1-1-1971

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TESTING GRAIN CROPS

By H. M. FISHER, Adviser, Wheat and Sheep Division.

TODAY'S competitive markets for crop products stress the need for greater awareness of buyers' requirements and more detailed knowledge about our ability to supply them. Crop varieties and their performance in different environments are important aspects of production potential.

Grain crop variety recommendations for different areas are based on comparisons of the known yield and quality of varieties under the growing conditions in the area. The Department of Agriculture carries out trials each year to build up information on existing and new varieties of a range of crops, particularly cereals. The trials are the proving ground for new crossbreds from the local breeding programmes.

Testing programme

The wide range of environments in the agricultural areas of W.A., and the need to assess new varieties as quickly as possible, make the variety testing programme a broad one. Preliminary full-scale yield tests on a large number of varieties are carried out on the 9 research stations in the cereal areas and also at Manjimup in the high rainfall areas. These are followed by extensive testing of the more promising varieties at about 50 trial sites. These sites are located to represent major climatic regions as well as the major soil types found in different areas. They are mainly on farmers' properties and the trials are sown and harvested by departmental officers using equipment from district centres.

Climatic basis

The distribution of testing sites according to climatic regions and zones is shown on the large map. The patterns of climatic factors and soil groups which influenced this arrangement of sites are shown in the small maps.

Comparisons

Sowing is timed according to seasonal conditions at individual sites. The trials at any one site, however, are sown as nearly as possible at the same time and under the same conditions. This integrated approach has some practical advantages but, more importantly, it provides an opportunity to compare the production and economic returns from these crops according to area.

Comprehensive information for wheat, oats and barley has been built up over several years. In 1968 this aspect was developed further and comparisons now include oilseed and legume crops for assessment as alternatives to the cereals.

Five-year summary

Over 1,000 separate crop variety trials have been conducted in the cereal areas over the past 5 years. Apart from the numerous varieties tested in preliminary trials, about 140 varieties of different crops have undergone extensive testing. About half of these were unnamed crossbreds which showed promise in initial tests. A computer is used to summarise and analyse the yield data collected. Grain samples are taken from every plot so that laboratory quality analyses can be made on promising varieties. About one-third of the samples are analysed for various quality characteristics.

The series of articles in this issue deals with the major yield results and conclusions from this programme which have guided recommendations on crop varieties in recent years. The author is responsible for overall co-ordination of the project which is carried out with the close co-operation of district officers, research station staff and farmers. The project receives some financial assistance from State Wheat Research and Commonwealth Extension Services Grant Funds.

Recommendations on varieties of wheat, oats, barley and linseed for the 1972 season will be published in the December Journal of Agriculture.
Allocation of crop variety testing sites to regions and zones of the cereal growing areas in W.A.

Association of regions and zones with major environmental factors.