

The Farmer's Advocate AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN
THE DOMINION.

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bushels per acre. The variation in oats was even more marked, large seed giving nearly eight bushels per acre more than small seed, both being plump, while the large seed gave almost 16 bushels per acre more than the shrunken seed. The same is true of wheat, the difference between large and small winter wheat being over six bushels per acre, and between large and shrunken 15 bushels per acre. This is surely evidence enough that it pays to sow the best seed. Several days may be profitably spent in cleaning the seed grain for only a small acreage. Put it through the fanning-mill time after time until nothing but the largest, plumpest seed remains. It is generally wise the first time through to turn fast, put on all the wind possible and blow out all light seeds, dirt, chaff and many of the lighter kinds of weed seeds. Subsequent cleanings should be made, using a coarse screen which divides the large and small kernels, and takes out remaining weed seeds. For these latter cleanings it is necessary to run the grain through the mill very slowly. Clean and re-clean and, in some cases where a particularly fancy strain of seed is being propagated, it may be necessary to hand pick which will take some time, but it may prove very valuable by getting a superior strain of seed, absolutely pure from which seed for future crops may be taken.

Every grain grower who has had to fight the inroads of our increasing number of noxious weed pests knows how important it is that weed seeds be banished from the seed sown whether it be grain, roots or grass seed. It is not enough to be able to say that the seed is "fairly clean." It should be absolutely free from bad weeds. Many do not realize how rapidly these pests increase if only a few seeds are sown with the crop. Take some of our commoner weeds as an example. One plant of wild oats of the average size and growth will produce about 800 seeds annually. Quack grass which has given many so much trouble, is not a very profuse seeder, reproducing from root stocks, but even the average plant of this weed produces some 400 seeds. The well-known rag weed which is over-running field after field in this country is a heavy seeder,

an averaged-sized plant yielding about 5,000 seeds, which when disseminated means 5,000 new plants. Ox-eye daisy, the pest of permanent pastures and long-seeded meadows produces 7,500 seeds per plant. Our old friend, the Canadian thistle, troublesome, but not as difficult to eradicate as some perennial pests, produces about 3,500 seeds per plant, and then we have the perennial sow thistle which has almost driven farmers to despair and which when it once gains a foothold fairly crowds out all other vegetation, an upright-growing, branching perennial which has two methods of spreading, the main one being from root stocks, but still one small seed in your grain may produce a plant, which in its flowering season may spread 2,000 seeds over your field. One wild mustard seed, if it germinates in the grain and grows to full maturity will produce in the neighborhood of 15,000 seeds. The hardest weed to kill of them all, field bindweed, produces per plant somewhere in the neighborhood of 160 seeds, but relies mainly on creeping root stocks for its spread. There are dozens of others. False flax, a bad weed in some districts, will produce 40,000 seeds per plant. Pepper grass, bad in meadows, grows branching plants which will produce in the neighborhood of 18,000 seeds each. Bladder campion, night-flowering catch fly, and white cockle produce with average growth about 10,000 seeds each per plant.

Think what this means. One seed of any one of these noxious weeds sown with the grain may mean thousands of seeds to be distributed next fall, when the plant which grows from the single intruder matures and scatters the seeds which it has produced. For instance, if one wild oat seed germinates in your oats, grows to maturity, produces 800 seeds, and these 800 seeds, some of which will fall out on the ground before the crop is cut, germinate, you will have the following year 640,000 wild oat plants, each of which will be producing 800 seeds. Of course, this is taking for granted that all the seeds produced grow. With reasonable care a large number of them would not get back to the land, but once they gain a foothold it is difficult to eradicate them, unless the field is seeded down for a number of years and it can be readily seen how soon, if care is not taken, the weed will form a large percentage of the crop. This is even more marked in such weeds as rag weed, perennial sow thistle, wild mustard, and other heavy seeders.

Each weed means a loss to the farmer, as it is taking plant food which would go to the development of the crop on the soil. When they become thick they also do great damage by crowding other plants, and in many cases smothering them out. One could scarcely conceive in the face of all these facts how a man who has land to sow could be careless with his seed. More than most of us think the yield next summer depends upon the seeding this spring. Large, plump, pure seed, free from all weed pests, sown early means larger yields, less labor and more profit. Get the seed ready now, while there is time, for the days of spring cultivation are too short to be cut in upon by unnecessary labor, which should have been done during the winter months.

Nature's Diary.

By A. B. Klugh, M.A.

