Two New Experimental Plot Harvesters

A NEW EXPERIMENTAL PLOT HARVESTER

The harvesting of small experimental grass and forage plots has long been a slow and tedious process on experiment stations. With the advent of increasing varieties of many grass and legume species, and the interest of farmers in improved crops and pastures, the number of plots to harvest has increased rapidly.

In an attempt to cut down on the labor requirement and time involved in such plot harvesting, workers at the J. J. Astor Branch Experiment Station at Astoria, Oreg., in 1955 began development work on a machine for this harvesting and after several changes a satisfactory machine was developed.

Starting with a Gravely tractor and rotary mower, various modifications were made. A slower than standard speed soon was indicated, so from the manufacturer a 2 to 1 reduction in the drive was secured and then a 4 to 1 reduction was obtained in the auxiliary geared wheels. This gave a slow enough "go ahead" speed to enable the rotary mower to cut cleanly and elevate the crop. The standard Gravely 30-inch rotary mower was modified by adding small balanced fans to the ends of the blades and these fans created enough suction to lift any portion of the crop that was down and blew it up through a chute and into a bag carried on top of the mower hood. A high speed on the rotary mower with a low "go ahead" speed seemed essential to proper cutting and elevating.

The presence of free moisture on the crop was a handicap in harvesting and resulted in clogging of the blower pipe, so that all dew or other exterior moisture should be dried off. Where small rocks are in the surface soil these might be picked up by the suction and blown into the sack and also damage the cutting knives. Rocks are not a factor at Astoria. In the harvesting of row crops the suction created would probably pick up loose soil so that would interfere with plot weights. The machine is illustrated in figure 1.

The forage is cut rather fine and somewhat bruised so that separations of grass legume mixtures would be difficult and grass species would be difficult to distinguish. Grasses up to 24 inches tall have been harvested, and it is believed this device would work well on alfalfa-grass mixtures (if species separations were desired). However, alfalfa cannot be grown at the Astoria Station so there is no experience with it. The machine worked well.

The cost of the entire device is about $600.00, of which the special geared wheel tractor cost $410.00; the rotary knife mower cost $110.00; and modifications (mostly labor), cost about $80.00. This modification does not include time spent in working out the experimental angles and modifications. The mechanical work was done in the Astoria station shop by H. D. Dorman.

It is the opinion of those who have used this new harvester, and of those who have seen it operate, that it is of principal value in harvesting plots of one species, in solid stands, when relatively short and immature. It has been principally used at this Station in the evaluation of varieties.