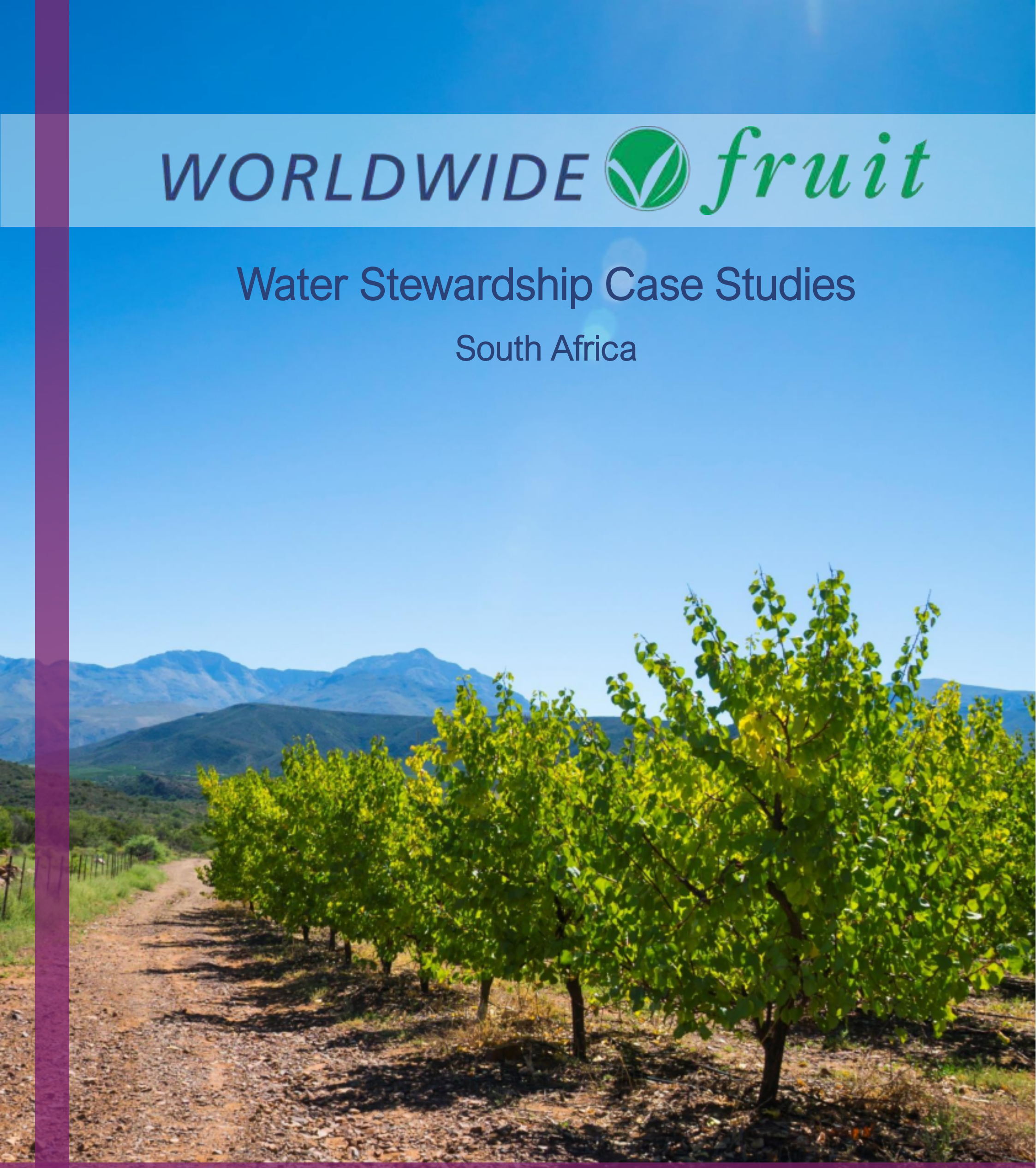
WORLDWIDE fruit

Water Stewardship Case Studies

South Africa



stems

Case Study 5:
Cerasus Farming

BLUE NORTH
THINKING FUTURE

Report compiled by Blue North Sustainability
Photo: Carina Wessels

Worldwide Fruit Limited are investing in Water Stewardship across their supply-base and will be presenting Water Stewardship case studies from supplying farms over the next 12 months. Their aim is to raise awareness of the challenges that South African growers deal with on a daily basis. Water management challenges and the solutions implemented to overcome them will be explored, but we will also see how growers are driving ongoing good management of water resources. Apart from water, case studies will also look at current sustainability strategies implemented and plans for improving sustainability into the future.

