

The natural contamination of manure with smut spores should be carefully guarded against, hence it will be important to know whether the life of the smut spores is destroyed by the juices of the stomach or whether smut spores should be still considered active agents in disseminating the smut diseases when, contained in the manure of animals, they eventually reach the soil. Naturally, the most important smut fungi concerned in these investigations are those causing seedling infection, as for instance, stinking smut of wheat. Partly for this reason and partly because these spores may be obtained in sufficiently large quantities to render feeding experiments of value, the spores of this fungus are generally used for the purpose. The most recent experiments on that point may be summarized as follows: 'The passage through the bodies of animals of all kinds, of stinking smut spores, resulted in destroying the germination of the great majority. Only those passing through pigs retain their germination to a greater degree.'

Hence it will be seen that there still exists enough danger from the spreading of these diseases by spores ingested by animals and contained in their manure.

*Is smut-spore-infected food injurious to the health of animals?*—There have been discussions from time to time in the agricultural press with reference to the probable injuries to live stock fed on smutted grain or food. Important text-books even now point out the danger of such practice. It is said that smutted grain, both seeds and straw and whether dry or green, is injurious. Disturbances of the digestive organs, loss of flesh, flow of saliva, paralysis of the hindquarters and the muscles of the mouth and throat, and in some cases death, are the symptoms not infrequently recorded.

The results obtained, however, from careful inquiry and experiments do not confirm this serious arraignment, and we are led to believe that, as is often the case in such investigations, the conclusion is one of conjecture.

Quite recently this important question has again received careful attention at the Agricultural Experiment Station, Rostock, Germany. The conclusions of these experiments are briefly summarized here:—

'Notwithstanding the claim that material containing smut spores [notably stinking smut of wheat] fed to animals has resulted in causing injuries to their health, not one single instance could be discovered showing that any indisposition of animals could be attributed with absolute certainty to smut-spore-contaminated food. On the contrary, scientific experiments with animals under constant observation, to which large quantities of pure smut spores were given, have shown that the claims as to the injurious nature of smut spores have been exaggerated.'

The animals subjected to experiment were pigs, cows, horses, sheep, rabbits, chickens and pigeons. Although large quantities of smut spores were fed to the animals—often for several weeks—the observers are not able to express an absolutely definite opinion. It must be realized that animals show frequently, during feeding experiments of any kind, certain indispositions, which may or may not be a result of the diet. The same was observed in this series of experiments and led the author to conclude:—

'It appears to us advisable not to recommend the feeding of smut-spore-contaminated food, as it cannot be declared harmless under all circumstances. Pregnant animals, and those naturally subject to slight intestinal troubles should receive no such food. In the opinion of other writers, smut spores contain a poisonous substance which directly acts upon the gravid uterus, hence care is necessary. The difficulty of ascertaining the true cause of indisposition of the animals experimented upon still leaves this important question undecided.'

Dr. McAlpine, the Australian Government Plant Pathologist, states 'that it is interesting to note that the well-known boils of corn probably contain the same alkaloid as the ergot and the fluid extract is used in a similar manner.' The peculiar