

Weather Service

Long-range forecasts combined with plant disease and insect surveys are learning to help the farmer know what to expect

THE U. S. WEATHER BUREAU'S 30-day outlook for the period mid-April to mid-May calls for temperature to average the seasonal normals over most of the country east of the Continental Divide except for near normal near the South Atlantic and Gulf Coasts. Above average precipitation is forecast for the Mississippi and Missouri Valleys and the Pacific Northwest.

The 30-day forecast, issued every 15 days by the Weather Bureau, is an estimate of the average rainfall and temperature to be expected for the following 30 days. The forecast is not intended to be of value to persons planning picnics two weeks in advance, but can be a valuable economic tool to many groups concerned with farming and crop production in the U. S.

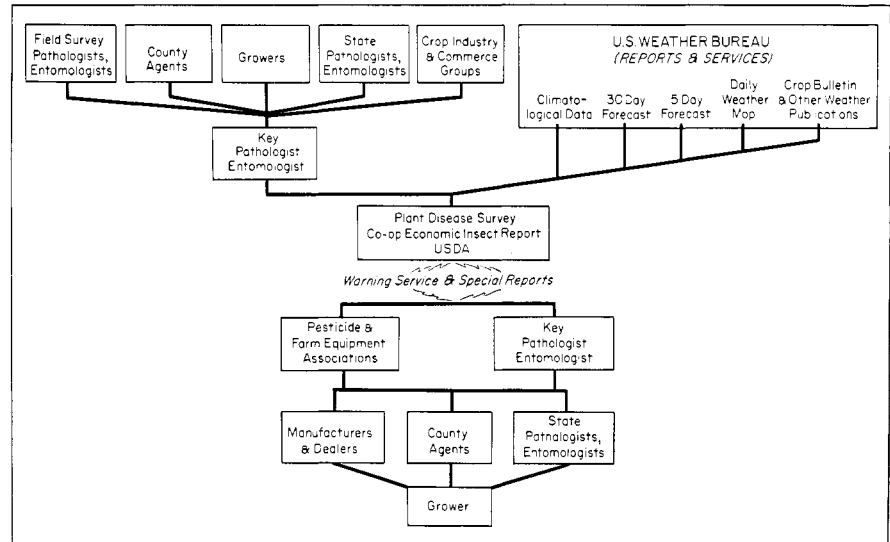
The science of weather forecasting remains as yet imperfect and the relationship of the weather to the outbreak of pests on agricultural crops is still largely not understood. However, there is evidence that a relationship does exist between the weather and pest outbreaks. Two cooperative survey units of the USDA are making progress toward forecasting outbreaks of plant disease and insects on a long range basis. These forecasts are in many cases dependent upon the weather outlook.

Plant Disease

The Plant Disease Survey is a cooperative reporting unit receiving and coordinating information from state pathologists and the U. S. Weather Bureau. Twice a month the survey issues a bulletin reporting on the location of plant disease outbreaks and forecasting areas of potential outbreak or build up of disease organisms.

In some cases the disease survey is able to predict the probable incidence of plant disease for a given season even before the crop has been planted.

Comparison of weather data and past disease reports seems to indicate that bacterial wilt of corn is dependent upon the December to February temperatures. On the basis of the temperature records this past winter and surveys of the disease last summer the unit has forecast that this disease will be less severe than usual this year in Illinois and New York.



Cooperative reporting by widely scattered groups makes the Insect Report and the Plant Disease Survey possible

The survey has also developed a set of statistical data enabling prediction of the incidence of leaf stem rust of wheat before the farmers begin planting. The rust prediction is issued at the end of March each year, covering the area from Oklahoma north. It is based on rust surveys as far south as Texas and the prevailing weather up to March 30. This year the disease unit is forecasting a less severe than usual outbreak of rust on wheat.

Wheat farmers regularly use the disease forecast in their crop planning. In years when particularly severe outbreaks have been forecast, farmers in some areas have shifted to forage crops or planted only varieties of wheat thought to be resistant to the disease.

The warning letters issued every two weeks by the disease survey are circulated to state and county extension agencies throughout the country. The warning letter is also sent to the National Agricultural Chemicals Association which, in turn, sends out memoranda to its members for use in their production and marketing planning.

The disease survey is still compiling data on many diseases for which it cannot make predictions, but their long range objective is prediction of plant disease on the same basis as weather forecasts.

Insect Survey

The Cooperative Economic Insect Survey is a weekly report of insect conditions set up on much the same basis as the plant disease unit. At present the insect survey is largely concerned with compiling the reports from the various cooperating entomologists on the incidence of various insects in their regions. Although the exact importance of weather in insect outbreaks is still not completely understood, the editors of the

survey believe that weather is, in many cases, a crucial factor in insect outbreaks.

The insect survey unit has acquired enough information so they are generally able to make short range forecasts based on the outlook for some major economic insects.

If the weather bureau's forecast of warm damp season in the month ahead holds true, the indications are that the corn borer may be particularly severe in Corn Belt States this spring.

Another area where weather outlook is believed to be especially important is in forecasting outbreaks of cotton insects, especially the boll weevil.

Cooperating entomologists survey cotton fields in the various areas in the fall and early spring to determine the number of insects which have successfully survived the winter weather and frosts. The survey this spring indicates that boll weevil counts are at or below normal in most states of the cotton belt with the exception of Louisiana where above average numbers survived the winter. Weather in June and July will probably be the determining factors in how much damage the boll weevil does this year. Hot dry weather at that time of year will probably greatly decrease the damage done by these insects.

Although insect and plant disease forecasting and their relationship to long-range weather forecasts are still in a developmental stage, it already seems apparent that there is an intimate relationship between weather and pest outbreaks. As more is learned about the effects of climate on crop pests, and the accuracy of long range weather forecasting increases, the Plant Disease Survey and Cooperative Economic Insect Report will find an increasingly important place in the planning of farmers and the industries which serve them.