of our readers on the same.

Apologising for encroaching to such an extent on your valuable space. F. V. THOMSON.

Alfalfa and Tile Drains.

Editor "The Farmer's Advocate":

I am intending to sow an eight-acre field with alfalfa seed. Do you know whether the roots of the alfalfa will close tile drains? I have been told that they will. I would like very much to know, and so would many of my neighbors. If you could answer this in "The Farmer's Advocate," we would be very much obliged.

ONE OF YOUR OLD READERS.

Ans.—There is a certain amount of danger of tile drains being blocked with alfalfa roots, but, so far as we have been able to learn, the chances are not sufficient to deter one from sowing the alfalfa. We have taken the chance at Weldwood, anyway. Men who have had experience with tile-drained alfalfa fields are of opinion that, where the water is not continuously flowing through the tile, the danger is not great. Indeed, one such correspondent, a year or two ago, summed up his advice thus: "If your land needs drainage, drain it, and then sow alfalfa." Supposing one did have to plow up his alfalfa in two or three years, it were worth sowing, anyway. By means of silt basins and close watchfulness, we should suppose that one could guard against the tile becoming permanently clogged. Further experience on this point is especially requested.

Settling and Preservation of Silage.

The extent to which cut corn settles in a deep silo, is a subject of popular speculation. When filling the 14 x 40-ft. cement-concrete silo at "Weldwood" last fall, we had the opportunity for a simple experiment. The silo was first filled by one day's work to a depth of about 24 feet, when the outfit moved away to another engagement. Two weeks' settling, feeding, and some spoilage, owing to our having at that time insufficient stock to feed from the whole surface, lowered it to a depth of about 20½ feet. Strips of old tar paper were laid in here. We commenced feeding as soon as the silo was refilled, and reached the tar paper on January 12th. It had settled a little over three feet. Now, this corn was put in unusually tight. A jointed pipe was used to distribute the cut corn, besides which two men were in the silo all the way up, and at the top there were three, while the last few feet were tramped by four men. The corn put in at the first filling was ensiled two or three days after being cut. Much of that put in at the second filling had been shocked two weeks. Some water was added to this, and loads of fresh-cut corn were