

increased 70 per cent. In the United States, on the other hand, there has been an increase of 68 per cent. in the number of inhabitants, and only 25 per cent. in the wheat acreage. Two other wheat countries, Russia and Hungary, have increased their wheat area in proportion to population. In thirteen countries of Europe and the United States, Canada, Argentina, and Australia, the rate of consumers to area devoted to wheat, is 264 now, where it was 283 twenty-five years ago. In another quarter of a century Canada will be the leader in wheat production.

An Experiment With Manure

John Hyndman, Gorrie, Ont.

One winter a few years ago I applied manure on top of the snow, and it proved a failure. Since then I have been applying it direct to the land, before plowing. I keep manure spreaders at work applying the manure, and another team plowing it under. I believe that the sooner manure is plowed down after being spread, the better. Manure as a fertilizer works upwards, while artificial fertilizers work down into the soil.

Spreading manure on top of the land entails a great waste of valuable ingredients. A few years ago I top-dressed a portion of a field of fall wheat. On the rest of the piece I applied the manure at the same rate, but plowed it down. When the wheat was being cut, it was possible to see just where the manure had been plowed under. There the best wheat was produced.

I spread manure on root and rape land right after seeding. I sow each year from 8 to 10 acres of hoed crop, and 5 to 10 acres of rape. I never sow rape and turnips in the same field. When I have more land in a field than what is required for turnips, I summer-fallow and sow to wheat, then seed down the first crop. We apply about 12 loads of manure to the acre for turnips, and eight for rape.

Legume Bacteria

A bulletin will soon be issued from the Bacteriological Laboratory of the Ontario Agricultural College at Guelph, giving the results of Canadian experimental work on the inoculation of seed of legumes. It has long been known that clovers, alfalfa, etc., when plowed under greatly enriched the soil. In the middle '80s, Hellriegel discovered that the reason for this was that the nodules on the roots of such plants were inhabited by bacteria which provided the power of drawing the valuable fertilizing element, nitrogen, from the air and storing it up in the plant. A few years ago the idea was conceived of cultivating these bacteria, and applying them directly to seed before sowing.

During 1906 cultures were sent from the College, 375 cultures being distributed to nine provinces and to four foreign countries. Blankets were sent to recipients of the cultures asking for a report as to their success or failure. Of a total of 120 reports received 72 showed a benefit, and 48 showed no benefit. Last season, 372 cultures were sent, and the reports received showed a benefit to the crops in a little over 54 per cent. of the applications.

When a leguminous crop is thriving it indicates either that the soil is plentifully inoculated with the necessary bacteria, or else that the soil already contains an abundant supply of nitrogen. In either case the use of artificial inoculation would be of little if any benefit. On the other hand, if the crop fails to thrive, and on examination no nodules are found

on the roots, the culture would probably be of benefit in future seedings. The culture usually proves beneficial in seeding to a legume crop that has never been grown on the land to be sown. The soil may lack available potash, phosphoric acid, or lime. Inoculation of seed cannot remedy this deficiency. Nor will the use of cultures compensate in any way for carelessness in selection of seed or preparation of the soil.

Again be distributed during the coming spring to any who apply. Full directions are sent with each culture, and it is expected that each recipient of the bacteria will carry on the experiment carefully, sowing some untreated seed, and report his experience at the end of the season.

The price of the culture is 25 cents for sufficient to treat one bushel of seed. Cultures will be sent for inoculating seed of alfalfa, red clover, alsike clover, peas, and beans. Applications should state the kind and amount of seed to be treated and as nearly as can be judged, the date of seeding, and be addressed to:

Bacteriological Laboratory,
Agricultural College,
Guelph, Canada.

The Production of Bacon

Lorne Davidson, Peel Co., Ont.

The science of successful farming has arrived at that stage when it can be organized along lines similar to that of other business concerns. The secret of successful advancement in material things is production, with the utilization of all waste and by-products. To the dairyman, who is producing butter or cream for market, the hog offers the solution of his problem as to how to best utilize the by-products. Generally speaking, the average dairy cow will give enough milk to support her own calf, and from two to three hogs, allowing also a small meal ration. The dairyman can thus produce bacon, and realize a profit, when others are saying "There is no money in hogs."

After a good dairy cow, the best investment for the dairyman is a good brood sow of a prolific strain. Because of the small amount of land required to keep hogs, much feed of great value to hogs, would otherwise be wasted, such as the milk of newly-calved cows, skim milk, butter milk, etc. Without hogs this would go to waste, because even where all the calves are raised, a surplus of milk should exist from good dairy cows.

The dairy farmer who sells his milk is selling the fertility of the land, unless he buys back the rotten (Bitter) in the form of bran, oil meal, etc. If fed to hogs on the farm the fertility can be increased and a profit made on the transaction. One more point in favor of the hog is the small amount of waste to the dressed carcass. Usually hogs dress about 70 per cent as compared with beef from 50 to 60 per cent, thus converting their food into saleable meat instead of offal.

The hog has a great reputation as a consumer, hence cheap bulky food is most desirable. Mangels, skim milk, a little clover hay, fed on the basis of a healthful and cheap bulk ration in winter. In summer a wider range is available. Alfalfa is one of the most valuable green fodders the farmers can grow either for cows or hogs. Our experience with this crop has been most satisfactory. We have cut alfalfa for green feed two different years, as early as May 10. With skim milk and alfalfa young hogs will grow with little or no meal. Clover, green corn, waste apples, etc., all work into the economical feeding of hogs. Last fall we made 10 days feed for over 25 hogs out of the small seeds that fell under the thresh-

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ing machine. These were boiled and mixed with meal, and soon converted into pork.

The profit made from hogs varies with each season. We had one sow from which we sold \$253.00 worth of pork in one year, (three litters.) One of our neighbors told us that he had sold enough from one sow, for pork purposes only, to build him a new barn costing over \$1900. Just at present the pessimists have the floor, when the bacon question is discussed. The dairyman who is interested in production, however, on a permanent and sound basis, will find the hog ready to pay his way, and become one factor in connection with a well organized farm system.

Meeting of Fruit Board

A meeting of the executive board of the Fruit Growers' Association of Ontario was held on March 13th, at the secretary's office, Parliament Buildings, Toronto, all being present, except Mr. E. D. Smith. The secretary read a letter from Prof. Craig, of Cornell University, Secretary of the American Pomological Society, accepting on behalf of the association, the invitation to hold their annual

meeting in St. Catharines in September, 1909, on a date to be subsequently selected. Secretary Hodgkins also reported that, in accordance with the request of the association, Mr. W. T. Macoun, C.E.F., Ottawa, had been added to the advisory board for Fruit Station work.

The representatives to the Canadian National Exhibition reported that the prize list for fruit had been re-arranged so as to induce a larger and more representative exhibit of Canadian fruit. The list of varieties had been cut down to a certain extent, and a new class added for Pyramids of fruit. Further changes were also made with a view of improving the display in all classes.

It was decided to issue a small circular at once giving the methods of spraying as adopted by three or four of the most successful fruit growers. —G. deW. G.

Never buy a poor sheep; you have no time to fool with it. Buy the best quality you can, but try to have the whole flock uniform. A bunch of sheep will do a lot towards building up a poor, worn-out farm. They kill the weeds and enrich the land at the same time.