

Soils and Crops

Address communications to Agronomist, 73 Adelaide St. West, Toronto

Question:—The opinion prevails in some parts of Canada that hogs of the bacon type are more expensive to grow than those of thick type. What do official experiments show in this regard? How do the different breeds compare in the production of exportable bacon sides?

Answer:—An experiment was carried on at the Central Experimental Farm at Ottawa in 1921, and recorded in the Report of the Animal Husbandry Division of the Experimental Farm for the year ending March 31, 1922, to compare pure-bred Yorkshires, Berkshires, and cross-breeds from these two breeds as economical producers of bacon. Four lots of hogs were used. The number of the hogs in the experiment consisted of two pens of cross-breeds, eight hogs in each, six hogs of Berkshires and seven Yorkshires. The experiment was carried on for 119 days with the exception of the Yorkshires which were fed for 133 days. Individual weights of pens were taken at the commencement of the experiment, at the end of each thirty-day period, and at the end of the experiment.

The food consisted of mixed grains chopped, tankage and skim milk. The average daily gain was 1.29 pounds and 1.28 pounds respectively for the cross-bred pens, 1.11 pounds for the Berkshires and .98 pound for the Yorkshires. The average quantities of meat eaten per pound of gain was 2.52 and 2.50 for the cross-breeds, 2.51 for the Berkshires, and 2.42 for the Yorkshires. The amount of milk used per pound of gain was 5.66 and 5.68 respectively for the cross-breeds, 6.08 for the Berkshires, and 5.5 for the Yorkshires. The total feed per pound of gain was 5.14 and 4.88 cents for the cross-breeds, 4.95 cents for the Berkshires, and 4.69 cents for the Yorkshires. This shows that cross-bred swine are capable of making the maximum daily gains with the minimum of food consumed as compared with the Berkshire lot. It will be observed that the Yorkshires made the most economical gain of the four lots being fed, followed by one lot of the cross-breeds, the Berkshires, and the other lot of cross-breeds in the order named.

At the conclusion of the experiment the hogs were slaughtered and their sides compared from the standpoint of the Wilshire side type. The Berkshires were found to yield sides of the required weight, averaging 50 to 55 pounds a side, but they did not possess sufficient length or uniformity of fleshing to answer the bacon requirements. The cross-bred lot yielded sides averaging between 60 and 65 pounds. The sides were longer and otherwise superior to the Berkshires for manufacturing into Wilshire sides. The Yorkshire lot showed a marked superiority both in quality of fleshing and the uniformity with which the fat was distributed along the back and sides. Both from the standpoint of economy of feeding and quality of the sides, the Yorkshires surpassed either of the other lots.

Question:—Is it more profitable to allow fattening hogs to run at pasture or to supply grain feed in their pens?

Answer:—Much depends on the quality of the pasture. If it consists of luxuriant clover, it is, as a rule, more profitable to allow the hogs their liberty, more especially during the early part of the fattening period. When this is done considerable labor is saved. As a rule, however, slightly better gains are secured when the hogs are housed. In an experiment conducted at the Central Farm at Ottawa in 1921 hogs fed at pasture made greater gains than those fed inside. The outside hogs were slightly older than the others. Twelve hogs were fed outside and ten in the pigery. The experiment was conducted for sixty days. Both received a mixture of chop and skim milk. The average daily gain made by the hogs on the pasture was 1.38 pounds and for those in the pigery 1.10 pounds. The quantity of meat eaten per pound of gain was 1.83 for those pastured and 1.85 for those fed inside. The quantity of milk consumed by the different lots per pound of gain was 5.33 for those on pasture and 4.75 for those enclosed. The cost of the feed per day per head was 6.35 cents for those on pasture and 5.05 for those in the pigery. The total feed cost per pound for the two lots was almost identical being 4.6 per pound of gain for those on pasture and 4.57 cents for those enclosed. The cost of the feed per day per head was 6.35 cents for those on pasture and 5.05 for those in the pigery. The total feed cost per pound for the two lots was almost identical being 4.6 per pound of gain for those on pasture and 4.57 cents for those enclosed. The cost of the feed per day per head was 6.35 cents for those on pasture and 5.05 for those in the pigery. The total feed cost per pound for the two lots was almost identical being 4.6 per pound of gain for those on pasture and 4.57 cents for those enclosed.

