

cow, with large udder, coming from the warm stable to a zero temperature that the cold penetrates the very tender skin of the udder with serious consequences. And very few yards are free from ice and slippery places, which are very dangerous to the cows from half time to freshening. These are a few out of many excuses that may be brought forward against daily exercise. But, on the contrary, if the water be laid convenient, there is no danger of their wanting to drink outside, and if the yard is favorably located and care taken of the icy places (covered with ashes or with some other material that would prevent slipping), I am decidedly convinced that to ensure good health there is nothing better than an hour or so in the open if the weather is reasonably fine, but on no account would I turn them out when it is storming. I may give at least two reasons for my conviction: The first is that cows are heavy breathers, and at night, by taking a dim light into the stable and noticing the vast amount of steam proceeding from each cow's nostrils, it will be easy to come to the conclusion that, there is continued inhaling of each other's breath, and, though this cannot be detected so easily in the day time it, nevertheless, continues, hence the need of open air and ventilation. It may be that certain of the herd are suffering from tuberculosis, unknown to the proprietor, and the danger of spreading the terrible disease exists, more so if no change of air be given. With sound judgment the cattle may be exercised on mild and sunny days in the open yard, not allowing them to get humped up, showing the effects of the cold, taking the best part of the day for the purpose. My second reason is that it is beneficial to a real sanitary stable to have it clean of the stock for awhile as often as possible, for, however good the ventilation may be, there is bound to remain that "cowy" smell if the stable is never free of the cattle. But the open windows and doors, and the absence of the cattle for only one hour, together with a thorough good clean-up, make a wonderful difference to the health and pleasure of the stock.

In conclusion my method is to exercise on favorable days an hour or so before noon. While the cattle are out I place the silage all in readiness, and when convinced it is time they were in just let them come, and it is a pleasure to see how heartily they enjoy their feed after their airing. On cold, stormy days open the door on the sheltered side for a while, allowing sufficient air from the opposite side to cause a transfer of odor and steam, but taking care not to get the stable chilly. I find the herd in a very satisfactory state of health, but, of course, the exercising and fresh air is only part of the requirements for keeping them in this state.

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HORTICULTURE.

Are the Young Trees Protected?

During a winter when there is plenty of snow there is considerable danger that young trees will be girdled by mice, unless protected in some way. But, whether there is snow or not the rabbits appear to enjoy the tender bark of a young tree, and in a short time can work havoc in an orchard. A sharp lookout should be kept for them, in an endeavor to rid them from the premises. If they are doing any damage, a protection may be put around the trees. Some use building tar paper, which may be made to extend the full length of the trunk if necessary, and is a cheap and efficient protection. Others use a thin board veneer to wrap around the trees, while others in the vicinity of a tile yard might pick up enough split or cracked tile to place around the trunks and prevent injury. It is best to be fore-armed and have this work done early in the fall, but, if it was neglected and there is danger of injury, any of the protections mentioned might be put on any time. If an injury is noticed, it is wise to wrap it carefully to prevent the injured part drying out too much, then if the injury is not right into the wood there is a chance of nature healing the wound. Where the trunk is girdled through the cambium layer all around, the tree may be saved by grafting. This should be done about the time the sap starts to flow, by cutting young growth from the tree, long enough to bridge the wound. These are made wedge-shaped at the end and inserted into a clean cut made with a sharp chisel, in the uninjured bark, both above and below the wound. Care must be taken to have the cambium layer of the graft come in contact with the cambium of the trunk. This will carry the sap over the wounded area to nourish the tree. Grafting wax should be used to prevent the air from getting at the place where the grafts are inserted. This method usually saves the tree, and apparently does not weaken it to any great extent.

Black Knot of Plums and Cherries.

Black Knot is found on the cherry and plum trees, to such an extent as to make the trees worthless in some orchards. Not only does it infect the cultivated varieties, but attacks wild plums and cherries. As the spores of the disease spread from tree to tree, there is little use trying to eradicate it from the orchard if infested trees are allowed to grow in the vicinity. During the winter is a good time to destroy all worthless trees that might be a means of harboring the disease. The whole community should take an interest in this, and see that wild plum or cherry trees, along the roadside, in the fence corners or in the woods, that are infested with the black knot, are cut down and burned. Then commence to destroy the disease in the orchards. Black knot is a fungus, and the spores of the old knots are spread in the winter or early spring. If a spore finds lodgment in a crack or wound of any kind it may infect the part and cause the development of black knot, as it is known, which, in time, may check the flow of sap, causing the entire limb to die. The most effective means of control is to prevent the production of spores. As they are matured and commence to blow about during the winter or early spring, no time should be lost in cutting the infected parts out of the tree and burning them. Removing them from the tree is not enough, because the spores will ripen in a knot taken away from a tree as well as on it. The diseased parts must be burned.

There are two stages of the disease, one in the winter and another in the summer. While the tree may be clean in the spring, there is a chance that the disease may appear during the summer. If so, cut it out as soon as seen, and the disease may be reduced to a minimum. Bordeaux mixture assists in controlling the disease, but the knife and saw are the most effective. All cuts made would be better painted with tar, white lead or grafting wax.

POULTRY.

Short Course in Poultry Raising.

