Canadian canola targets: Are we on par?



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With more than 18 million tons per year, Canada is undoubtedly the world leader in canola production, a position the country continuously strives to improve. One of the strategic objectives of the Canola Council of Canada is to achieve an average yield of 52 bushels per acre by 2025. This is equal to 3,26t/ha. Canada's current average is 2,13t/ha; an increase of 1,13t/ha is therefore needed to reach this goal.

South Africa's average yield in 2016 was 1,81t/ha, but there are producers who had yields of more than 3t/ha. Although an average of 3,26t/ha is quite far-fetched, 2,5t/ha is relatively achievable.

What does the Canadian strategic plan entail to reach their goal? It is based on targeting five clear production aspects, namely:

- Genetic improvement – 502kg per hectare (44,4 %).
- Plant establishment – 188kg per hectare (16,7 %).
- Fertilisation management – 188kg per hectare (16,7 %).
- Integrated pest management – 125kg per hectare (11,1 %).
- Harvest management – 125kg per hectare (11,1 %).

Let's look at each factor and determine if, realistically, we are on par.

Genetic improvement

The Canadians have a firm advantage in this area compared to our current situation. The fact that their canola industry is large (currently 9 265 812ha) means that all major seed companies in the country are competing for a share of the market. Canadian producers cultivate mostly GMO cultivars with several beneficial built-in properties, such as herbicide tolerance, shattering resistance and disease resistance.

Although our canola seed is imported mostly from Australia we have access to the best non-GMO hybrid cultivars, which have proven over many seasons that they have the potential to produce more than three tons per hectare.

In recent discussions between the PNS, Grain SA and seed companies, companies that import canola seed have committed themselves to making the preferred cultivars even more accessible to South African producers. In addition, they will put plans in place to ensure that sufficient seed quantities are available annually. Genetic progress and the accompanying yield progress achieved in other countries will therefore find its way to South African canola producers.

If the average increase in yield from roughly 1t/ha to 1,81t/ha over the past ten years is considered, and the increase can mainly be attributed to improved cultivars, it can be assumed that South Africa's canola yield will keep on increasing due to improvements in genetics. *Figure 1* provides a summary of the yield per hectare and total surface area planted. It is clear that the yield per hectare, like Canada, increased over the past few seasons.

It is noted that Triazone Tolerant (TT) cultivars reduce yields by approximately 20% compared to Clearfield and conventional hybrids. Several of the TT cultivars are planted in the Swartland, specifically, because of herbicide resistance. If this situation is considered, it becomes clear that potential yield increases are very achievable if weeds can be more successfully controlled, which will make the planting of TT cultivars unnecessary.

Plant establishment

The notion of a smooth, even stand for a good canola harvest remains extremely important. Evenly developing canola that moves uniformly through the growth phases make many management decisions easier. Timing of pest spraying, cutting or direct harvesting are much easier with an evenly developed stand.

An even stand also contributes to weed suppression; especially difficult to control weeds that take longer to germinate.

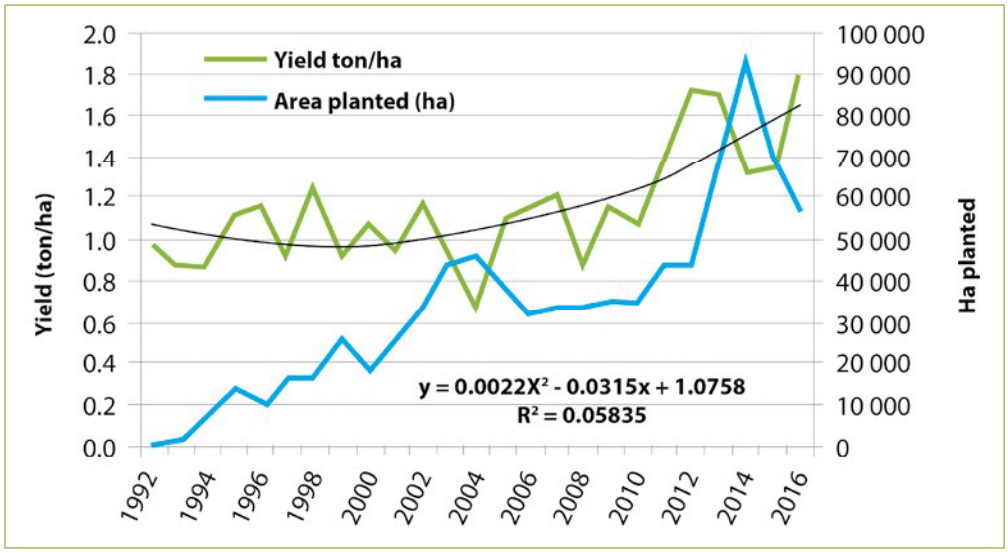
Producers have made good progress with their planting techniques in respect of spacing, planting depth, etc.,

