ONE of the principal interests of the agronomist is to strive continually to improve technic in order to measure accurately the differences which are caused by specific factors in a program to improve varieties or cultural practices. This applies equally to field plot technic and to preparation of seed samples for chemical analysis.

The seed is a living organism and when collected for comparative tests in agronomic investigations requiring chemical analysis, it is not only essential that the samples be harvested under comparable conditions but also that after harvest the samples be conditioned and stored under such circumstances that any metabolic changes taking place may be reduced to the minimum. In this respect it is obvious that the moisture content and temperature must be reduced to a point at which the respiration and other enzymatic changes are at a safe minimum and growth of thermophilic seed coat molds restricted.

The soybean contains high percentages of protein and a drying oil, both of which are subject to change resulting in deterioration of the soybean seed under conditions of adverse storage. In conducting the agronomic investigations undertaken by the U. S. Regional Soybean Industrial Products Laboratory, requiring the chemical analysis of a great many samples of soybeans, it was deemed essential to provide storage for the samples at automatically maintained temperature and humidity conditions. In the analysis of soybeans, the oil is determined by percolation of the air-dry ground sample with a petroleum ether. The results have been found to vary with the moisture content, exhibiting a sharp increase at moisture contents between 6 and 8% (Fig. 1). Below and above these percentages the values obtained are relatively uniform; however, at the higher moisture level, more non-lipid material is removed by the solvent, giving incorrect values.

Rate of respiration of some seeds and respiration of molds present on the surface of the seeds has been shown by Bailey to affect the keeping quality of cereal grains and flax seed in storage. As pointed out by Bailey, the distribution of the moisture in the seed is quite significant, especially in the case of oleaginous seeds such as flax containing around 40% oil. The same relationship holds for soybean seed where about 20% of the dry substance is oil. Since the oil is

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