Case study 1: Boomerang Fruits
Case study 2: Dennegeur Farms
Case study 3: De Keur
Case Study 4: Dreem Fruit (Delecta)

Case Study 5: Cerasus Farming (Stems)

Summary

Cerasus Boerdery ("boerdery" is the Afrikaans word for farming) lies in the fertile Hoeko Valley at the foot of the Swartberg Mountains in the Little Karoo. Cerasus is a relatively young business (established in 2006), which started off with only 30 hectares of stone fruit. Cerasus was built up annually up to 65 hectares, until 2016, when a severe five-year drought hit the region. Even without the drought the Little Karoo can be a challenging region to farm in, so Cerasus went through an unusually trying time during the drought. They did everything differently and many lessons were learned. What is commendable is that after five years of drought they only had about a 1% loss. They got by with almost no water and still harvested a 30% crop that was of export quality. Cerasus also did not layoff any workers during the drought (other farms in the region had to do this to survive). Cerasus is now focussed more than ever on farming as sustainably as possible and protecting the environment for future generations. Their farming methods have to a large extent adopted a more biological approach. For the first time since the drought they have had a phenomenal harvest again this year. The drought was tough, but the farm is now beautiful and green again.

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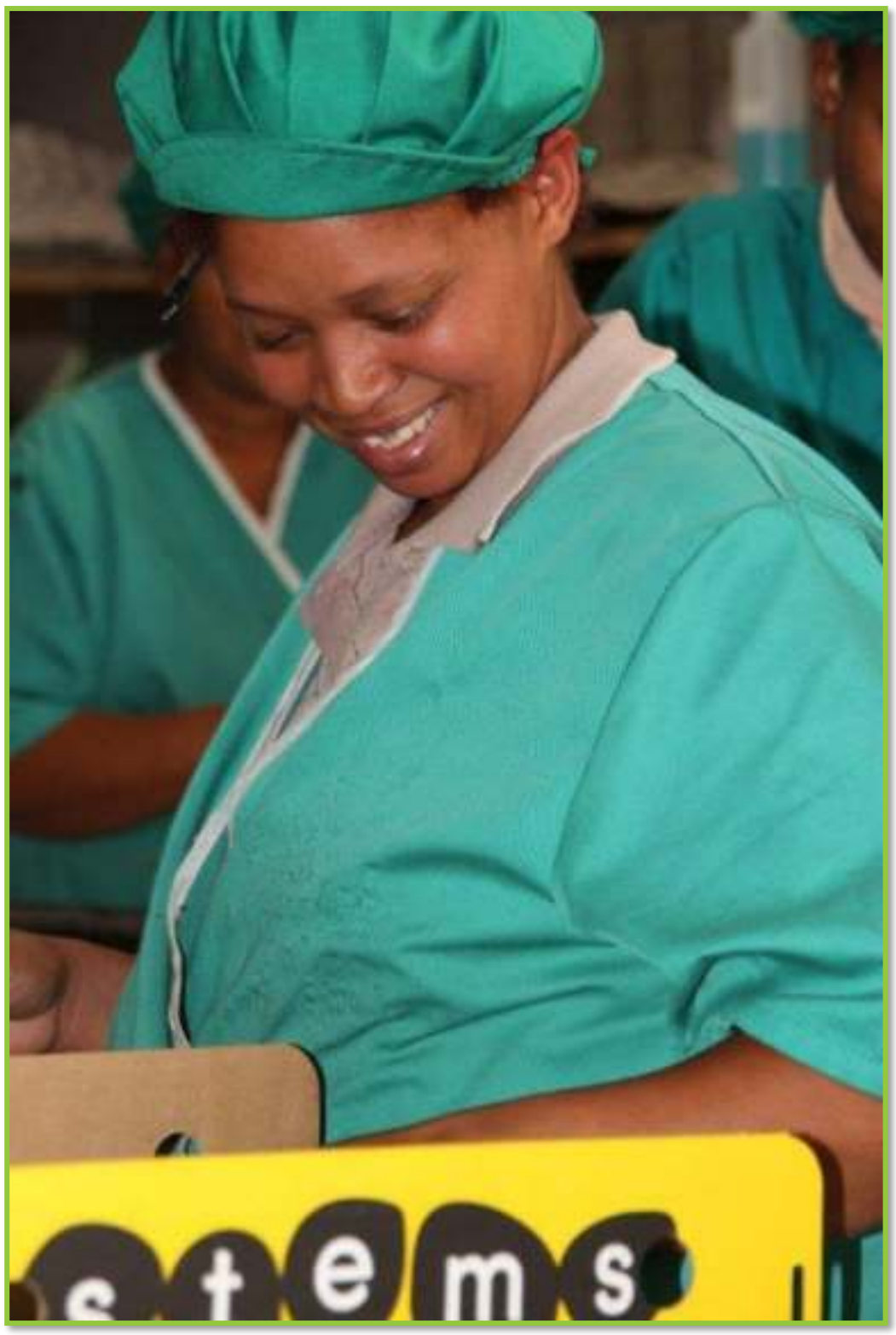
Background