although fields where planting occurs in dry soil often have uneven emergence and establishment. Apart from uneven moisture conditions in the field, aspects such as dense ground cover consisting of crop residues, the quantity and placement of fertiliser during planting, and the control of insects and diseases that attack seedlings, add to uneven emergence and establishment. Improved plant establishment can therefore contribute to higher canola yields in South Africa.

Trifluralin, if applied correctly, is currently one of the most effective annual graminicides and is relatively inexpensive. It can be applied to dry soil, provided it is lightly worked into the soil. It controls all germinating grass seeds that occur in the treated zone for six to eight weeks and causes no damage to the canola seedlings.

Canola does not tolerate excess plant material on top of the plant row. If Trifluralin is worked into the soil a favourable seedbed is created that will aid germination.

Figure 1: Canola yield and surface area planted in South Africa.



Fertiliser management

Because the hectares under canola in the Western Cape are fairly limited, funding for research is also limited. Canola's fertiliser needs per ton grain produced is higher than that of wheat. It is also important that the different elements are applied at the right time. Great progress has been made in respect of nitrogen, sulphur and boron, but more expertise regarding other macro- and micro-elements contribute to higher canola yields.

Integrated pest management

In many areas, weed resistance still plays a dominant role in the selection of cultivars and weed control programmes. The choice of herbicide is even more difficult since a lot of canola is planted in dry soil. Although most producers are not in favour of full-area spraying and applying Trifluralin before planting canola, there are significant benefits.

There is no doubt about the benefits of conservation farming and minimum tillage, and these systems are fully supported.

However, if better weed control and possible use of conventional or Clearfield cultivars with higher yield potential are considered, a once-off light soil cultivation every fourth year to work Trifluralin into the soil before planting canola, poses more advantages than disadvantages.

Canola producers are well aware of the adverse effects of *Sclerotinia* on canola yields and most producers follow the recommended guidelines to combat it successfully. That said, time of application, which is critical for good control, can be improved in some cases.

Because *Sclerotinia* spraying is a relatively expensive input cost, it will be to the benefit of the farmer if everything is done correctly; water volumes, spraying equipment and good coverage of the petals goes without saying.

Alternating cultivars with different resistance genes to avert the danger of black stem requires more attention, but fortunately the occurrence of the disease has been limited over the last few years. Seedling wilt diseases in general have not occurred, but should be carefully monitored.

Insect plagues (diamondback moth, aphids and bollworm) have occurred sporadically and at times caused severe damage that made the monitoring thereof essential. Proposed threshold values for spraying must be followed to ensure that any spraying is economically justifiable.

Predators and parasites that help keep pest populations in check must be kept in mind.

The insects that occur during and shortly after planting (isopods, snails, mites and aphids) are generally properly addressed, but regular monitoring in the first few weeks after emergence cannot be overemphasised. Although these aspects are the so-called small foxes, addressing them can bring about a significant increase in canola yields for South African producers.

Harvest management

According to agronomists in the industry, harvest losses are still a real problem for some canola producers. The greatest losses are attributed to the wrong cutting time as well as problems occurring when herbicides are sprayed directly after harvesting.

Losses during the harvesting process also occur. Estimated losses amount to between 50 and 250kg per hectare and have been confirmed by actual measurements at farm level. Correcting these problems without incurring additional costs for the producer, can increase canola yields and profit margins.

In summary

I believe that if producers view canola as a cash crop in its own right and not just as a rotation crop planted to address problems, the average canola yield in South Africa, similar to the plans Canada has, can be increased dramatically.

By addressing the five points mentioned in this article and applying better management, producers will, without any additional input costs, be able to gain back that lost quarter to a half ton canola yield. This will certainly allow canola to take its rightful place.