



**ABOVE:** Cuttings are dipped in a growth hormone and planted in a mixture of polystyrene balls and Canadian peat.



Soleil is a popular pincushion variety grown on Pomona.

On their farm, Pomona, in Piket-bo-berg, **Rob and Mary Duncan** grow proteas for export. They started their flower business eight years ago, and now produce more than 850 000 stems a year for the export market. **Keri Harvey** reports.

**BELOW:** Rob says that proteas are a challenging and beautiful product to work with and have high value per volume. PHOTOS: KERI HARVEY

# Perfect pincushions & other proteas

**R**ob and Mary Duncan bought Pomona, a fruit farm, in 2004. They chose it because its soil and climate were suitable for growing proteas. Pomona is now a substantial operation and one of the biggest flower farms in the area with 20ha under proteas. "We decide what to plant depending on what the market wants and what fits our flow on the farm," says Rob. "We also harvest fruit, and it's unwise to plant

crops that need to be harvested simultaneously. We plant 10 plants of a variety in a test block and 10 in our garden, to see how they grow and when they flower. We also look at what grows well naturally on other farms in the area."

Cone bush (*Leucacendron*) varieties such as Jade Pearl, Discolor and Laurel Yellow and pincushion (*Leucospermum*) varieties such as Succession, Tango, Soleil, Jelena and



High Gold are grown on Pomona. Three varieties of king protea (*Protea cynaroides*), Arctic Ice, Madiba and Claire are also grown. Certain parts of the farm are better for proteas than others, explains Rob.



FW ASKS

**What are the core considerations for protea farming?**

"Choice of soil and climate is critical. You must grow what suits your farm, and what the market wants to buy – this is a key combination."

**What has been your greatest success?**

"I have become a supplier known for a consistently high quality product within a short time, and I have staff that can handle most of what happens in a day."



**LEFT:** Tractor driver August Engelbrecht heads to the packing shed with pincushions standing in water on the back of his trailer.

**BELOW:** After the ground is ripped and irrigation installed, black plastic is laid down to discourage weed growth and prevent water loss.



**FAST FACTS**

- Proteas need well-drained, sandy soil.
- The Piket-bo-berg has a climatic advantage in pincushion production.
- Export protea growers must consistently deliver a quality product.

Pincushions and cone bushes are very susceptible to root disease and need well-drained soil low in phosphate. Because many proteas grow naturally on nutrient-poor soils, their roots are adapted to absorb phosphate and nitrate. "If there's too much phosphate, the plants take up lethal doses. This is a problem, especially in old orchards, where there was once heavy use of phosphate fertiliser." Rob says that king proteas are tougher than pincushions and can withstand wetter soil conditions.

**IRRIGATION**

"We don't irrigate in winter when we get 800mm of rain. We feed plants monthly in the wet season via the irrigation system and use a scientifically formulated fertiliser which caters to different plant varieties and levels of maturity. In summer we irrigate two to three times a week and fertilise twice a month."

Rob says Piket-bo-berg has a big advantage for protea farmers because the

cold makes it a late production area for pincushions. "It's as cold as you can get without frost in winter. So when production for everyone else is tailing off, our production kicks in. Flowers also keep their colour better in the cooler weather of spring and early summer."

**FROM PLANTING TO HARVESTING**

Once Rob and Mary have decided what varieties to plant, cuttings are sourced. "If we have the varieties on the farm, we use cuttings from our own plants. We buy in cuttings of varieties we don't have. Sometimes we buy rooted cuttings from a nursery.

Cuttings are planted at the end of January, after being dipped in a rooting hormone, in a mixture of 50% polystyrene balls and 50% Canadian peat. The cuttings are put into tunnels that keep them moist and warm. "Rooting takes four weeks or longer, so by April we can take them out of the tunnels. They stand outside for two weeks to toughen up ahead of



winter – but have daily watering," says Rob.

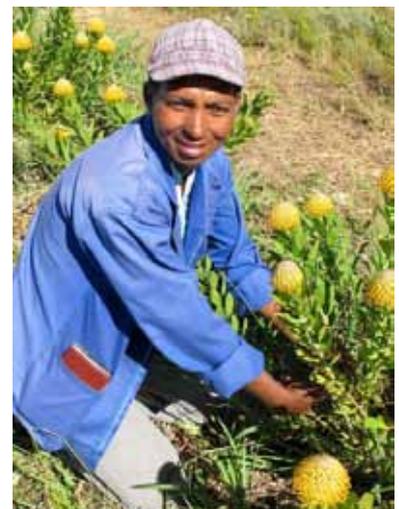
Soil samples are taken and soil acidity and soil micro- and macro-nutrients tested. If necessary, the acid or nutrient levels can be corrected. Then the soil is ripped a metre down, to loosen it, and drip irrigation pipes are installed.