Question:—Have there been any official experiments conducted to determine the value of the Bang system of tuberculosis control in cattle?

Answer:—The Central Experimental Farm at Ottawa carried on a segregated herd of reacting cattle for about five years. An account of the experience is contained in the Interim Report of the Dominion Animal Husbandman for the year ending March 31, 1922. In December, 1916, a number of the best cows of the main dairy herd that reacted to the tuberculin test were removed to a barn on an adjoining farm. During the following four years other reactors of high type were added to the herd. The cattle were housed and cared for in practically the same manner as the main herd at the farm. As the calves in the segregated herd were born they were removed to the main barn and many of them saved for future use. Out of 80 calves born at healthy specimens have been saved. Twenty-six of this number have been retained in the breeding herd and 18 sold. From time to time the cows in the Bang herd were slaughtered and examined. There was a decided lack of uniformity in the conditions found. Animals long in the herd continued profitable milk producers and, when killed, showed in some cases only slight traces of the disease. With others the disease progressed at a rapid rate. The conclusions reached by the Farm officials are that the practicability of adopting the Bang system depends upon whether the value of the property from the segregated cows would justify the extra expense of maintaining the second herd. If at any time the Bang herd would be justified it would be with the entry of the herd in the Accredited Herd System. The expenses of a segregated herd are unavoidably high. Charging the expenses of feed, bedding, rent, and labor against the value of the milk, calves, and manure, in the Central Farm experiment, left a profit slightly exceeding \$6,000 for the five-year period.

There are two methods of keeping milking machines clean and sterile. The most prevalent one is to thoroughly clean the machine in the ordinary way and then immerse the teat cup and milker tubes into some chemical solution, usually strong brine made by adding two pounds of salt to a gallon of water. The brine is kept sterile by adding hydrochloric solutions or chloride of lime. Another accepted method of keeping milking machines clean is to immerse the milking tubes and teat cups in hot water at a temperature of 160 to 180 degrees F. There is no doubt but what this keeps the machine clean, but certain makes have rubber parts that cannot withstand the high temperatures.

SHEEP
If you have an orphan lamb, by all means try to find a foster-mother in the flock. Perhaps some ewe lost her lamb about the time the orphan was born. To get her to claim the orphan, rub sassafras oil or kerosene on the lamb and on the ewe's face and nose. If there is no ewe for the orphan, raise it on a bottle. For the first week, the lamb should have ewe's milk. Feed little and often at the start—a tablespoonful or so every two hours. When two or three weeks' old feed three times a day, but let the lamb have more at each feed. When ewe's milk can not be had, use cow's milk. Some folks dilute cow's milk with an equal amount of water, but since ewe's milk is richer than cow's milk, this dilution isn't necessary. Heat the milk to 100 degrees F. and feed from a bottle. Olive oil is good in many cases of bowel troubles in poultry, and should follow the dose of castor-oil. Olive oil is also useful in egg binding and in cases of enlarged crops, and for dressing the combs of fowls to prevent frost bites.

The Selection of An Incubator.

Professor W. R. Graham of the Ontario Agricultural College, in a recent public address, declared that hatching by hens at the present day is economically unsound. Professor Graham was referring more particularly to the larger operator, that is to say those who raise hundreds of chickens in the year. It may be stated also that machine hatching is unsound and operates it with intelligence. Mr. F. C. Elford, Dominion Poultry Husbandman, advises against buying a cheap incubator simply because it is cheap. The best, he states, is none too good, and cheap machines are usually dear at any price. In Experimental Farm Circular No. 2 entitled "Artificial Incubation," Mr. Elford gives advice on how to tell a good machine. He says, "Nothing but results are an absolute guarantee that a machine is good, but still there are certain marks that indicate the probable value of a machine for hatching. The first of these is the general appearance. It should be well made, good workmanship and good material entering into its construction. The doors should hang true and fit without friction, the glass large enough and neatly put or battered, the paint or stain applied evenly, and the machine should present the appearance of a finished piece of furniture. Good insulation also is absolutely necessary. See that the walls are double and likely to maintain a comparatively even temperature.

