ART FARM/SEED TRADE WHEAT RECENT-RELEASE VARIETY TRIALS EVALUATED AT NINE SITES

Summary

This was the twenty-fourth season of Seed house trials giving an independent performance assessment of commercial and recent-release wheat varieties. Twenty-seven varieties (8 commercials and 19 pre-commercials) were sown at nine locations on high and middlevelds to evaluate yield and agronomic performance. Averaged across sites, WZ 3687/6/9 produced the highest yield of (7.55 t/ha) followed by 15W119 (7.28 t/ha) and SC Nduna at a yield level of 7.26 t/ha. The lowest yielding cultivar was Dande giving the yield of 5.91 t/ha. The highest site average yields were obtained at ART Farm (9.35 t/ha) with over 13 cultivars yielding over 10.0 t/ha. and the lowest yielding site was Chakari with an average yield of 2.22 t/ha where the highest yielding cultivar 15W119 only managed to produce 2.91 t/ha.

Test density of all varieties evaluated at all sites were above the grade A requirement of 76 kg/hl. Lodging was only recorded at ART Farm on three experimental varieties.

Introduction

With Crop Breeding Institute, Klein Karoo Seed Marketing, and Seed-co wheat varieties becoming available on the market, it has become necessary to have an independent series of trials to evaluate variety performance at as many sites as possible throughout the wheat growing areas of Zimbabwe.

Method and Management

Trial management and site information is given in **Section 3.1 in Table 3.1.**

The recent-release variety trials in the winter 2019 season comprised twelve

varieties from Seed co, (SC Serena, SC Nduna, SC Select, SC Shungu, WZ 3687/6/9, WZ 3339/6/18, WZ 3581/6/39, WZ 3956/6/19, WZ 3473/6/1, W 2746/6/54, WZ 3670/6/3 and WZ 3339/6/7), five from Klein Karoo Seed Marketing (Peregrine, 15W119, 15W50, 15W477 and 15W75). The crop breeding institute supplied four varieties (Runde, Dande, Gonglase and Ncema) plus six experimentals. The site altitude ranged from 1149 m.a.s.l. at Kadoma to 1500 m.a.s.l. at Marondera. The trials were planted using a specialized plot seeder at a seeding rate of 100 kg/ha. A Hege^{TM} 125 plot combine was used to harvest them. The gross plot size was 10 rows, 20 cm apart and 6 m long from which six centre rows (5.5 m long (6.6 m^2) were reaped for weighing. Measurements of yield, test density, thousand seed mass, anthesis, maturity, protein content and ear height were recorded.

Results and discussion

The results of the trials are presented in **Tables 3.2 to 3.6**.

All the sites were planted during the month of May 2019 starting from the first week to the third of May. Of the nine sites planted only eight were harvested successfully. The Mvurwi site was destroyed by cattle when they broke through an electric fence when there was a power failure. Low grain yields of 2.22 t/ha were produced at Chakari because of insufficient irrigation that was applied. The site only received 165 mm of water due to serious power failures and pump breakdowns. The Kadoma site with an average yield of 4.95 t/ha was also very unsatisfactory. The breakeven yield of a commercial crop of wheat is supposed to be above 5.0 t/ha for the exercise to be worthwhile.

ART Farm had the highest variety mean yield of 9.35 t/ha with one variety yielding around 10.99 t/ha followed by Enterprise at a yield level of 8.7 t/ha.

Other sites produced average yields of above 6.0 t/ha. A Seed-co experimental variety WZ 3687/6/9 gave the highest site mean yield of 7.55 t/ha followed closely by 15W119 and Nduna at a yield level of 7.28 and 7.26 t/ha. SC Serena, Peregrine, SC Select and SC Shungu produced significantly lower yields than three experimental varieties. Runde and Ncema gave similar yields of around 6.5 t/ha. The Crop Breeding experimental varieties tended to yield less than most of the commercial varieties except for Dande. The two experimentals WZ 3687/6/9 and 15W119 are worth considering for release since they out yielded all the commercials. Peregrine is another new release from Klein Karoo worth considering because it matures ten days earlier in situations of late sowing.

.