A great awakening is coming in the poultry industry of the Province of Quebec, and the country is beginning to realize the value of a well-kept flock of fowls. At present Quebec does not hold an enviable position as a poultry-producing province, since vast importations of eggs and dressed poultry are made every year, these coming from Ontario, the Western Provinces and the United States. In 1914 Quebec imported 1,103,118 dozen eggs, valued at \$280,429.00, and unless production with the Province is greatly increased the importations will increase annually. Efforts are being made, however, to encourage farmers and town poultry keepers to increase the size of their flocks, and to give them better attention in order that larger and more profitable returns may be secured. The people of the Province are very favorably situated for poultry raising, since eggs and dressed poultry are in constant and increasing demand, and Montreal is one of the best markets on the continent. Furthermore, the Province is well situated to undertake exportation of eggs and dressed poultry to Great Britain. This market is being developed gradually, owing to the change in market conditions brought about by the great war. As far as supplying Great Britain with eggs and dressed poultry is concerned Quebec has a decided advantage over Ontario and the Western Provinces, but unless she takes advantage of the opportunity she will always be behind her sister provinces in poultry production. Quebec should be an exporter of poultry products instead of an importer, but this will not take place until the number of the fowls in the Province is greatly increased, and better methods in poultry raising are undertaken.

It is very evident, however, that Quebec is going to make an attempt to redeem itself in matters of poultry production. Greater interest than ever before is being shown by farmers and others who keep fowls. Farmers are giving their flocks better attention, and there are a large number of town people who are anxious to start in the poultry business.

In order to give farmers and others a chance to acquire more knowledge in poultry raising, the Poultry Department of Macdonald College, at Ste. Anne de Bellevue, is putting forth every effort to provide a good program for its annual Short Course, which will be held at the College from Feb. 14 to March 3. This Course of three weeks is intended to assist in supplying the demand for practical knowledge, combined with a lecture course on the more important phases of poultry culture. It will be full of up-to-date information designed for practical poultry keepers, and it should enable all interested to become more familiar with the principles of successful poultry keeping.

The Course is being given under the direction of M. A. Jull, B. S. A., Manager and Lecturer; assisted by S. A. Bergoy, B. S. A., and A. G.

Taylor, B. S. A., Assistants in Poultry Department; W. A. Brown, Poultry Division, Central Experimental Farm, Ottawa, Ont.; the Professors of Biology, Cereal Husbandry, and Horticulture; the College Veterinarian, and the Demonstrator to Homemakers' Clubs.

Men and women students will be received, but none under 18 years of age. There is no other age limit. A registration fee of \$1.00 is required in advance. Rooms and board may be obtained in the village of Ste. Anne de Bellevue at \$5.00 to \$6.00 per week. A list of suitable places may be obtained from the Bursar's Office. There will be no examinations for entrance or at the end of the courses. Write for illustrated bulletin to the Principal, Macdonald College, P. Q.

The Farm Flock in Winter.

On a few farms there is a liberal supply of fresh eggs daily, but on the majority of farms, the complaint is made that the hens will not lay during the winter months. There is no particular breed that refuses to lay, but all come in for condemnation. If a few farmers can secure the much-prized hen fruit the year round, and especially when prices are high, why cannot all do the same? Yet, the same breed of fowl has been kept in the same style of pen and fed the same rations by two men living not over twenty rods apart, and the one flock was laying while the other was idle. The reason is hard to account for.

If eggs can be produced anywhere it should be on the farm, where every facility is present for rearing strong, healthy birds, and the feeds grown to give a ration suitable for egg production. If the chicks are hatched the last of April or the first part of May, they should be developed enough to commence laying by November. The hen is particular that her winter quarters are clean, well-ventilated, free from drafts, light, and dry. If a suitable pen is not already provided, there is frequently an old building around that could be fixed up, at very little cost, to answer the requirements mentioned. A cotton front appears to give the most satisfactory ventilation, and a window in the south end of the building allows sufficient light. The ventilator in the roof is not satisfactory, as it allows the heat to escape without a complete change of air, consequently there is a clammy odor in the building, and a certain amount of dampness. These conditions can be improved by closing the ventilator, and putting cotton on a portion of the front. It does not make so much difference what kind of a floor is put in the pen so long as it is dry. In order to allow the hens as much floor space as possible, a dropping board can be placed under the roosts, high enough from the floor to allow the hens room underneath to scratch. Where the dropping board is used it must be cleaned regularly.

A mistake frequently made, is limiting the fowl to one or two kinds of feed. Like everything else, they like a variety, and nowhere is this available to the extent it is on the farm. Wheat is considered the best all-round feed, but is not enough in itself. On every farm oats are grown, and yet few feed them to the hens, claiming the hull to be too thick. They may not be picked up as readily as other grains, but if crushed just enough to show the white kernel, they are readily eaten and are almost equal to wheat for producing eggs. Corn is a very good winter feed but is of too heating a nature to be fed to any extent during the summer. Buckwheat is also a good egg-producing feed, but must be fed carefully. Green feed, as cabbage or roots, should enter into the daily ration. These are usually grown in abundance on the farm, but are often forgotten when feeding the hens. Another feed generally available is clover leaves, which are exceptionally good for the birds, and can be fed either dry or steamed. The city poultry keeper often pays a good price for these things during the winter, but where they cost the least their value is seldom recognized. During the summer the fowl pick up grit and shell when on free range, when winter comes and they are confined to closed quarters they have no means of securing the material to grind their feed, nor make shell, unless it is supplied them by the feeder. Grit and oyster shell should be before the birds all the time. It is surprising the quantity of shell the hens will eat once they start laying. Another feed found on most farms is skim-milk, this has a high value, especially when soured before feeding to the hens. It takes the place of beef scrap, and serves as a drink.

In feeding for best results a mixture of grains should be fed in a deep litter of straw, this makes the birds work and the blood is set in circulation. If the feed can be easily secured, the birds are on the roosts too much of the time. A fairly good winter ration would be two parts wheat, one part corn, one part buckwheat, and all the crushed oats they will eat. No hard and fast rule can be given as to the quantity to feed, but about one handful of grain fed in the litter to two birds night and morning is considered sufficient by some poultrymen. The rolled oats should be fed from a hopper. Some kind of