In the winter fields, and particularly along their edges, we often find a delicate tracery of small mammal tracks. These are usually the tracks made by field mice in their nocturnal rambles. The field mice are small animals, but they make it up in numbers what they lack in size. They are an example of the truth of the saying, "It's the small things that count," which is true as applied to animal forms as it is to the affairs of everyday life, for it is not the moose, deer and bears that cause the destruction, but such small forms as insects and mice.

Field mice are unobtrusively, but continuously, destroying farm products. In summer, they eat grass and the unripe seeds of grain and grasses. In the fall, they live on ripened seeds of these plants. In the winter, they feed on the roots of various plants, stores of which are often made earlier in the season, and on the bark of trees. They also eat the crowns of clover and other plants. It is in the spring that their work in the young orchards becomes visible. Then many fruit trees are found to be "girdled" and killed. The quantity of green vegetation eaten

by a single field mouse in the course of a year has been calculated at from twenty-four to twenty-six pounds. At this rate, a thousand mice in a meadow would require at least twelve tons of grass or other vegetation to maintain them for a year. And a thousand mice in a fair-sized meadow is a conservative estimate.

The damage above mentioned is the usual destruction due to field mice which goes on year after year. But when mice increase at such a rate as to become a plague, then the destruction is immense and at once apparent. Such plagues of the European field mouse, which is closely allied to our species, have occurred in Austria, Germany, France and Scotland. One year, in the district between Erfurt and Gotha, in Germany, about twelve thousand acres had to be re-plowed because of the destruction of the first crop by the mice. During this same plague, 1,570,000 mice were caught in fourteen days in the district of Zabern. The French naturalist, Louis Figuler, states that "whole districts have been reduced to destitution by this scourge" and also says that one department (Vendes) experienced a loss of \$600,000 caused entirely by these animals. In 1892, large areas in Southern Scotland were overrun by field mice and a great deal of damage done, so much in fact that a committee was appointed by the British Board of Agriculture to enquire into the cause of the plague. The commission reported that it was due to the destruction of hawks and owls, which are the chief natural enemies of field mice. This wholesale killing of birds of prey was done by the gamekeepers, who regarded them all as enemies of their game, and by farmers, who believed them to be robbers of their poultry-yards.

In North America, we have so far had no plagues of field mice, because their natural enemies are still abundant enough to keep them in check. But if some discrimination is not exercised in the killing of hawks and owls, we cannot foretell how long we shall continue to be free from plagues. It is high time that the farmer and the hunter realized that there are very few injurious hawks and owls, and many beneficial species, and that none of these birds should be killed unless caught robbing the hen-yard.

When we consider that the field mouse has from four to eight young in a litter, and four litters in a season, and that they breed when about six months old, we can see that we have always present a potential plague, and that it is only the work of their natural enemies which prevents this plague from becoming a reality.

An interesting case of the way in which birds of prey act in preventing an undue increase in the number of field mice is given by Prof. MacClement, of Queen's University. He states that one autumn the mice became very abundant on Wolfe Island, Ont. So numerous were they, that often a man in going from the barn to the house would impale from seven to nine on the tines of a pitchfork. As soon as winter set in snowy owls appeared and increased rapidly in numbers, until they became so common that Prof. MacClement found them to average three to the mile, in driving along the road. The owls made short work of the mice and in the spring the rodents were reduced to their usual numbers. In a case like this, it looks on the face of it as if the owls had a system of wireless telegraphy, and that those first on the ground sent out messages, "Hunting good on Wolfe Island. Come at once." As a matter of fact, these birds in their southward migration stop wherever the mousing is good, and consequently soon collect in large numbers.

While hawks and owls are undoubtedly the chief natural enemies of field mice, there are other animals which play a part in keeping them in check. Among these the most important are skunks, foxes, weasels, crows, shrikes and snakes.

THE HORSE.

A Stallion for the Neighborhood.

There are many districts in this country which could be greatly benefited if a first-class draft stallion of one of the breeds now recognized were introduced. It may be that no one man in a particular district cares to invest the amount of money necessary to buy a horse of the best quality, but no district is so poor but that by a little co-operation amongst the neighbors one of the best horses could be procured. The purchase of a stallion offers one of the best opportunities for farmers to get together and there should be no good reason why such a policy should not work out. It is a well-recognized fact that the sire, no matter what the breed or class of stock, is at least one-half the herd or flock produced.

The first thing necessary where a number of men combine forces in a community to improve the horse breeding on their farms is to decide what breed is best suited to that district. Keep in mind the brood mares already owned by those interested in the stallion. It would not, as a