Cerasus Farming lies in the fertile Hoeko Valley at the foot of the Swartberg Mountains near Ladismith in the Little Karoo. Nestled in the shadows of some of the highest mountain peaks in the Western Cape, Cerasus gets the majority of its water from the melting snow from these mountains. Cerasus is a relatively young business as it was established in 2006 by owner Johan Furstenberg. Cerasus consists of Cerasus Farming, Cerasus Packaging, and Cerasus Workshop.

Cerasus Farming originally consisted of four separate farms, named Venturia, Welgeluk, Wonderkop, and Rietkloof. A fifth farm, named Fontein, was bought two years ago. The farms all lie next to each other, except Fontein, which is only a short distance (3 kilometres) away. Cerasus Farming started with only 30 hectares of stone fruit and was built up annually up to 65 hectares of stone fruit and a few hectares of pomegranates, until 2016, when a severe drought that lasted for five years hit the region. This year, 2021, is the first year since 2016 that Cerasus have received good rains and can finally "breathe" again.

Cerasus' fruit is exported by Stems Fruit, a distinctive South African stone fruit and fresh fig export company.

We had the privilege of meeting with André Mouton, General Manager of Cerasus. André joined the business in 2015, thinking the sky was the limit, and then became acquainted with the drought…



Above and right: Yellow plums being packed into Stems Fruit boxes.
Photos: Stems Fruit
(http://www.stemsfruit.co.za/)

Challenges

Challenges in the Little Karoo

The Little Karoo's boundaries are sharply defined by mountain ranges to the west, north, and south and is separated from the Great Karoo by the Swartberg Mountain range. Locally, it is known as the Klein Karoo, which is Afrikaans for Little Karoo. Cerasus lies in the fertile Hoeko Valley, in the Little Karoo. The region has a very sterile climate that is ideal for stone fruit, with no fungal diseases, and good mineral rich soils.

The Little Karoo is a unique area and even without the recent drought, farming here can be challenging. The region has a semidesert climate, with hot and dry summers. Winter days can be warm, but the nights are quite cold. Rainfall is highly unpredictable. Annual rainfall can be up to 400 millimetres in the mountains, and as low as 130 millimetres in the valleys. Vegetation is dominated by dwarf shrubs suited to the climate of the Little Karoo, with many succulents also occurring in the region.

Wide angle view of Cerasus farm, situated in the fertile Hoeko Valley in the Little Karoo. Dwarf shrub vegetation, typical for the Little Karoo, is visible in the foreground. Photo: Stems Fruit (http://www.stemsfruit.co.za/)

Challenges during the drought

Cerasus went through an unusually challenging time during the drought. Over the five year period, they got as little as 150 to 180 millimetres of rainfall per year. Cerasus belongs to the Hoeko Irrigation Scheme and is listed for 80 hectares, with over 2000 hours of water allocated to them. This means they get about half a million cubic meters of water from the scheme, which is brought down with cement water conduits into their private dams. However, during the drought, when it was Cerasus' water turn and the sluices were opened, no water flowed into their dams.

