Fig. 3. Method for bagging emasculated spikes from several plants with one male spike.

compares the conventional or hand pollination method with the approach method for the year 1956. Only 10.1% seed set was obtained by use of the conventional method while 44.9% was obtained by the approach method. The approach method resulted in 53.1% seed set in 1957.

Although no direct comparison of the two crossing methods has been made with oats, the approach method has increased the percentage of seed set considerably over the conventional method. Under greenhouse conditions the highest amount of seed set obtained by the conventional method was 3.8% in 1955. In 1956 and 1957 the approach method resulted in 11.0% and 16.2% seed set, respectively. These percentages, while low, are phenomenal in view of the difficulty encountered previously when making oat crosses in Oklahoma. The approach method is particularly advantageous for use in a genetic study requiring a number of backcrossed seed. A large number of seed can be obtained with a minimum amount of labor. If the approach method could be used with the scissor emasculation technique developed by Wells and Caffey,4 an even further reduction in labor and time could be realized in making crosses of wheat, oats, and barley.—Byrd C. Curtis and Lavoy I. Croy, Assistant Professor and Instructor, respectively, Oklahoma Agricultural Experiment Station, Stillwater.

DIGESTIBLE LABORATORY NUTRIENTS
AS A METHOD OF ESTIMATING TOTAL DIGESTIBLE NUTRIENTS

Thurman and Wehunt2 reported a short laboratory method for determining digestible nutrients. The procedure involved autoclaving ground samples in dilute hydrochloric acid and weighing the dried insoluble residue. The percentage difference was defined as digestible laboratory nutrients (D.L.N.). The average D.L.N. of several corn and sorghum feedstuffs were in good agreement with average total digestible nutrients (T.D.N.) values cited from Morrison’s Feeds and Feeding. D.L.N. values from rabbit feeding trials were reported to be correlated with the T.D.N. of silage materials. However, the average T.D.N. value for the ten trials was 53.6 compared with 67.7 for D.L.N. This difference was explained by the fact that rabbits are reported to digest less fiber and nitrogen free extract (N.F.E.) than cattle.

Dried, ground forage and silage feedstuffs were available from conventional digestion trials with dairy cows to test the validity of this method. Four cows were used to determine the average digestibility of each feedstuff.

Table 1 (next page) gives the average T.D.N. and D.L.N. values determined for 15 assorted feedstuffs. Differences between the T.D.N. and D.L.N. values range from +3.55% to —20.23% with an average difference of —8.95%. Although Thurman and Wehunt did not report using this method on hay, the most satisfactory results were obtained for this type of feedstuff.

It would seem that considerable improvement needs to be made on this method before it can be satisfactorily used to estimate digestible nutrients of feedstuffs for the ruminant.—J. R. Johnson, J. R. Schubert, and P. H. Wessing, Department of Agricultural Chemistry, Oregon State College, Corvallis, Oregon.

1 Received August 10, 1957.