

Blueberry production: a steep learning curve but worth the effort

Blueberries have been identified as an ideal crop for boosting agriculture's contribution to South Africa's gross domestic product. Given the labour-intensive nature of this crop and its lucrative export market, investing in it was an obvious choice for Pan African Resources and Primocane Capital as a means of supporting rural communities near Barberton in Mpumalanga. **Lindi Botha** reports.



Blueberries aren't an easy crop to cultivate, as they require meticulous control over inputs, and lengthy compliance audits to open export markets. But the crop's suitability to a host of climates and cultivation methods makes it an ideal business to set up on the outskirts of mines, where land is ample and unemployment rife.

When gold-mining company Pan African Resources sought a project to uplift the community around its Barberton mines in Mpumalanga, blueberries ticked all the boxes: it was labour-intensive, able to accommodate mostly unskilled labour, and touted to provide a good return on investment.

Barberton Blue was therefore established in 2021 in partnership with Primocane Capital, with 14ha planted to blueberries. Some 22 permanent workers and 232 seasonal staff keep the farm going, delivering on the mine's mandate to create jobs.

However, the project hasn't been smooth sailing. Lessons learnt over the past few years, although hard to swallow, should stand them in good stead for future success.

At the helm of Barberton Blue is farm manager Axola Qongqo, who joined the team last year. Asked about the yields the farm achieves, he shakes his head, saying: "The weather has played havoc on the farm over the last two years. Severe frost took the yield down from the average of 18t/ha to 8t/ha last year. This year, we had to discard the first fruit at the start of the harvesting season because it froze."

Barberton's climate is conducive to blueberry production, especially since new varieties require fewer cold units. However, the site selected for Barberton Blue has a microclimate where temperatures can plunge to below 0°C. With this year's adverse weather, temperatures fell to -4°C, causing severe damage to fruit.

Fine-tuning production, Qongqo is in the process of shifting the harvesting season later in the year to prevent cold damage in future.



LEFT:

Farm manager Axola Qongqo has developed a foliar application regime to ensure a crop of big, sweet, high-quality blueberries.

PHOTOS: LINDI BOTHA



“Traditionally, the harvest season runs from June to October. But because of the microclimate and increasingly volatile weather, I’m working towards a harvest season of August to November so that peak flowering and bulk fruit set happen outside the frost window,” he says.

Confident that blueberry production is worth backing, Pan African Resources and Primocane Capital are in the process of selecting other sites in the area to expand its project. Qongqo says that since the blueberries currently in production are planted in pots, it will be possible to move them to a warmer site.

‘THERE’S AN APPLICATION FOR EVERY PHASE IN THE SEASON, AND EACH ONE MUST BE TIMED PERFECTLY’

Varieties that have greater tolerance to the cold and set fruit from early March to May will then be planted on the current farm to take advantage of the early marketing window Barberton Blue currently presents.

MINIMISING INPUTS

Successful blueberry cultivation requires a set recipe that is meticulously followed. Qongqo has spent most of his career working on blueberries, fine-tuning this formula. “There’s no time to waste with blueberries – if something needs to be done, it must be done immediately.”

Barberton Blue’s berries are planted in substrate bags under 20% shade netting. The latter is to protect the bushes from hail and harsh, direct sunlight. The bags ensure that inputs can be

more precisely managed, resulting in homogenous growth across the orchard.

Qongqo’s goal is to use as little inputs as possible to achieve the highest yield. “Planting in bags means we can precisely measure how much water the plants are absorbing by monitoring run-off. Keeping a firm hand on irrigation means we not only save water, but don’t waste fertigation. We also save on electricity if we are not pumping water unnecessarily,” he explains.

The bushes are irrigated using drip irrigation, providing around 2l of water per day per bush on hot days, divided into three or four pulses throughout the day.

If temperatures remain below 30°C, fertilisers are provided with every pulse. With higher temperatures, the plants require extra water, which means they get an additional pulse of water without fertilisers. Every Sunday the pots are flushed with clean water to get rid of any salt build-up.

A growth medium is used consisting of a mixture of perlite, cocopeat, husks and coir. While this method means farmers are not limited by soil type, it does reduce the time before bushes need to be replaced.

“After about 12 years the roots start compacting in the bags, causing stunted growth in the bushes. If they were planted in soil, they could keep producing for over 20 years,” says Qongqo.

The rapid development of new varieties, however, means that farmers are unlikely to reach 12 years of production before replacing bushes. As new varieties bring better-tasting fruit, shifting market demand from older varieties, bush replacement is likely to be needed every five to seven years.

OPPOSITE PAGE:

Blueberry bushes produce multiple harvests during a season that stretches over five months. This means workers need to continuously move through the orchards to harvest berries as they ripen.

FAST FACTS

The labour intensity of blueberries makes it an ideal crop to boost rural job prospects.

Blueberries require meticulous management to achieve a quality crop.

Maintaining good relationships with staff is key to success.

