

Twenty-four samples are found to contain vital weed seeds in excess. With one exception, these samples possess satisfactory value as nutrients. They are, nevertheless, adulterated in a legal sense, as failing to meet the requirements of the Order in Council above referred to.

There can be no doubt that the spread of noxious weeds, through preventable distribution of their vital seeds, is a great evil, and calls for every attention on the part of those departments of the government which are entrusted with the administration of Acts in its regard. The Department of Agriculture, in charge of the Seed Control Act, has listed those weed species which are to be regarded as *noxious*, and has established the following quantitative limits:—

(a) For seeds of oats, barley, wheat, or other seeds similar in size, one weed seed in one pound avoirdupois.

(b) For seeds of flax, millet, or other seeds similar in size, one weed seed in one ounce avoirdupois.

(c) For seed of white clover and grasses, five weed seeds in one ounce avoirdupois.

In this connection, I may quote as follows, from the text of Bulletin No. 251 of this department:

"It is to be kept in mind that these regulations apply to seeds intended to be applied directly to the land. In the case of cattle feeds, the vital weed seeds are presumably applied to the soil only after they have passed through the alimentary tract of the animals to which they are fed, and it is reasonable to suppose that their vitality will be greatly affected in the processes of digestion.

"The only experimental data available to me directed to the determination of the vitality of seeds which have been fed to animals is contained in a report published as Bulletin No. 128 of the Maryland Agricultural Experiment Station, College Park, Md., in June, 1908.

This valuable study of the question is briefly presented in the following summary:—

SUMMARY.

The above results were obtained through experiments concerning the vitality of weed seeds under the influence of their distribution by manure along two different lines: namely, the effect of fermenting manure on the vitality of weed seeds (seeds introduced through bedding) and the effect upon the vitality of weed seeds after passing through the digestive channel of domestic animals (seeds fed to animals).

The first part of the experiment was accomplished so as to cover the condition where manure remains for six months in a barnyard, pound or pile. The second covered conditions where the manure remained on piles for a short while, as when shipped by earload lots from cities.

From the above results the following conclusions seem justified:—

1st. When manure is allowed to ferment in piles for 6 months no danger of distributing weed seeds is incurred.

2nd. When manure is allowed to remain in piles and undergoing partial fermentation, little danger of distribution is incurred.

The second part of the experiment which dealt with the effect upon the vitality of weed seeds after passing through the digestive channels of domestic animals was accomplished so as to bring about three existing conditions:—

1st. Manure hauled direct from the stable to the field as a top dressing and left there exposed to the washing of the rains.

2nd. Where the manure is hauled directly from the stable to the field where it is immediately ploughed under.

3rd. Where the domestic animals are allowed to run in pasture and the droppings are allowed to remain wherever they chance to fall.

From the above tables in the latter part, the following results were obtained:—