

1st. Where the manure was hauled directly from the stable as a top dressing an average of only 12.8 per cent of the seeds fed to animals germinated.

2nd. Where the manure was hauled directly from the stable upon the land and ploughed under, 2.3 per cent of the seeds fed to animals came up.

3rd. Where the droppings remained on the pasture fields unadulterated as they fell, an average of only 3.1 per cent of the seeds fed to animals germinated."

I have the following expression of opinion from G. H. Clark, Esq., seed commissioner of the Department of Agriculture, Canada:—

"There has been quite a large number of samples of mill feeds analysed in our seed laboratory covering the period of six years, and from the results of this work we have formed the opinion that the proportion of whole weed seeds contained in the feeding stuff depends largely on the care or lack of care on the part of the manufacturer.

"Weed seeds in seed grain are probably five times more dangerous to agriculture than are weed seeds in mill feeds, for the reason that only a small per cent of the weed seeds fed to stock ultimately are put on the land in a viable condition.

"For the present, I think I cannot do more than to express the opinion that if you were to tolerate five noxious weed seeds per pound of bran, shorts or chop feed before you consider their character affected as being free from the seeds of the said weeds within the meaning of your regulations; then field agriculture would be as well safeguarded as it now is under the regulations that are applied for a similar purpose under the Seed Control Act."

The department has not, up to the present time, fixed any legal limit for weed seeds, in consequence of which I have not judged as adulterated any of the samples herein reported. I have, however, ventured to describe weed seeds as in excess when present to the extent of 3 seeds per ounce, practically 50 seeds per pound. I am sure that this is a very liberal interpretation of the regulations; but until some departmental action is taken to fix numerical limits beyond which noxious weed seeds shall be recognized as illegal, nothing more can be done.

It will be noted that the article *chop feed*, varies greatly in its feeding value. While the protein minimum fixed by law is 10 per cent, 55 samples show more than 12 per cent protein; 36 samples more than 13 per cent; 20 samples more than 14 per cent and 17 samples more than 15 per cent protein while 3 samples show above 20 per cent. These last are usually chopped peas. It is a question whether or not the term chop-feed is not too comprehensive, and might not, with advantage to the buyer, and in justice to the miller, be more closely defined by recognition of sub-classes. It is quite evident, by the percentages of fibre found in some of these samples, that some millers take advantage of the excess value in protein and fat, to add valueless material (chaff or oat-hulls, etc.) to the feed. More than 15 per cent of crude fibre is found in 18 samples herein reported, while the legal maximum is 10 per cent.

These matters will be further considered; and it is hoped that recommendations for amendment of our standard may result from fuller experience and study of the subject.

Meantime, I beg to recommend publication of this report as Bulletin No. 319.

I have the honour to be, Sir,

Your obedient servant.

A. MCGILL,

Chief Analyst.