TIMING APPLICATIONS

Qongqo's recipe for a quality crop that produces big, sweet berries rests on four pillars: pollination, pest management, nutrition, and pruning.

Pruning typically starts in November after the harvest has been completed.

"The first prune is a hard prune – cutting the bush down to around 500mm. This strips the plant of all its leaves and allows you to open up the bush, removing branches in the middle of the bush that would prevent optimal air flow.

"The bushes grow quite quickly and a second, lighter prune is required in January to get the shape of the bush right."

which he developed over his years in the industry. "There's an application for every phase in the season, and each one must be timed perfectly to get the best results."

Once the first shoots start appearing after the prune, Qongqo applies a urea-based granular fertiliser at a rate of 12kg/ha to boost growth in addition to the fertigation programme.

Important to note is that long, elongated shoots are not the goal. "I want a strong plant with a complex structure that provides a good yield. So I apply amino acids as a foliar spray, which helps with bud differentiation and gives a complex, structured plant where shorter shoots have

split to form more shoots."

Nature needs to play its part in a quality harvest, and additional bees are required to achieve optimal pollination. The farm hires in hives, starting with a few when flowers are just beginning to bloom, and placing up to 10 hives on each hectare when the orchards are in full bloom.

Maximum pollination is not only important to achieve bigger fruit, but to ward off the *Botrytis* fungus. Qongqo explains that when flowers that have not been pollinated and turned into berries die, this dead tissue provides a breeding ground for *Botrytis*.

Early in the harvest season, the bushes need calcium to increase the durofel levels of the fruit. Calcium applications are done every 10 days, including products that

make calcium absorption by the plants easier. Amino acids and gibberellins (plant hormones) are used to boost flowering and fruiting.

Timing pest control is important to ensure the fruit meets regulations that govern the maximum residue levels of crop protection chemicals. With thrips being the biggest pest, Qongqo follows a regime of applying harsher chemicals early in the season to reduce thrip populations, and switching to organic and biological control later in the season.

"Battling thrips is a constant endeavour because the first spray wipes out the adults, but not the eggs, so you need to follow up with more applications every few weeks."

A STABLE MARKET

Blueberries start producing a harvest in the first year, reaching full production in year three. Qongqo says that in an ideal environment



ABOVE: The orchard floor is covered with a weed mat to reduce the need for herbicides.

Two aspects are important to note during the pruning season: fertiliser must be withheld, and fungi control must be done. Since plants undergo stress when they are pruned, additional pressure to grow brought by fertiliser would weaken the bushes. Fertigation is therefore halted after pruning and only resumed following the establishment of new shoots.

The control of fungal diseases starts before pruning. It is therefore crucial to apply a systemic fungicide before and after pruning to prevent fungal infection. Copper and sulphur are also applied to sanitise the orchards.

After bushes have been pruned, any wounds larger than a R1 coin must be sealed with water-based paint to prevent fungi from entering the plant.

A good harvest rests on applying the right application at the right time. Here, Qongqo follows a programme of foliar feeds,

where yields are consistent and markets are stable, farmers should be able to recoup capital expenditure within five to eight years.

The industry has been fortunate to have experienced stable pricing, even though prices have come down from the peak achieved in 2017 when R200/kg to R250/kg was the norm.

Rapidly increasing volumes from Peru, Argentina and Mexico have created strong competition for South African exporters, all vying for a piece of the European market share. The drought in South America this year however meant the volumes have been lower, keeping prices in Europe buoyant.

Qongqo is optimistic about the future of blueberries. Although competition from other countries is concerning, he notes that South African blueberries are highly desired for their superior taste. "Regions like South Africa, where there is a bigger gap between minimum and maximum temperatures, produce more flavoursome fruit, in comparison to South American countries with milder climates."

Barberton Blue has an on-farm packhouse, and the majority of the crop is sent to export markets. The rest that is out of grade specification is sold locally. The packhouse handles about 5,5t/day in season, going up to 8t/day when large orders are received. While export markets are certainly more lucrative

than local markets, the increased margins have their own cost: compliance audits.

Qongqo laments that this is one of his biggest challenges: "Several supermarkets have their own audits, in addition to the general industry audits like Global GAP and SIZA. The audits are very similar, so you find yourself endlessly repeating the same exercise for each company. It's incredibly time-consuming and costly, but non-negotiable."

TOWARDS A COMMON GOAL

Qongqo's favourite time on the farm is the harvest season, when activity peaks and the orchards are brimming with workers. He believes that the way the staff are managed is what can make or break the harvest.

"You must have a good relationship with the staff, and they must be able to work in harmony with each other. If there is no respect, then you will struggle to get the best out of them.

"The quality standards for blueberries are very high, so if staff are not motivated to maintain that high standard in the picking and packing process, it can really hurt the bottom line. This means they need to have a firm understanding of what is expected of them and why, or they won't take their responsibility seriously."

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BELOW:

Barberton Blue has an on-farm packhouse. The berries are mostly destined for export markets.

