EFFECT OF ENSILING ON THE VIABILITY OF WEED SEEDS

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INTEREST in the problems pertaining to weed control has increased materially in recent years. The various means by which weeds are disseminated logically should be one of the first phases of the problem to be studied. Seed laws have aided in checking the spread of weeds in impure crop seed, but much less has been accomplished with reference to feeding stuffs. Means of devitalizing weed seed in feed for livestock have in the main been unsatisfactory. The use of the silo has raised a question as to the effect of the ensiling process on the viability of weed seeds produced with the silage crop. Investigations covering a period of seven years, 1927 to 1933, inclusive, are reported herein.

REVIEW OF LITERATURE

Several investigators have shown that the viability of the seed of certain species of weeds may be retained after passing through the digestive tract of farm animals. Atkeson, et al. (1), Beach (2), Harmon and Keim (3), Korsmo (4), Milne (5), and Oswald (6) show that weeds can be spread in manure from animals fed on feed containing weed seeds. Relatively little work has been reported on the viability of seed after having passed through the silo. Premeisel (7) found that the viability of spores of corn smut was destroyed after several weeks in the silo.

Tildesley (8) found that the viability of 19 species of weed seeds was destroyed when the seeds remained in small experimental silos for 27 days and when the seeds were placed near the center of the silo. Seeds in the top layer of silage, however, retained a certain amount of their viability.

Woodward (9) found that the viability of the seed of most of 29 species of weeds and crops was destroyed when placed in silos with corn fodder, grass, and alfalfa at the time of filling. However, some germination was obtained from Lespedeza sericea, bindweed, and American dragonhead mint, while five species contained seed that was rated as "hard" or "sound" at the conclusion of the test.

MATERIALS AND METHOD

The silos were those used for storage of feed for the dairy herd of the Kansas Agricultural Experiment Station at Manhattan. They were of wood and concrete construction, 16 feet in diameter, of about 125 tons capacity, and filled mostly with sorghums but with corn in a few cases.

The selection of the species of weeds to be used in these tests was based upon two main considerations, viz., the prevalence or the possible seriousness of the weed in Kansas, and the likelihood of the seed being found in silage under farm conditions.