

ing their way into the manure heap find their way back to the field, and get mixed both with the surface and the subsoil, causing annoyance and loss for many years. Fermenting the manure heap will destroy all seeds, especially of those having considerable tenacity of life. However, if the heat of the manure heap is kept at a very high temperature for several days, most of the seeds will be destroyed, but unless the fermentation is cautiously managed, much manurial value will escape from the heap. Weed seeds are not destroyed by passing through the bowels of animals, except in a few instances when they are broken by mastication.

These modes of propagation can be prevented by every farmer, but the purchasing of unclean seed grain, as well as the dispersion of weeds by birds and sometimes by the winds, cannot be entirely avoided. The threshing machine is often a fruitful cause of weed propagation, and one neighbor with a dirty farm may be the means of spreading havoc amongst many more cautious and cleanly farmers. This can easily be avoided by clean farmers clubbing together and purchasing machines specially for their own use.

Some weeds, such as the Canada thistle, are propagated by their roots, as well as by their seeds, in which case the rooting habits should be carefully observed.

Look for Ergot in Your Grasses.

It will be remembered that early in the spring of 1884, an alarm of foot-and-mouth disease resounded in Kansas, which soon spread over Illinois and Missouri. The sensation was published far and wide through the press, the affection was investigated by veterinary authorities, and by the Bureau of Agriculture at Washington. At first many of the veterinarians pronounced it to be the true foot-and-mouth disease, as it appeared to possess the same symptoms; but after a few weeks suspicion arose on many points, which gave rise to a more searching inquiry. The virus of the European foot-and-mouth disease is the most active known, and spreads from one animal to another upon the least provocation; but it was shown that the affection reported in the Kansas, Illinois and Missouri herds could not be transmitted by inoculation. It was a matter of surprise that the virus could have been communicated to so many herds, situated at widely separated points, at the same time, even at points where there had been no ingress of cattle. When it is known that foot-and-mouth disease can have no spontaneous origin, many authorities considered that this fact alone was sufficient to prove that the affection was traceable to some other source. It was also found that in the existing disease the temperature of the body was but little higher than normal, that the loss of appetite and the difficulty in swallowing were usually not appreciable, while in the true foot-and-mouth disease the temperature rises to an abnormally high pitch, and there is difficult mastication, with a great loss of appetite. Over one hundred animals were reported to have been affected, and they presented more or less of the following symptoms: Vesicles and ulcers in the mouth, in the cleft of the hoof, and on the udder; suppuration and sloughing on the foot; ulcers in the rectum; diarrhoea; tem-

perature 101 degrees to 104.4 degrees; animals stood hump-backed, with drooping heads, jerking of hind feet, and tendency to lie down; interdigital spaces red, swollen and sensitive, with toes spread apart; swelling appeared at or around the coronet, discharging pus after a few days; mouth hot, with red vesicles on



Fig. 2.

Fig. 1.

mouth and tongue; feet drop off in severe cases, and sometimes also tip of tail; many cases of abortion reported. This gangrene of the extremities is caused by an insufficient flow of blood to those parts, inducing diminished calibre of the blood-vessels, which is greatly



Fig. 3.

aided by cold, the drinking of cold water, or a scanty supply of same.

Upon closer investigation it was found that the hay which all the affected cattle had been eating was infested with ergot, which discovery led to an investigation of the life history of this fungus and its effects upon the system.

Its appearance on the grasses will be seen in the accompanying illustration. It is a poisonous plant belonging to the genus *Claviceps*. It has even been analyzed, as well as classified, and its physiological action is now well known. Its growth is commenced by minute spores which float in the air and eventually reach the flowers of the grasses. The spores grow with the grass seeds, on which they feed, and which they finally displace. The grasses which were found to contain the ergot were wild rye (fig. 1), timothy (fig. 2), red top (fig. 3), and blue grass. The existence and poisonous effects of the ergots have been known for several centuries; but animals of various kinds have perished by its influence without the cause having been known at the time, it having frequently been thought that the extremities were frozen. Cases of ergoted grasses were reported in Canada thirty years ago, and there is no doubt that it still exists in many localities, especially upon our native or blue grass.

Experiments have been conducted for many years with regard to the action of ergot on various animals, including birds, and it has been found that some animals are more susceptible of its effects than others, but it is always poisonous, acting paralytically on the nerve centres, and producing mortification of the extremities. It has been known to prove fatal to man. When given as a medicine, a safe dose does not exceed one ounce for adult bovines given for one or two consecutive days; but upon examining the grasses from the mangers of the herds affected in the States mentioned, it was calculated that many animals must have eaten as much as four ounces each per day for several days in succession. It was considered that even this quantity would not have produced fatal effects, had it not been for the cold weather, the exposed condition of the animals, and the inferior quality or scantiness of the water. The affection was confined to the animals that had been eating the ergoted hay exclusively; those having eaten other foods in addition to the hay did not suffer. It was observed that the ergoted grasses grew chiefly on the low lands.

We have described the symptoms of gangrenous ergotism somewhat minutely for the reason that we have received letters from several farmers inquiring what the matter was with their stock, some of the symptoms having been similar to those described. During the haying season we therefore strongly advise all our readers to examine their grasses, and if they find any signs of ergot, they should send us specimens for examination forthwith. In cutting the hay before maturity, no poisonous effects can be produced by feeding ergoted grasses, and no signs of the fungus can be seen; but in fence corners, and in pastures, where heads are frequently allowed to ripen, searches should be diligently made.

Mr. S. R. Hart, near Rochester, in Husbandman: "I have used, during two years past, water impregnated with gas tar for the purpose of destroying the Colorado beetle on my potato vines. It has proved more effective than Paris green, and has been used with equal effect on my currant bushes. Two quarts of gas tar to a pailful of water are the proportions used, and the vines or bushes are sprinkled by means of a watering pot."