Assuring the quality of South African wheat

South Africa has three major wheat-breeding programs. New or introduction cultivars can only be released for planting if it has better agronomical as well as better flour quality characteristics than the cultivars planted commercially in a specific area.

The classification of wheat cultivars is an attempt to provide the wheat industry with new cultivars that perform well agronomically and possess suitable milling, rheological and baking characteristics. Analytical procedures and classification norms are compiled in conjunction with wheat breeders, millers and bakers to ensure market-directed and quality-driven wheat production in the interest of wheat producers and processors.

Classification norms use cultivars as biological quality standards as a frame of reference against which new breeding lines are evaluated. Only cultivars that are successfully grown commercially and possess acceptable agronomical and quality characteristics may be considered as biological quality standards.

As the breeding of wheat with the suitable quality characteristics is a long-term project, classification norms and quality standards are provided to breeders in an attempt to give them guidelines that should stand the test of time. Changing the classification norms and establishing new quality standards are for this reason thoroughly investigated and carefully considered to ensure that the long-term goals of breeding programs are achieved.

The effect of the climate, rainfall, environmental interaction, cultivation practices and other factors on wheat quality makes the use of fixed criteria or norms for classification purposes impractical. For this reason cultivars are used as biological quality standards, and acceptable deviations from the standard are established as classification norms.

Producers continuously strive to improve the wheat yield and quality by selecting the cultivars best suited for commercial production in a specific area. Grading standards are also set high to ensure adequate quality control.

Wheat grades

The 340 representative crop samples were graded as follows: 27% was graded B1, 22% was graded B2, 21% was graded B3, 14% was graded B4, 13% UT (Utility Grade) and 3% COW (Class Other Wheat). The majority of the samples downgraded to Utility Grade was as a result of the percentages other grain and unthreshed ears (15 samples) and screenings (12 samples), exceeding the maximum allowable level of grades B1 to B4. Low protein levels and falling numbers were also contributing factors.

Grade B1 wheat in the Free State province amounted to 38% (25% in the previous season). In the Irrigation areas 39% (49% in the previous season) of the wheat graded as B1 and in the Western Cape Province 12% graded as B1 (9% in the previous season).

Table 2: Bread Wheat Grading Table

| Grade | Minimum | | | Maximum percentage permissible deviation (m/m) | | | | | | | | | |
| | | | | A | B | C | D | E | F | G | H | I | J |
	Hectolitre mass, kg/hl	Falling number, seconds	Protein content, %	Heavily frost damaged kernels	Field fungi	Storage fungi	Screenings	Other grain and unthreshed ears	Gravel, stones, turf and glass	Foreign matter plus F	Heat damaged kernels	Damaged kernels plus H	Combined deviations (D+E+G+I)
Grade 1	77	220	12	5	2	0.5	3	1	0.5	1	0.5	2	5
Grade 2	76	220	11	5	2	0.5	3	1	0.5	1	0.5	2	5
Grade 3	74	220	10	5	2	0.5	3	1	0.5	1	0.5	2	5
Grade 4	72	200	9	5	2	0.5	4	1	0.5	1	0.5	2	5
Utility grade	70	150	8	10	2	0.5	10	4	0.5	3	0.5	5	10
Other Wheat	<70	<150	<8	>10	>2	>0.5	>10	>4	>0.5	>3	>0.5	>5	>10
Minimum size of working samples	1 kg	300 g clean	Apparatus instructions	25 g sifted	25 g sifted	25 g sifted	500 g unsifted	50 g sifted	100 g sifted	100 g sifted	100 g sifted	25 g sifted	-

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