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BUSSELL BARLEY

By J. L. McMULLAN, Plant Breeder, J. A. PARISH, Cereal Products Adviser and H. M. FISHER, Agronomist.

BUSSELL is a new high yielding 2-row barley variety named early in 1967. An early maturing variety, with white grains of good quality, Bussell has short and extremely strong straw. It has yielded more than any other variety under test in areas of Western Australia which receive more than 18 inches of annual rainfall. It has yielded more than Prior in all areas.

Seed supplies of Bussell are very limited at present and for this reason the variety has not been included in recommendations for general sowing.

Origin
Bussell was bred by officers of the West Australian Department of Agriculture. It was selected from a cross between the varieties Prior and Ymer, made by Mr. E. R. Fox at the Wongan Hills Research Station in 1954. Selection of this cross was carried out at the Avondale and Wongan Hills Research Stations.

Growth characteristics
Bussell makes moderately vigorous early growth. Tillering is abundant but, as they do not tend to spread, the plants have a compact appearance.

Bussell flowers six to nine days earlier than Prior and it has much shorter and stronger straw. Its stripping and threshing qualities are excellent.

Under some conditions the straw and awns of Bussell develop a distinctive red-brown colour.
Grain yield

The grain yields of current commercial varieties and new varieties under test in high, medium and low rainfall areas are given below. These yields are averages from several trials in each region during 1966.

High rainfall (more than 18 in. annual rainfall)

With an average yield of 53.5 bushels an acre, Bussell was much higher yielding than any other variety. Dampier, with 48.2 bushels an acre, was next. Beecher averaged 43.9 bushels an acre and Prior 39.9 bushels an acre.

Medium rainfall (13 to 18 in. annual rainfall)

Bussell yielded slightly more than several other varieties in this region. Its average yield of 44.1 bushels an acre was only slightly higher than the average yields of Beecher (43.5 bushels an acre) and Dampier (41.0 bushels an acre). Prior averaged 39.5 bushels an acre.

Low rainfall (less than 13 in. annual rainfall)

With an average yield of 30.1 bushels an acre, Bussell yielded slightly less than Beecher (32.9 bushels an acre) but more than Dampier (29.2 bushels an acre) and Prior (29.3 bushels an acre).

Grain qualities

Bussell is a prospective malting and feed grade barley. Laboratory tests have shown that Bussell malts satisfactorily and gives a slightly higher malt extract than grain of Prior grown under similar conditions. Also several overseas buyers of W.A.-grown feed barley have commented favourably on grain samples of Bussell sent to them for evaluation as a feed barley.

Grain quality characteristics in 1966 season

<table>
<thead>
<tr>
<th>Variety</th>
<th>Annual Rainfall above 18 in.</th>
<th>Annual Rainfall 13 in. to 18 in.</th>
<th>Annual Rainfall less than 13 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BW</td>
<td>GW</td>
<td>Sieving</td>
</tr>
<tr>
<td>Bussell</td>
<td>56.0</td>
<td>40.5</td>
<td>19.7</td>
</tr>
<tr>
<td>Prior</td>
<td>55.1</td>
<td>41.7</td>
<td>25.1</td>
</tr>
<tr>
<td>Dampier</td>
<td>54.2</td>
<td>42.8</td>
<td>16.1</td>
</tr>
<tr>
<td>Beecher</td>
<td>48.2</td>
<td>41.8</td>
<td>34.5</td>
</tr>
</tbody>
</table>

BW = Bushel weight in pounds.
GW = The average weight of one grain in milligrams.
Sieving = The percentage by weight of grain passing through a 2.5 mm slotted screen.
N% = Nitrogen content as a percentage of the dry weight of the grain (Kjeldahl method).
The quality measurements carried out on grain samples from the 1966 variety trials indicate that Bussell may prove as suitable as Prior as a malting barley in areas which receive more than 13 inches of rainfall annually.

It also appears better than Beecher in such areas as a feed barley. However, it is likely it will not prove as good as Beecher as a feed barley in areas receiving less than 13 inches of annual rainfall because of its tendency in these areas to produce a high proportion of small grains of lower average weight.

Average figures for each variety in each region for each aspect of quality measured are shown in the table.

In the high and medium rainfall areas Bussell compared very favourably with Dampier and Prior in bushel weight, grain weight, sieving percentage and grain nitrogen content.

Bussell had a much heavier bushel weight than Beecher in these areas. In areas receiving more than 18 inches of annual rainfall Bussell had a smaller percentage of small grains than Beecher.

In the low rainfall areas Bussell had lower grain weights and higher (poorer) sieving percentages than Dampier or Prior. Bussell had a heavier bushel weight than Beecher but its grain weights were lower and its sieving percentages poorer than those of Beecher.
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