There are, besides the above, many other points of more or less importance. The lamp should have a large enough bowl to last at least thirty hours, convenient to fill, easy to take out and replace, good workable burner and chimney, the mica opening so placed that the whole of the flame is readily seen when the observer is standing, the heater well insulated, and made so that it can be cleaned. A reliable thermometer and thermostat, egg-trays that slide in and out without catching, and the height of the machine should be convenient for working.

This circular, which is obtainable through the Bureau of Plant Industry, Department of Agriculture, Ottawa, also tells how to operate the incubator.

The Advance of Agricultural Teaching in Ontario Schools.

Every province has from time to time testified to the impetus given to agricultural education by the funds obtained from grants made under the Agricultural Instruction Act of the Dominion passed in 1913. Ontario being the most populous of the nine provinces naturally received the largest amount. In the January-February number of the Agricultural Gazette of Canada, Dr. Dandeno, chief superintendent of agricultural education in this province, gives an account of the progress of the "Agricultural Instruction" in the schools of Ontario during nine years of the ten that the grants under the Act have been forthcoming. During that time the allotment made by the Dominion to agricultural education in this province has been \$263,000. That good work has been accomplished is evidenced by the fact that the attendance at the Ontario Agricultural College short courses of instruction for teachers increased from 146 in 1913 to 428 in 1921, and that the number of schools qualifying for grants in this province increased from 159 to 1,804. A notable feature of the development that has taken place is the increase in the number of school and home gardens. In 1914 the numbers of these were, respectively, 208 and 56, whereas in 1921 they were 690 and 1,114.

It should be mentioned that the \$263,000 referred to is only a comparatively small proportion of the sum received by the province under the Act for the encouragement and promotion of agricultural knowledge in all its branches and the improvement of rural life, the amount so received in the nine years having reached a total of \$2,675,290.

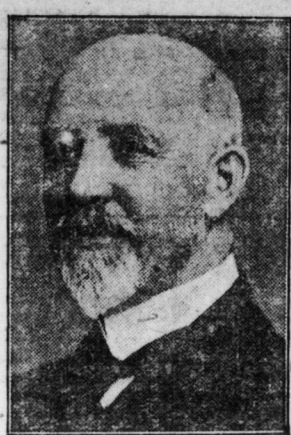
The early bird gets the worm, but in poultry parlance, the early bird brings the profits. Moral: hatch early.

Farm Implements and Tools

With the advance of agriculture the increase in farm tools, implements, and machines has been great. A century ago, an ax, a scythe, a spade and a saw formed a large part of the equipment of many farms. These few simple tools were probably the most useful in working the small areas of land under process of clearing. The development of the farms brought improvement in tools and a gradual development toward the modern type of farm machines.

Tools were valued in the early days because such were hard to get. There was no waste of farm equipment then; the spade and the scythe were valued as much as the shotgun. Conditions have changed during the past century. The progress is now marked by an abundance of tools, implements and machines for every purpose in agricultural production and harvesting. An abundance of machines so great that we see waste on every hand—bowed harrows and mowers and harvesters neglected and exposed to the weather, rust and wear out before giving half service.

The waste of tools, implements, machines and articles of farm equip-



Professor Adam Shortt, a Canadian-born scholar of exceptional attainments, is chairman of the Board of Historical Publications at Ottawa. To that important work he has brought a keen, cultured and sympathetic mind. He is a writer on matters of history and political economy, and makes his home in Ottawa.

Weed Seed Collections in Schools.

