

particular, Purdue methods are being examined. Use has been made of the travelling laboratory facilities for this investigation. Some correlation between the sap-analysis results and responses to fertilizer treatment has been found, but the research is complicated by several factors such as the different mineral requirements of different plant species, by weather conditions, and by differences of soil types. More work is required to reconcile the frequent conflict between the results of soil tests and tissue tests on these trials.

*Analytical Services.*—Some of the activities of the laboratory have been restricted in their scope and results have been delayed by shortage of staff and supplies. Despite this, a fair indication of the increase in work undertaken is the total of 3,000 samples received this year, in comparison with 1,000 last year. This total includes both material from research programmes and from field officers.

*Soils.*—Quick-test methods adapted by the research team have enabled manurial advice to be given on 187 samples received from Instructors. Where more detailed work is warranted, a more complete analysis is done. Eighty-three samples were examined for their lime requirement, and in cases where this was satisfactory quick tests were used to check up on other factors which might be causing trouble. If such services are to be used to best advantage, it is very necessary that follow-up reports are sent in upon the results obtained by following the recommendations.

The research work at the Station depends upon the uniformity of the experimental areas in regard to manurial status. This has involved a large number of analyses both of soils and plants.

*Limestones.*—The quality of ground limestone on the market is checked by analysis, and with few exceptions the carbonate content is satisfactory. Exceptions occur regularly only in areas where supplies of high-grade stone do not exist. A noticeable decrease in the fineness of grinding has been observed and is ascribed to wear of machinery, difficulty in securing replacements, and the demand for maximum production. This must materially reduce the value and efficacy of the product.

The need for analysing materials used in manurial trials is shown by a sample from one experimental area. This sample was found to contain only 49 per cent. of carbonate of lime and was from a reputable works which apparently had struck a patch of poor stone. The use of such material in an experiment would give very misleading results.

Three samples of agricultural burnt lime were analysed and found to be poorly burnt. This is commonly observed, and as the neutralizing value of the product is about the same as that of ground limestone, it is an expensive way of applying lime. Good-quality burnt lime would save cartage costs where these are a consideration.

*Fertilizers.*—The bulk of these samples were from manurial trials. This check is very necessary, as in the past bags have been mislabelled and trials would have been ruined had tests not been made.

The usual number of rocks suspected to be of use as a fertilizer were received, but all were lacking in fertilizing properties.

*Pastures.*—Dry-matter determinations on herbage samples for the Station and other experimental areas made up half the total of samples received. In a few instances dried samples are kept for ash analysis.

*Weedicides.*—Some 30-odd samples have been analysed to standardize or identify commercial preparations for field trials. Some opportunity has been found for preliminary research into oil sprays.