Challenges

Cerasus' water is brought down to the farm with cement water conduits into their private dams. Photos: Carina Wessels

Deciduous fruit trees need a minimum period of cold weather in order to blossom in spring time. During the drought, Cerasus did not get good quality cold. In the beginning of the drought, André saw their Angelino trees blooming white, and 10 days later all blossoms were lying on the ground. No pollination took place. This is when André knew trouble was on the way. Since there would be little to no harvest on the Angelinos, André allocated only two thirds of their usual water to these trees and focused more water on the African Delight trees which seemed to handle the drought better.

André says they were faced with the question of how much water would be enough and how they could do more with less water and still farm sustainably. They were in a drought like he has never seen before. "If someone thinks they are experiencing a drought, there is little water left in his dam. Maybe he can halve his irrigation and his trees do not get what they should. However, he does not know what a drought is until he has walked through his dams like we have done. We pumped every drop of water from our dams. We even put pipes around the micros just to get a drip effect at the base of the tree", says André.

Cerasus has a river that runs through the farms, the Nels river, which is currently still dry. They tried drilling for water but found nothing. They cut down 12 hectares of stone fruit trees and still had about 50 hectares that were going to die. Then they discovered a lifeline for Cerasus. In these difficult circumstances, they decided to buy a fifth farm, Fontein. "Fontein" is the Afrikaans for fountain, as this farm has a natural fountain running out on top of the ground, giving about 20 or 30 cubic metres of water per hour. Fontein also had established boreholes and they were able to lay a pipeline to bring water from Fontein to Cerasus. With this additional water they were able to give about 2 300 cubic metres of water per hectare during the 2018, 2019 and 2000 seasons (stone fruit usually gets an average of 10 000 cubic metres of water per hectare).

Lessons learned and changes implemented

“Stone fruit is not just stone fruit, you have to farm cultivar and variety specific”.

One thing the drought has taught André is that different varieties have different needs. All new varieties are evaluated in a test block before commercial planting proceeds. Cerasus also tries to grow new and exciting varieties with lots of potential.

André also says that they really learned what scheduling means during the drought. “Irrigation scheduling is like a full-time job. If you think you can plan your irrigation scheduling on a weekly basis, you are mistaken. You can use these amazing programs that you pull your data into, and you might have all the crop factors right and you think you have the answer, but then the weather forecast was wrong or the temperature changes, and everything changes”, says André.

"We did everything differently."

According to André every year was different, there was no uniformity. They had to totally and utterly think outside the box. Over the last five years they have not once applied the same pruning practice, and have not applied the same fertiliser, or irrigation programs.

It has been a difficult few years financially for Cerasus, but André is excited about what comes next, to apply what they have learned.

“Luckily, a stone fruit tree does not just die.”

After five years of drought they only had about a 1% loss. They got by with almost no water and still harvested a 30% crop that was of export quality. And Cerasus never deviated from their focus of farming with stone fruit.

A Cerasus farm dam with very little water. Photos: Carina Wessels

The Nels river, which runs through the farms, is currently still dry.

Cerasus' workers

Cerasus did not layoff any workers during the drought. "We have a very nice group of people that we are very proud of. They are the heart and soul of the business. Without them and their buy-in, you can have as many plans as you want, but you will get nowhere", says André. Cerasus permanently employs about 100 people, and 150 people at harvest time.

Further education is also encouraged to enhance careers in agriculture. Cerasus currently have 12 of their workers doing their botany NQF level training at the National Training Institute in Cape Town.

"You keep investing in your people. You build them up. You motivate them."

All stone fruit were already harvested when we visited the farm, however Cerasus was still harvesting pomegranates. Photos: Carina Wessels

Sustainability

Cerasus is focussed on farming as sustainably as possible and aims to protect the environment for future generations by not farming beyond their means. Their farming methods have to a large extent adopted a more biological approach.