It is not difficult to agree with a remark in a bulletin on "Weeds and Weed Seeds," for which the Dominion Seed Branch is responsible, that no subject in agriculture is better adapted for presentation to school children than the study of seeds. The collection, identification, and study of seeds gives scope for the training of a wide range of faculties, and the intrinsic value of the information so derived is of use in after life. The seeds of weeds constitute one division, and in this connection a collection of weed seeds for illustration purposes is most important. Unfortunately, as the pamphlet refers to further points out, it is not difficult to make a fairly large and representative collection of weed seeds in almost any district in Canada. There are a number of weeds that occur practically everywhere. On the other hand, a great many are associated with certain crops, or with certain types of soil, or are limited to particular sections of the country.

One of the weed seeds with which every child should be made acquainted is Lamb's Quarters. This weed is common throughout Canada in gardens as well as in cultivated fields. Another common kind is Wild Buckwheat, a weed that is general in cereal crops. A third is Wild Oats, one of the cultivated oats but can be easily distinguished from it. A fourth is Wild Mustard, which is the commonest and one of the most injurious weeds belonging to the mustard family, of which the well known varieties are Hare's Ear mustard, and Tumbling mustard, and two less known, Indian mustard and Black mustard. All these and more than a hundred other weeds are described and illustrated, and methods of eradication in the bulletin referred to.

Cattle Export Arrangements.

The Live Stock Branch of the Department of Agriculture and the Department generally have been busy for some time past making arrangements for the export of beef cattle from this side under the changed conditions brought about by the removal of the British embargo. An export cattle section at each stock yard, separate from the accommodation of the general supply, is being provided, and a suitable method of tagging and veterinary inspection arranged for. The export is also being made to arrange with the steamship companies for adequate carrying space on a regular schedule at rates consistent with the business that may be expected. Necessary publicity to the regulations under which matters will be conducted is being given with advice as to the kind of cattle required. It is emphasized that unless shipping is undertaken with some sort of uniformity as to quality and supply, the trade will not develop to the extent necessary to make it of general benefit to the country's live stock industry.

Home Education

"The Child's First School is the Family"—Frederick.

Training for Unselfishness—By May E. Wilson

Not long ago I heard a very lovable woman say, "If my parents had realized when I was a child, they would have spared me many tears. I was allowed my own way in everything and grew up a disagreeable and selfish girl. Later, when I had to leave home and go among people I found I had to reform myself to be even tolerated. It was a long heart-breaking task, which I had to struggle through alone, overcoming habits which might easily have been kept from becoming habits if I had been guided wisely in my childhood."

Many parents seem to overlook or underestimate the importance of the first appearance of undesirable tendencies in their children which can be overcome, if properly treated while children are still young.

Ill-temper, selfishness, teasing, and fault-finding can be kept from becoming unlovely characteristics if a wise guide gives help at the right time.

At the root of wrong-doing one can always find selfishness. It besets the only child in a home where adults seem to exist to please and spoil him, as well as the little waif on the street where to "have," he has to "snatch." For either of these children, the kindergarten is a blessing. Here in happy surroundings he learns to share in work and play—to give as well as take.

Here a child learns to hang up his wraps; to care for his rubbers; to sit erect, overcoming a desire to slide in his chair; to obey the directions of his teacher, given sometimes by voice, sometimes by the piano; to yield his individual desire and do the thing that is right for him to do at that moment.

The child who at home makes no effort to help himself in putting on his wraps, who sticks out his feet for someone to pick up his rubbers, is encouraged to try and do these things for himself, not only by the teacher, but most of all by the sight of the more independent children delightfully accomplishing the task of slipping on rubbers, putting on coats and struggling successfully with slippery buttons.

But perhaps the games help most to develop unselfishness. Early in life one needs to learn to share—to be a good loser—to relinquish unwillingly to someone else, and for five days a week kindergarten offers a splendid opportunity.

In a large group of children, where each has equal rights, the selfish child comes to see the need of respecting those rights, which he does by waiting his turn and sharing with others.

And so the pictures, songs, stories, games and handwork open up to him the world about him and lead him from selfishness, out of himself, to unselfishness.

A dealer in implements told us the other day that it took twenty-five cents of every dollar of his receipts to pay his overhead expenses, "and yet," says he, "lots of people think if we charge ten per cent. over costs it is enough."

