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Cereal variety testing: a new approach

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CEREAL VARIETY TESTING—A NEW APPROACH

By H. M. FISHER, Wheat & Sheep Division

One hundred and twenty large scale trials will be planted at 38 centres in the Department of Agriculture’s expanding cereal variety testing programme.

ACCORDING to statistical returns West Australian farmers grow well over 100 varieties of cereals. More than 80 of these are different varieties of wheat. Only a few varieties are widely grown so one might ask why farmers continue to grow so many of the less popular types. The obvious answer is that they believe such varieties to be both suitable and profitable for their particular conditions.

There is of course, a difference between suitability and profitability.

Some farmers are apt to say “Well, we’ve grown variety X for 20 years and we’ve always done reasonably well.” But if another variety is available which will yield 2 bushels an acre more, this 2 bushels represents a heavy cost against growing variety X—in fact about a quarter to one-fifth of the total cost of putting in the crop.

How are we to say with reasonable certainty which variety will provide the best return in the long term?

If we consider the variable picture we get from season to season and even on different parts of the farm it is clear that the question is not easily answered. We must obviously work on detailed, long term comparisons of varieties with one another.

Most farmers like to try out different varieties for themselves. This seems an obvious thing to do but unfortunately, the chances of making a worthwhile assessment in the ordinary course of cropping on the farm are very slim. This is because differences in soils and planting conditions intervene to confuse and distort the comparison of two areas sown to different varieties. So it is possible to end up with a completely erroneous picture of a variety’s capabilities.

This approach has two unfortunate consequences: First, you might be allocating a proportion of your resources to a lower-yielding variety just for the purpose of making the comparison. Second, if the comparison goes wrong you might be misled into growing a lower-yielding variety on much larger areas for a number of years.

Although there are no infallible methods of predicting the overall performance of varieties relative to one another, well planned variety trials rule out a lot of the more obvious flaws in making comparisons.

In these trials the aim is to choose situations which are representative of the general conditions under which a farmer sows his crop. At each site we grow a number of varieties side by side under conditions as near identical as we can achieve and then obtain the yields of as many of these side by side comparisons as possible.

The more sites and seasons over which we make these comparisons the better indication we expect of how varieties will perform under the range of conditions which the individual farmer is likely to encounter.

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cereal areas for the past 40 years or more. Trials have been carried out at a limited number of centres each year and the accumulated results have been used as the basis of recommendations on varieties for different areas.

It has long been recognised however, that in the cereal areas of Western Australia we have a great range of climate and soils and that our knowledge of how this affects the varieties we grow is really very limited.

This season the Department is setting out to increase the information on the performance of cereal varieties under all conditions. With the help of co-operating farmers and district Agricultural Advisers, and with some financial assistance from Wheat Industry Research funds, trials with wheat, oats and barley varieties are to be sown at 38 centres. These centres are distributed in a pattern from north of Geraldton to south coast and represent the changing pattern of soils, rainfall and other climatic factors in the cereal areas.

At each centre 30 cereal varieties will be tested with and without nitrogen fertiliser. This should enable us to see which is the best variety for a given area and to see whether or not different varieties will be required if the soil fertility is raised.

On the eight research stations in the cereal areas, all varieties will also be tested at two times of sowing.

In all, the programme will involve the planting and harvesting of 120 large scale cereal variety trials, containing some 6,000 plots.

The general aim of all this work is of course to collect as much information as possible about the yields of cereal varieties, including new types from other States and from our own breeding programme. We hope that the programme will lead to a much quicker assessment and release of promising productions. In addition it should be possible to define more accurately the areas and conditions under which these varieties will do best.

One other important aspect of the new programme is that the growing of wheat, oats and barley at all centres will enable a comparison of the profitability of growing the best varieties of each in each particular district.

Yield of a variety is, of course, most important to the farmer because this is what determines his financial return. However, grain quality is the important selling point and it's no use increasing cereal production if the extra grain we produce is not attractive to grain buyers. A close study will therefore be made of the quality of the grain produced and the way in which situation and growing conditions might affect it.

This programme is designed to help you, the farmer, make your own decisions about the best cereal varieties to grow. While it saves you the trouble and expense of carrying out your own tests we are confident that it will also provide you with a more accurate guide than you might hope to obtain even on your own farm.

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