Microbiology and soil health

Microbial products are used to give rise to healthier soils and enhanced plant growth. Research has shown that when microbes are used as a foundation on all crops, over time the soil tend to have fewer diseases, less compaction, better water retention, and increased drainage. For example, Trichoderma and mycorrhizal species, which are beneficial fungi that are present in nearly all soils and are able to colonise plant roots, are added as a treatment to help the tree absorb minerals from the soil.

Cerasus also adds humates to the soil. Humates are recognised as one of the most productive inputs in sustainable agriculture. It is composed of various forms of carbon and is a naturally occurring material that is very rich in humified organic matter and humic substances, such as humic and fulvic acid. Humic acid is a powerful fungi promotant. Benefits of humates in soil include:

- building healthy organic matter
- reducing compaction
- reducing water evaporation
- helping water penetrate clay soils better
- increasing the soils capacity to retain water
- stimulating beneficial microbial activity
- aiding in transport of microelements up the roots

"We have seen that if you help the tree with the farming practice you apply, and not just chemically concentrate, the benefits are numerous."

Cerasus lies in the fertile Hoeko Valley, which is known for its mineral rich soils.
Photo: Carina Wessels

Sustainability

Pest control

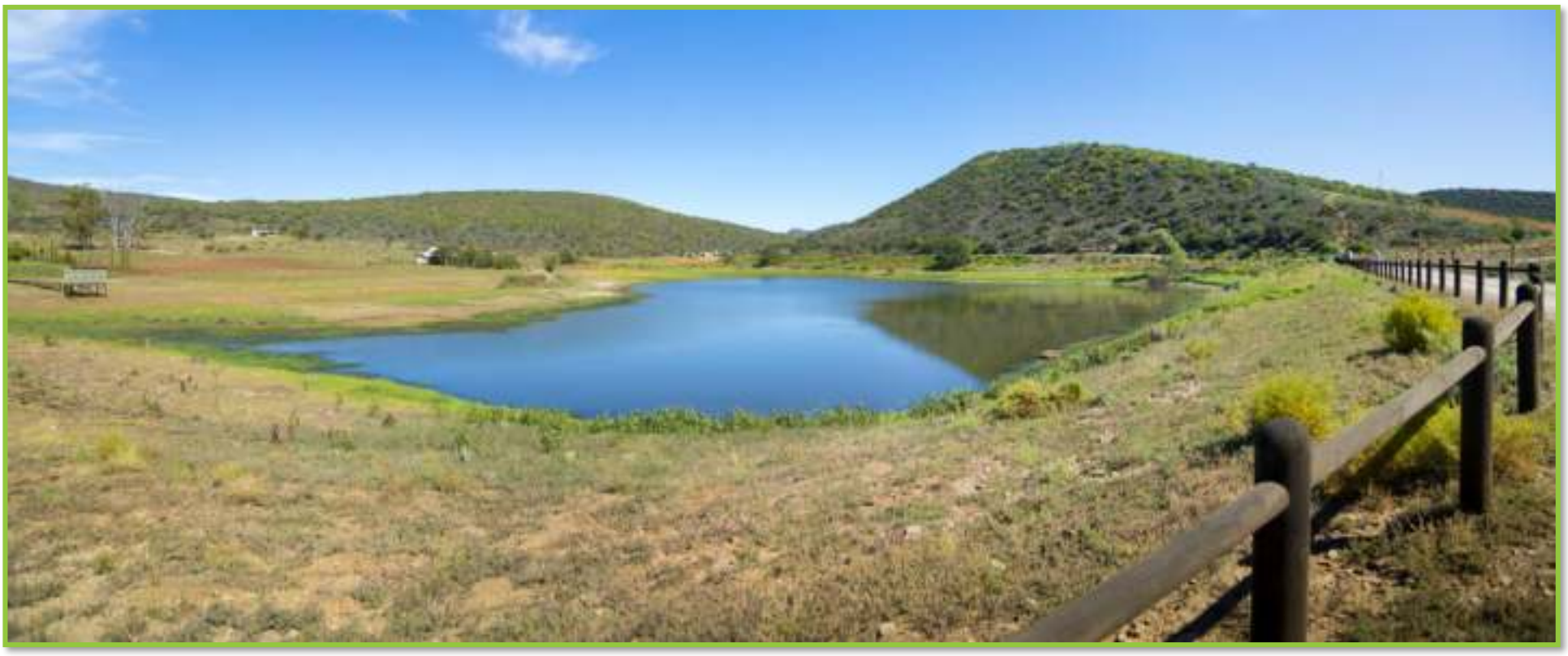
A more biological approach to pest control is followed. They monitor and collect data twice a week on common pests and diseases throughout the year (even in winter). They spray as little as possible and use no pyrethroid insecticide or fungicides if possible. Rather than chemical control, Cerasus uses an organic virus as biological control against False Codling Moth. False Codling Moth is a common pest on stone and other fruit in sub-Saharan Africa. Another environmentally friendly pest management technique they use is mating disruption. This involves introducing artificial stimuli that confuses individual pests, thus preventing mating and blocking the reproductive cycle. If they have no choice but to use chemical control, Cerasus would use products with low withholding periods. This ensures that more than enough time has passed between the last application of the agricultural chemical and harvesting the fruit.

