Trials exhibit canola's adaptability

By Hugo Lochner, Plaas Media

Cultivar trials planted annually by the Western Cape Department of Agriculture show that canola can be cultivated with confidence in the province. According to Piet Lombard, senior scientific technician at the department's Directorate of Plant Sciences, canola adapts well to local climate conditions given the results of the last two years, which include a dry 2022 and a wet 2023.

Trials were planted at five localities during 2023 in both the Swartland and Southern Cape. In the 2023 cultivar evaluation programme, 18 canola cultivars (17 in 2022) were tested, four of which were conventional cultivars, four CI cultivars (Clearfield, imazamox tolerant), eight from the TT group (triazine tolerant) and two combination type cultivars with both the CI and TT tolerance (Enforcer CT and PY520 TC).

Effects of a wet year

The 2023 season in the Swartland was characterised by a very wet period from 25 May until the beginning of July. Rainfall in July and August was below average, but in September it was much more than the long-term average. October in turn was very dry. Total rainfall during the 2023 growing season was 37mm more than the long-term average.

According to Lombard, the good rain received in September prevented plants from being exposed to moisture stress. Favourable lower temperatures, especially in August and September, which is an important flowering and seed-filling period for canola, favoured 2023 yields in the Swartland.

In the Southern Cape, the Tygerhoek Experimental Farm near Riviersonderend received more than double the long-term average rainfall (624mm) during the 2023 growing season. This is the wettest recorded growing season in history after 2021. During 2021, 396mm of rain fell during a single event in May, whereas in 2023 it rained more than the long-term average throughout the season, except for August.

The temperature at Tygerhoek was not as favourable as in the Swartland. August was characterised by above-average warm maximum temperatures, while the minimum temperatures were below average from July to September.

The Swartland's best performers

The Swartland's harvest season was late due to the wet and cold weather in September. Although the trials in the region were exposed to very wet conditions, little to no *Sclerotinia* occurred in the cultivar trials. However, *Sclerotinia* was widely observed in the Swartland.

The Swartland's average yield per trial ranged from 3 323kg/ha (Langgewens, second planting) to 2 266kg/ha at Philadelphia.

Just like in 2022, the conventional cultivar CC90014 (3 168kg/ha) produced the highest average yield, followed by Quartz (2 942kg/ha) and Diamond (2 822kg/ha). The yields of the latter two cultivars were significantly lower than that of CC90014.

Of the four CI cultivars planted in 2023, PY421C CI (3 143kg/ha) and the long grower, 45Y95 (3 086kg/ha) performed best, followed by the cultivars Solstice CI and 44Y94. The yield of the four CI cultivars did not differ significantly from one another.

Within the TT cultivar group that includes CT/TC cultivars, HyTTec Trophy, PY520 CT and HyTTec Trifecta produced the highest yields of 2 666kg/ha, 2 663kg/ha and 2 646 kg/ha respectively, followed by CT210001, Blazer TT and Alpha TT. The yields of the cultivars in the TT group did not differ significantly from each other. The average yield of the TT cultivars was 13 and 18% lower than the conventional and CI cultivars, respectively.

Southern Cape results

Due to the long season and high rainfall in the Southern Cape, many fields were inaccessible during the optimal weed

The Western Cape Department of Agriculture hosted its sixth farmers' day in September 2023 on the farm Waterboerskraal near Hopefield. The farm is one of five localities in the Swartland where the department conducts trials. Visitors could, among others, view cultivar trials of various small grains, canola, lupins and pasture crops, and learn about canola's susceptibility to black stem and the success of chemical sprays against this disease.

The canola trials looked promising in September last year but, much like other crops, the trial plantings suffered as a result of a very wet period from 25 May to early July 2023.

control and fertilisation stage. Lombard says that the yields were nevertheless very good.

The trial at Roodebloem near Caledon in the Southern Cape had the best average yield (3 359kg/ha). The other localities' average yields were all above 3 104 kg/ha. The Southern Cape's average trial yield was 3 204kg/ha compared to 2022 and 2021's average yields of 2 124kg/ha and 3 271kg/ha, respectively.

In the conventional cultivar group, Quartz (3 628kg/ha) produced the highest yield, like it did in 2021 and 2020. The cultivar CC90014 was second (3 469kg/ha), followed by Diamond. There was no significant difference between Quartz and CC90014.

In the CI group, 45Y95 (3 980kg/ha) had the highest yield. This cultivar has good potential because its yield in several trials was more than 4 000kg/ha. The CI cultivar 44Y94 had the second highest yield (3 738kg/ha), followed by PY421C CI and Solstice CI. The yield of 45Y95 was significantly higher than all the other cultivars in the Southern Cape.

In the TT group, the TT cultivar HyTTec Trifecta (3 250kg/ha) and the combination cultivar PY520 CT (3 232kg/ha) had the highest yields. They were followed by the new combination cultivar CT210001 and HyTTec Trophy. HyTTec Trifecta's yield was significantly higher than that of CT210001 and HyTTec Trophy.

According to Lombard, the average yield of the TT group was 8 and 17% lower than conventional and CI cultivars, respectively. In 2022, the difference was 6 and 12%, respectively. The CI group has more cultivars with longer growing seasons than the conventional group. Therefore, the long seed-filling period in 2023 benefitted the CI cultivars' average yield.

Choose the right cultivar

Lombard says the trial results from the past season highlighted the positive impact climate can have on production. This stands in stark contrast to the 2019 season and to a lesser extent 2022. Both seasons had a dry and very hot spring.

It is impossible to provide for all climate extremes. Still, it must be borne in mind that well-adapted cultivars are essential for success. Producers should note the following when choosing cultivars:

- The availability of seed.
- The yield potential of the cultivars.
- Weed management in the canola year. Weed resistance results in growers considering TT, TC and CT cultivars to better manage weeds. The yield potential of the combination type cultivars that have both CT and TT tolerance should be compared to that of the TT cultivars. The TT gene in canola plants negatively influences yield and consequently TT cultivars' yield is usually lower than that of conventional and CI cultivars.
- The physiological rate of development of the cultivars. There are several cultivars with different growing season lengths available within the three groups. The growing season length is very important in the Western Cape with its typical short growing seasons. Yield stability over growing seasons and across areas is essential when selecting a cultivar.
- Black-stem resistance is common, and it is vital to alternate cultivars. Canola should be sprayed with a fungicide during the five-leaf stage.
- *Sclerotinia* infestation, a risk during wet growing seasons, can drastically lower yields. With last year's wet growing season, *Sclerotinia* was widely noticed in the Swartland. This year there is an increased risk of *Sclerotinia*, especially in the Swartland.

Availability of seed

The availability of sufficient seed from suitable canola cultivars has been a major problem for the local canola industry in recent years. None of the aforementioned factors can be properly managed if not enough seed is available.

The seed shortages have resulted in growers withholding seed, but the risks associated with withheld seed are very high. Lombard says a reduction in yield was one of the risks. In 2022 and 2023, at Langgewens experimental farm, it was found that an average of 10 to 13% of the yield will be lost when withheld seed is planted instead of commercial seed.

For more information on the Hopefield trials, contact Piet Lombard at email Piet.Lombard@westerncape.gov.za or on 021 808 5415.