accomplished by setting the adjustable stand-post under the trailer tongue to give the desired sieve angle.

The fan is a standard item of the AC All-crop Harvester No. 40. It is equipped with a graduated lever by which the baffles at the fan discharge are adjusted, thus controlling the air blast from full-closed to full-open. In this way, the air volume can be reduced to clean light grass seeds and increased to clean heavy grains. The fan operates at a constant speed of about 632 rpm on high speed and 217 rpm on low speed (see figure 4).

The threshing machine is designed for rapid and thorough cleaning and easy inspection of the various parts. The cylinder and sieve are easily and quickly inspected by raising the respective hinged covers (see figures 2 and 3). In most cases the machine can be cleaned between lots by increasing the cylinder speed to around 2,000 rpm and by opening and closing the sieve. An auxiliary compressor provides air for blowing around the cylinder ends and the sieve, should it be necessary.

The unit is powered by a 3-hp electric motor, but is designed so that a small air-cooled gasoline engine can be used.

Among the legume seed crops threshed with the machine are birdsfoot and big trefoils, white, sub, and crimson clovers, Astragalus species, vetches, and peas. Cereals and forage grasses threshed include wheat, oats, barley, prosopis, millet, red fescue, chewings fescue, tall and intermediate wheatgrass, perennial and common bentgrass, tall oatgrass, Merion Kentucky bluegrass, and orchard grass. Miscellaneous plants include buckwheat and burs.

The threshing cylinder is designed to have a capacity of about 30 pounds per minute of material under continuous feeding. With grass crops, such as tall and red fescues, perennial ryegrass, and orchard grass, the machine will easily thresh 10 to 20 pounds per minute of plant material, depending upon the species. When threshing different lots of identical seeds more than 15 seconds are required to let the material clean, and empty and replace the seed pan for the next lot. When different species, varieties, or strains are being threshed and seed mixtures must be used, 1 to 2 minutes' cleaning time between lots, or the crops involved, is required to thoroughly clean the machine.

The machine was efficiently operated with a two man crew during the 1955 season for threshing seeds produced in the breeding and other research plots of the Oregon Agricultural Experiment Station. HARMOND and HENRY H. RAMPTON, Senior Engineer and Agronomist, respectively, U.S.D.A., A.R.S., and M. D. Finkner, Engineer and Agronomist, respectively, U.S.D.A., A.R.S., Oregon Agricultural Experiment Station.-JESSE E. RAMPTON, Senior Agricultural Engineer and Agronomist, U.S.D.A., A.R.S., and HENRY H. RAMPTON, Senior Engineer and Agronomist, respectively, U.S.D.A., A.R.S., Oregon Agricultural Experiment Station.

ON THE MEASUREMENT OF NATURAL CROSSING

Ali and Hadley presented a formula describing the theoretical proportion of heterozygosity in populations with various proportions of self- and cross-fertilization, and discussed the maintenance of heterozygosity in populations (such as synthetic varieties) under various circumstances. However, the usefulness of this formula in connection with the problem of measuring natural crossing was not pointed out, nor was the formula related to the previously presented formula of Stephens and Finkner in this connection.

Stephens and Finkner presented the relationship,

\[ x z k - k, \]

where \( h' \) is the proportion of heterozygotes in a population, \( h \) the proportion of heterozygotes in the succeeding generation, and \( k \) the proportion of outcrossing. It follows that \( k \) can be estimated as,

\[ k = \frac{2h - h'}{1 - h'} \]

from observational data on \( h \) and \( h' \) under "natural" pollination.

Comparison shows the formula of Ali and Hadley, a generalized form of that of Stephens and Finkner, has been generalized for any number of generations intervening between "natural" pollination. When \( n \) is large, then, becomes (using the symbolism of the earlier authors),

\[ x z k - k, \]

and differs from the original formula not pointed out, nor was the formula related to the previously presented formula of Stephens and Finkner.