REGIONAL QUALITY SUMMARY

WINTER RAINFALL AREA
(Western Cape)

The Western Cape Province has a Mediterranean climate, characterised by cool, wet winters and hot dry summers. More than 80% of the rainfall occurs in winter between April and September, making the Western Cape a predominantly winter rainfall area. Mean annual rainfall varies from 200 to 450 mm. Arable land in this area covers approximately 1.5 million hectares, with winter cereals (wheat, barley, canola and oats) the major crops cultivated. The Swartland (on the West Coast) and the Rûens (Southern Cape) are the main distinguishable geographic regions of the winter rainfall area.

These two separate wheat farming regions are divided into sub regions according to soil and climatic characteristics. The Swartland region is divided into four sub regions: High Rainfall Area, Middle Swartland, Koringberg and Sandveld. The Rûens region is divided into three sub regions namely the Western Rûens, Southern Rûens and Eastern Rûens.

The Rûens generally receives higher rainfall than the Swartland, but some areas of the Swartland have better, deeper soils. Wheat is generally planted from the second half of April until the middle of June and harvested during October and November.

Compared to previous seasons, the climatic conditions in 2019 in the Swartland region was less optimal prior to planting, with most plantings being done in dry soil. Most rain were received during June and July with virtually no rain during the following months up to harvest. There was a marked increase in regional dryspots in the area. Areas in the higher rainfall areas received more rain and conditions were better for higher yields than the rest of the Swartland.

Climatic conditions in the Rûens, leading up to planting, showed bleak prospects for the year ahead. Most plantings were done without any significant soil moisture present. As in the previous two seasons, the Eastern Rûens region was the hardest hit by dry conditions pre and post planting. Although good rains were recorded during June and July, the yield potential was already lower than normal due to the drought conditions earlier in the season.

The hectolitre mass averaged 77.2 kg/hl compared to the previous season's 79.9 kg/hl. The thousand kernel mass averaged 34.0 g, 5.0 g lower than the previous season and 1.6 g lower than the national average of 35.6 g. The average falling number was 367 seconds, the highest of the three production areas. The whole wheat protein content averaged 12.8% (12% mb), a one percent increase compared to the previous season.

The average percentage screenings of 2.39% was slightly more than half a percent higher than in 2018/19 and again the highest average of the three areas, as in previous seasons. The mixogram peak time (Quadromat Junior mill) averaged 2.9 minutes. The Bühler extraction averaged 74.0% (average of wheat grades Super to Grade 3 and COW), compared to the 70.2% in 2018/19. The average wet colour of the flour was -4.7 KJ units and the dry colour L* value (indicating lightness) 93.90, previously 93.93. These colour values indicate a white/light flour that is preferred by millers and bakers and compare well to previous seasons. The average ash content was 0.63%.

The flour protein content averaged 11.7%, compared to the 10.6% of the previous season. The average wet and dry gluten values were 30.6% and 10.4% (14% mb). The gluten index was 95, equal to the previous season. The average farinogram absorption was 59.3% and the development time 5.0 minutes, the stability averaged 7.8 minutes. The average alveogram strength was 40.8 cm^2 (32.8 cm^2 previously) and the P/L value averaged 0.48. The average strength on the extensogram was 109 cm^2 compared to 84 cm^2 last season. The increase in development time, stability and strength values can be attributed to the higher protein content this season. The mixogram peak time on the Bühler milled flour averaged 2.5 minutes, similar to last season. The 100-gram baking test showed on average an excellent relationship between protein content and bread volume.

SUMMER RAINFALL AND IRRIGATION AREA
(Free State)

The summer rainfall area (predominantly the Free State Province) is a major dryland wheat production region of South Africa. Considerable variation in precipitation, soil types and average temperature occurs from east to west. The Free State is therefore commonly divided into four distinct dryland wheat production regions, namely: the South Western Free State, North Western Free State, Central Free State and Eastern Free State.

Rainfall, particularly the distribution thereof through the growing season, is important for successful wheat production in the summer rainfall areas. Planting dates vary from early to late according to region and commences in May and continues until July. Harvesting takes place from late November to January.

Climatic conditions before and during the growing season were very similar to the 2018/19 season. Good rains occurred in the fallow period from January to April in all regions. Rainfall during March and April was significantly higher than the average figures. This lead to optimum conditions during planting time and the early stages of development. The good climatic conditions did unfortunately not continue throughout the growing season. The months of June to October 2019 was the driest since 1951 when the weather station at ARC-Small grain started recording. The drought had a disastrous effect on wheat yields, especially in the Eastern and Central Free State. Due to the water table that was restored during the 2018/19 summer season, the situation in the North Western Free State was better.

