A Comparison of Procedures Used in Harvesting Alfalfa and Alsike Clover Seed
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THE actual harvest of small legume seed is accomplished by several different methods, or a combination of methods. The relation between the amount of seed present in the field to that recovered or lost in the harvesting process has been mostly conjecture. Observations have indicated that losses in the various processes of harvesting and threshing may amount to a considerable portion of the total possible yield. Lack of concrete information on seed losses at harvest time for Michigan and the surrounding area prompted the present investigation of the comparative efficiency of various methods of harvesting seed from small seeded legumes.

Literature Review
Remorov (4) found that losses in red clover seed harvesting and ricking frequently ran as high as 75% of the biologically possible yield. He found the stage of maturity to be very important. The greater the percentage of brown heads the more was the shattering during harvest. Serbaceva (5) in a similar experiment found that when 50% of the heads of red clover were brown, seed germinated normally and loss through shattering was small. Increasing the percentage of brown heads did not increase the germination, or reduce the number of stunted seeds. However, increased browning did increase the shattering. When 50 to 60% of the heads were brown the shattering loss during harvesting was 3%. When 80% of the heads were brown, shattering loss was over 40%.

Dyrda (1) found that the time of day when a red clover seed field was cut influenced the amount of shattering. The shattering was least early in the morning, higher in the evening, and greatest at noon. Delay in harvest increased the loss which frequently ran as high as 75% of the potential yield. The more the crop was handled after it was cut, the higher the loss of seed.

Grandin (2) working with small seeded legumes under carefully controlled conditions cut the loss down to 5%; however he concludes that under ordinary farm practices 10% or more of the seed is lost in threshing. In one instance at Michigan State College (3) a field of Ladino clover was threshed twice, the second threshing recovering about half as much seed as the first.

Cook (4) discovered, in checking alfalfa seed yields, a greater difference in yield by headling the combine into the wind in contrast to having the wind blowing into the back end of the combine than any change in cultural treatment. In work carried on by Pederson (3) direct combining of a standing alfalfa seed field in one direction with the wind blowing into the combine instead of harvesting around the field in practice, increased seed recovery from 52% to 79%.

Method of Procedure
The present experiment was started in Alcona county, Michigan, in the summer of 1947, and the trials were repeated nearly as possible in 1948. Alfalfa and alsike clover were the only types harvested. The amount of seed present on the field prior to harvest was determined by a system of sampling and the results converted into pounds per field of measured acreage. Hereafter, the seed by this method will be referred to as the “actual yield.”

Samples from one square yard were taken at random in individual cloth bags. Samples were taken at the time the farmer planned to harvest, dried, and stored for future threshing.

A special small threshing machine was built for the samples. The threshing was accomplished by running the threshed material through a cylinder, and concave bars attached to it. Concave similar to a combine cylinder and concave bars were used, and dirt were removed by running the threshed material through a Clipper fanning mill.

The quadrat samples were carefully threshed, and cleaned to determine the actual yield of seed in the field. Each sample was put through the thresholder and the remaining chaff was rubbed out to see if any seeds were still remaining.

The total weight of clean seed from these samples was converted to pounds per acre and compared to the amount of seed the farmer actually recovered.

A few extra samples collected for use in adjusting the machine were left after the machine was set and were run through several times to see how much seed was threshed out of the machine (Table 6).

The time and method of harvest for each field were decided by the individual farmer, inasmuch as the purpose of this experiment was to determine the percentage of seed the farmer actually recovered by the method he used.