Invasive alien plants

In South Africa, an estimate of 1.44 billion m^3 of water is lost to invasive alien plants annually. Cerasus does their part in keeping the riverbeds clean of invasive alien plants. Last year Cerasus also participated in a job creation project where local people were employed to clear alien plants. Due to the drought, at that stage over 2000 people were out of work in the area.

Irrigation

Cerasus has some blocks under micro and some under drip irrigation. They are currently looking at installing ultra-low flow drip. Ultra-low flow drip supply water at extremely low rates directly to the active root zone of the tree. It delivers water at the same rate at which the plant absorbs it, keeping the soil moisture at optimal level, and ensuring that there is no run-off, evaporation, or leaching of the soil. This could lead to significant water and cost savings.

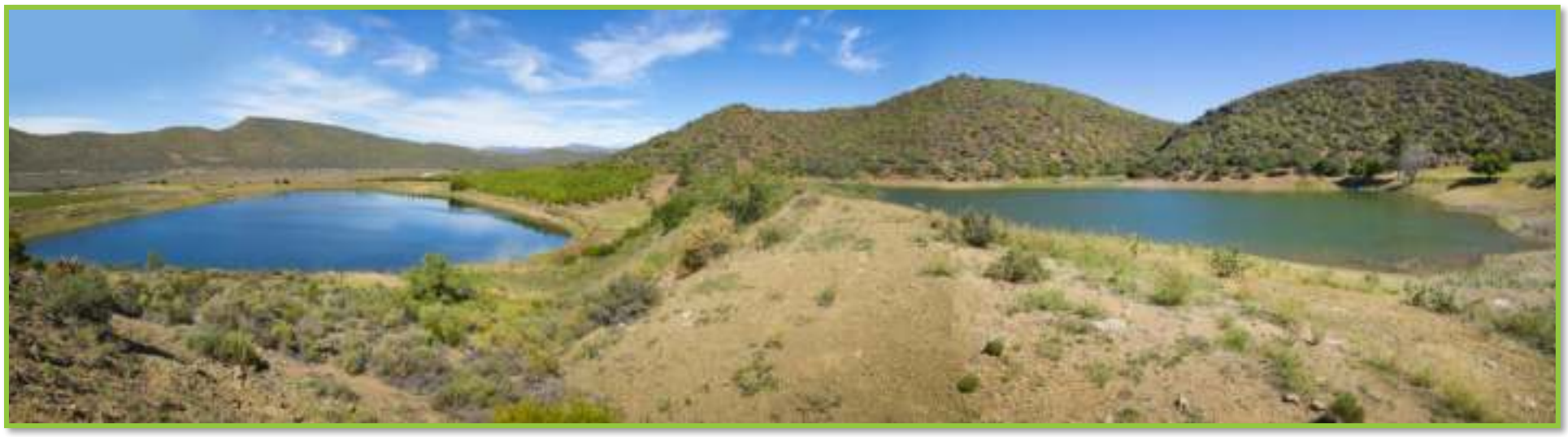


Farm dam on Fontein, the latest addition to the Cerasus farm portfolio. Photo: Carina Wessels

