

The Triangle is a property in the Seven Fountains district of the Eastern Cape which lies some 30km west of Grahamstown. Owen Green and his wife Mariaan moved here 3years ago to apply their broad farming knowledge to the tunnel/greenhouse industry. TunnelFind met with Owen and his tunnel manager, Harry Dixon, to gain some insight into their operation.

Date of visit: 21st June 2010

Interview conducted by: Charl Hoole



Harry has tried his hand at farming vegetables under cover before. He is originally from Alexandria. He joined Owen in 2007 to apply his knowledge on a bigger scale. They grow tomatoes (505 species), cherry tomatoes, cucumbers and peppers (green, red and yellow). The tunnels were erected by the previous owner of the property and it is believed they were supplied by Rhino Plastics in Port Elizabeth. They have four 10x30m tunnels (north facing entrances) as well as two 12x30m shade cloth tunnels.

The climate of the area is quite varied. Winters can get bitterly cold nearing 5degrees C while summer temperatures can climb to a scorching 40degrees C. As such, proper ventilation is the key to success and Harry needs to be on guard to ensure no crop damage occurs. Because the winter climate tends to be rather cool and no additional climate control other than ventilation is

used, peppers are not grown during this time as the crop is best suited to warmer temperatures for it to be viable.

The area is fairly prone to drought and as with any tunnel operation, a good water supply is needed. The Triangle have a strong borehole water supply but also have an RO (reverse osmosis) plant. The pH of the borehole water is around 5.5 which is acidic. In order to correct this, water must be passed through the RO plant and mixed with the borehole water. The way they test the optimum mixture is with an EC meter (see Definitions). The borehole water on its own usually yields a value of 1.4 and is mixed with the RO water until the reading is close to 1.0. Their daily water requirement is on average 15,000l per day so continuous monitoring of water and its quality is essential. I asked why they don't use plain RO water as opposed to mixing it as I had always believed RO water was pure and healthy. Harry's reply was that in the RO process, all the good stuff is removed from the water, even the oxygen value is severely affected and no matter what you do, you will struggle to get anything to grow properly, if at all. Apparently a number of water specialists were unable to diagnose the low growth rate of the produce until someone discovered that the key culprit was in fact the water not having sufficient nutritional value! This is a valuable lesson, not only to tunnel farmers but also to self-proclaimed health fundis who think RO water is beneficial to our human bodies!

The irrigation system used is via drip lines and fed into the bags from a button in the pipeline with spaghetti tubes connected (four tubes per button). A timer is set to irrigate the crops at specific times. The irrigation requirement varies from season to season and crop to crop. In summer the crops are irrigated as much as 8-12 times per day while in winter this drops down to 3 times per day. All fertilizers are soluble and are mixed directly into the water. Fertilizer used by The Triangle include Ocean Agri and Omnia products. The pumps connected to the tanks are configured to circulate the water to ensure a consistent and complete mixture. The EC levels are also monitored to ensure the water has the correct concentration of fertilizer. This is tested at two areas: firstly, directly from the dripper upon entering the root zone and secondly in a drip tray which will give a nett reading after it has filtered through the growing medium.

The Triangle make use of sawdust as a growing medium as it is readily available from a local sawmill and is a lot cheaper than other growing mediums, such as cocum. It works well with tomatoes, cherry tomatoes and peppers. The growing medium in the cucumber bags is a 50/50 mixture of sawdust and cocopeat as cucumbers are a very fast growing crop and require more water than others so the mixed growing medium retains water better. Each cucumber plant requires at least 6L of water per day.

Spraying takes place once a week for bugs and fungus. This is done via a broadcast sprayer. Fertilizers are also broadcast in this way to enhance the uptake of nutrients through the leaves. Regular spraying improves the quality of the end product as well as extends shelf life. Potassium is used too which gives the produce a nice shiny outside appearance. Calcium deficiencies are worse in winter and as such, calcium nitrate is used more aggressively in the winter months.

Seeds are bought from suppliers such as Hygrotech. The seeds then need to be germinated and this is done for The Triangle by Rainbow Seedlings in East London. After a season, all plants are disposed of as well as the growing medium.

Tomato seedlings take about 90days to yield their first product. Picking season typically lasts for 2months. Cherry tomatoes are the same. An interesting note here is that cherry tomatoes enjoy a high EC value (up to 4 I am told). Peppers are usually planted in August when the weather starts to warm up again. You can expect your first picking after 4months and the picking season can last up to 7months (total of 11months which gives you one month to prepare the tunnel for the next fresh batch of plants). Cucumbers are planted by seed directly into the bags. It is a very fast growing plant and you can usually expect your first picking after just 6weeks! Three crops can be expected from a single plant spaced 4months apart. Because

cucumbers can yield well all year round, fresh bags are usually prepared just before the expiry of the old plants. The old plants are removed and new bags are put in place immediately like a military operation to get the new cycle on the go.

The Triangle supply local markets which includes Fruit & Veg City and Pick 'n Pay in Grahamstown as well as other markets in the Uitenhage region. Picking is done by a dedicated team. Each person can pick up to 500kg of produce each day and are usually assigned to their own tunnel. All produce is packaged on site.

All round, the impression I got was one of a very well run operation with great expertise and dedication by all team members.

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