We suggested that this was a "great time to put into practice methods that would tend to reduce that excessive overhead. Extravagant and wasteful practices in business have contributed in no slight degree to the high costs that are still agonizing the consumer. Perhaps some good may come from a condition that causes the retailer to take note seriously of his overhead.

And while thinking of overhead, I wonder if this subject might not well deserve some careful consideration by the farmer. Overhead, strictly speaking, is an expense not directly chargeable to any one product, but remains as an added expense to be spread over all before a true balance can be struck in any one department. Overhead often tells where the money went that you ought to have but have not. It has subtle way of eating into the profits.

"Rust does corrupt." It is estimated that the loss due to rusting of steel and iron implements on the American farm runs into hundreds of thousands of dollars annually. Much of this can be avoided by a little effort in the use of kerosene oil and paint. Carelessness in the use of tools, harnesses and implements out of repair, often causes accidents and breakage otherwise avoidable, resulting in a blow to profits. Paint as a preservative of exposed wood does not cost anything in the long run. The inefficient use of time and labor applied to our job, indirectly means increased overhead.

A liberal application of thought given to the details of our farming business may reasonably be expected to point the way to an appreciable reduction of our overhead expense.

Too Many Calves Marketed.

Last year was probably a record year for calf selling, at least more calves appeared on the market than in any previous year. This fact suggests an unwise drain upon our resources. The Dominion Live Stock Commissioner gives good counsel in Pamphlet No. 20 of the Ottawa Department of Agriculture. Although offered in war time it is of equal value now. A hundred pound calf, the Commissioner points out, is a thousand pound steer in embryo. Kill the calf and you get a fifty or sixty pound delicacy; kill the steer and you provide five or six hundred pounds of substantial beef. The country cannot view without serious concern the ruthless slaughter of beef calves. The marketing of dairy bred calves is not, however, an unwise practice, because the beef one gets from a steer of dairy type is expensively produced and of less value per pound. It is the beef type of calf that should be saved and developed into a feeder for export or a finished bullock for either the home or export market. Statistics indicate pretty clearly that an immense dividend to the country could be salvaged by returning to the farm large drafts of carefully selected calves from the numbers that continue regularly to find their way to the big central markets.

Marl in Ontario.

During the year ending March 31, 1922, the Dominion Chemist examined at the Experimental Farms' laboratory, Ottawa, between forty and fifty samples of marl that reached him from the different provinces and the Yukon Territory. The majority of the samples proved of good quality and well adapted for use in agriculture. Marl occurs in beds of a few inches to several feet in thickness on old lake bottoms, frequently overlaid by swamp muck or peaty deposit. It can be distinguished from other earthy deposits by giving a copious effervescence on the addition of a little strong vinegar or other acid. In many districts marl is so easily procurable that it becomes the cheapest form of lime for agricultural purposes. Among the samples analyzed were a score from Ontario, including one from Stouffville, described in the Chemist's report as of excellent quality and suitable for agricultural purposes; one from St. Mary's, described as of rather low quality but which might be profitably used locally; one from the Hamber river near Toronto, of excellent quality, rich in carbonate of lime, and well adapted for use in agriculture.

Says Sam: When roads are bad and you can't get to the village, take a book and go to the other end of the world.

The hen's normal temperature is from 105 deg. to 106 deg. F. She does not suffer so much on a cold day as does a human being, but she can only keep warm by keeping alive those natural fires within her, that are kept burning by respiration. The temperature is maintained only by the passage of pure air into the lungs, which act as a rapidly working pump, and it is this pumping or breathing that keeps the proper degree of warmth. This is the secret of it all. Hence a man who shuts his hens up in tight houses where the air becomes vitiated and stale, can hardly expect to get anything but poor production and low vitality as a result.

Drinking fountains whose interior parts can not be reached, may be cleaned with scalding water and a big handful of shot. Fill the fountain about a quarter full of hot water and then pour in the shot. Shake the vessel briskly so that the shot will scrape along the bottom and sides of the fountain. This will remove the scum and make the vessel clean and sweet.

Dry feet will make a stranger of the doctor.

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