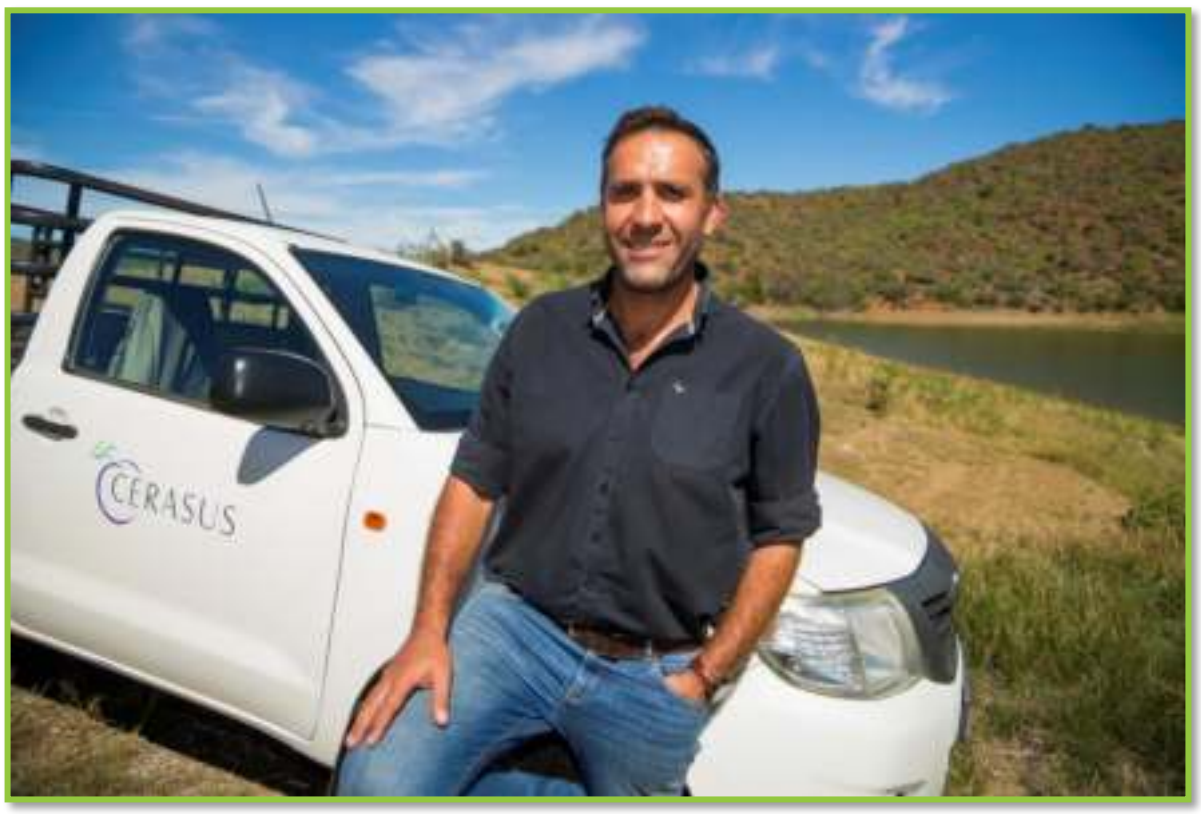
Sustainability

Grass carp

Cerasus added grass carp to their dams. Grass carp is an herbivore which effectively controls aquatic weeds. As aquatic weeds spread throughout a dam, loss of water is increased by evapotranspiration of the plants in the dam (evapotranspiration is the combined loss of water through evaporation and plant transpiration). Aquatic weeds also clog up irrigation systems and disrupt the ecology of dams. Grass carp is therefore a valuable management tool in biological control of aquatic weeds and preserving our water resources.



Cerasus added Grass carp to their dams to keep them free of aquatic weeds and save water in the process. Photo: Carina Wessels



André Mouton, General Manager of Cerasus. Photo: Carina Wessels

"I'm very excited for the future. The drought was tough, but the farm is now green again and it looks beautiful. We had a phenomenal harvest this year. For a business to stand at 80% of its full potential within one year of going through such a devastating drought is nothing but excellent. Now, we are on our way back to where we belong," says André.