The average hectolitre mass was 77.4 kg/hl, 3.7 kg/hl lower than in 2018/19. The thousand kernel mass of 32.4 g, was 3.7 g lower than the previous season. The average percentage screenings was 1.85%, similar to the national average of 1.92%. The average whole wheat protein content increased from 13.1% the previous season to 13.7% (12% mb) this season. The falling number of 308 seconds was the lowest average of the three production areas.

The mixogram (Quadromat Junior) peak time was 3.1 minutes, similar to the previous season and slightly higher than the national average of 3.0 minutes. The average Bühler extraction percentage in the Free State was 74.5% and compared well with the national average of 74.8%. The Kent Jones flour colour was -4.1 KJ units and the Konica Minolta CM-5 L* value 92.93, compared to the -4.4 KJ and 93.53 of the previous season. The average ash content was 0.65% and the average flour protein content 1.4% higher than the previous season at 13.0%. The wet gluten content (14% mb) was 34.5% and the dry gluten 11.9%, an increase of 2.6% and 1.3% respectively compared to the previous season. The gluten index averaged 96.

The average farinogram water absorption of 61.6% showed a slight increase compared to the previous season's 61.3% and was also the highest of the three areas this season. The development time averaged 6.2 minutes and the stability 8.6 minutes, respectively 0.7 and 0.9 minutes longer than in 2018/19. The average alveogram strength of 48.1 cm^2 was 9.5 cm^2 higher than the previous season, while the extensogram strength increased by 24 cm^2 compared to last season. These increase can again be attributed to the higher protein content this season. The Bühler milled flour had an average mixograph peak time of 2.6 minutes, equal to the previous season and national average. The 100-gram baking test showed that the relationship between protein content and bread volume was excellent between the different grades.

IRRIGATION AREAS
(Northern Cape, North West, Mpumalanga, Gauteng, Limpopo and KwaZulu-Natal)

Generally, the irrigation wheat production area of South Africa can be divided into four main geographic regions – the Cooler Central irrigation region in the Northern Cape, the Warmer Northern irrigation region in the North West, Limpopo and Gauteng provinces, the Highveld region in Mpumalanga and the Free State and lastly, the KwaZulu-Natal region.

Planting commences as early as the end of May and continues until late July depending on the region. Harvesting takes place from the end of October to December also depending on the specific region.

Temperature conditions during this season showed slight deviations to the long-term average in all of the production regions. Minimum temperatures in the KwaZulu-Natal and Cooler Irrigation regions were higher than normal during July and August, which could explain the yields obtained in these regions. In the Highveld region, minimum temperatures were higher than the long-term average. In the Warmer Irrigation region, the minimum temperatures were slightly higher than the long-term average.

As in the previous season, the irrigation wheat had the highest weighted average hectolitre mass of the three production areas, namely 80.7 kg/hl. This value is however still 2.4 kg/hl lower than in 2018/19. The thousand kernel mass decreased by 2.0 g to 38.2 g. This is the highest average of the three areas. The average falling number was 360 seconds. The screenings averaged 1.36%, compared to the 1.07% previously and was again the lowest of the three areas as in the previous two seasons.

The whole wheat protein content was on average 12.6%, 0.5% higher than last season but also the lowest average of the three areas. The flour's protein content was 11.6%. The mixogram (Quadromat Junior) peak time averaged 3.0 minutes, equal to the national average. The average Bühler extraction was 75.4%, the highest of the three areas.

The dry colour L* value was 93.72 and the Kent Jones wet colour value -4.8 KJ units, very similar to the previous season. The ash content averaged 0.64%. The average wet and dry gluten values were 30.3% and 10.2% respectively and the gluten index 95, all three these values were slightly higher than in the previous season. The average farinogram water absorption was 60.3% (60.8% during the previous season), the development time and stability averaged 5.4 minutes and 8.0 minutes respectively.

Alveogram strength averaged 41.7 cm^2 and the P/L 0.65 (34.8 cm^2 and 0.79 respectively the previous season). The average extensogram strength was 112 cm^2, compared to 94 cm^2 last season. The mixogram peak time averaged 2.7 minutes. The relationship between protein content and 100 g bread volume was shown to be excellent.

Production area and climatic condition information were obtained from the National Wheat Cultivar Evaluation Programme reports of the ARC-Small Grain.

Please see the results provided per individual production region on pages 38 to 65.