INVESTIGATIONS in agricultural meteorology may be conveniently classified under three broad headings, depending upon whether their objective is (a) descriptive or comparative meteorology, (b) correlation of meteorological factors with crop growth and development, or (c) crop forecasting with respect to both quantity and quality.

In studies of type (a), detailed information is sought respecting not only the average values over a period of years of the weather elements characteristic of given districts, but also the manner in which these may be expected to vary from season to season. In addition to its purely descriptive value, such information may suggest sources of crop variation previously overlooked.

Categories (b) and (c) have been separated because in (c) one is free to aim at the formulation of a regression equation which will reliably predict the final outturn of crop from antecedent observations, regardless of whether the terms included in the equation have any explicit biological significance or not. In (b), on the other hand, one is interested not only in the end result, but also in tracing through the influence of successive causal factors on the actual developmental sequence; information which may be important in the appraisal of cultural methods or in the formulation of plant breeding programs.

Actually, of course, these three aspects of the subject are mutually inter-connected, and, under Canadian conditions at least, it would seem to be impossible to prosecute (c) successfully if (a) and (b) are neglected. The reasons for adopting this view are illustrated by the following comments respecting the problem of forecasting the western Canadian wheat crop.

This crop, as is well known, is subject to great annual vicissitudes. Since weather conditions are generally agreed to be a major factor in the fluctuation of acre yields from year to year, and since these operate on the crop from the beginning of its growth, it has naturally been suggested that if the relation between weather conditions during successive periods of the growing season and the subsequent crop yields could be determined, justifiable approximate estimates of the probable forthcoming production might be made at an earlier date than is now feasible, and could be periodically improved upon as the season advanced and further weather data became available.

This, of course, presupposes that adequate series of reliable yield data are available for correlation with the meteorological observations. In Canada, at any rate, this is far from being the case, and an important advance might be made if a set of permanent agrometeorological...