Proteas are planted in May and five rows are planted with an inter-row space of 1,8m. This allows workers enough space to walk between the rows. Between every five rows a 3,8m space is left for the tractor to manoeuvre. Rob cultivates a population of 4 545 plants/ha.

During early field growth, weeds are controlled using a small

**RIGHT FROM TOP:**

- Young plants spend at least two weeks acclimatising outside before being planted out.
- In charge of fruit and flowers on the farm, Maureen Fredericks cuts pincushions while supervising pickers working with her.
- Flower team supervisor, Elvida Marcus, prunes pincushion plants to ensure next year's crop. The diary in her pocket records the timing of each job done.



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**LEFT FROM TOP:**  
 • Workers line up the flowers according to stem length on the flower packline.

• Stems are cut and the lower leaves removed in a single mechanised process.

• Janine van Neel carefully packs Jelena pincushions into a box for export.

**RIGHT:**  
 In the field, plants are spaced to minimise resource competition and optimise working space.

← tractor. When the protea plants are bigger, weed control is done with a weedeater. After harvesting, the tractor can be used again, as the plants are small and low once again.

**PESTS & DISEASES**

“We use a fungicide and an insecticide every two weeks,” adds Rob, “depending on the time of year. In winter there are more *botrytis* and *drechslera* fungi problems than in the dry summers.”

Pomona has a full-time pest monitor. “Snot beetle is just one of the pests we have to deal with. At the moment we are standing by for bollworms.”

Rob explains that bollworms eat the soft new tissue which grows from the bearing stalk after the flowers have been harvested. The bollworms eat off the growth tips, which stops growth and causes the plant to send out three new shoots.

This sets back growth by two weeks and translates into a 10cm reduction in stem length. “We have to

inspect each plant, choose the longest and straightest stem and break off the other two shoots in order to produce a straight stem for export.”

**PLANTING**

Planting takes place in May when the weather is cool but not too cold for root development to take place. Planted at this time, the protea can survive the winter and then grow in spring. “Small plants don’t grow much in winter in our cold climate,” adds Rob.

“We break off the growth points of young plants to force one stem to produce three shoots.”

Pomona proteas must be able to produce at least 10 straight stems before they are considered crop plants. “Then we harvest them and leave the bearing stem. This is similar to the way vines are treated. The following year we should be able to harvest three times the number of flowers from that bush.”

Flowers can be harvested as early as 18 months after

planting, though it’s usually two-and-a-half years after planting for pincushions – and even longer for king proteas. “We hope our pincushions can bear for eight to 10 years,” says Rob, “but don’t yet have plants that are eight years old. We have also replaced plants at five years.”

From August to November, with October the peak month, flowers are harvested by seasonal workers who pick them and place them into buckets of water. They remain in the water until they go onto the production line, which is always on the same day as picking.

“Traditionally, the packing was done at tables and pruning shears were used to cut flowers to length and strip leaves, but we have mechanised this,” says Rob. “Workers lay flowers on the belt according to stem length. The stems are then cut and the leaves stripped in a single mechanised process.”

After this, flowers are hand packed into cartons, the stems





are secured and the cartons are cooled, using a system of forced air cooling. Cold air is forced through the carton to chill the flowers and maintain a strict cold chain. Some pincushions, if kept at 2°C, keep for up to three weeks without water. This means they can be exported by sea, which offers a better and more consistent cold chain than air transport.

#### STAFF

Pomona has 26 permanent staff and takes on casual staff during the flower harvesting season. Women supervise all stages of flower production and packing and seasonal labour harvest the blooms. A core flower team of women tends to and prunes the plants, which is a specialised skill.

#### THE MARKET

"The overseas flower market is very demanding. It does not want short stems or skew stems, so those flowers get composted," says Rob with a shrug. He adds that he doesn't have a personal

favourite. "Each one is a favourite for a different reason: prettiest, easiest to grow, best return. The whole range has a reason for being grown."

He says to grow flowers and sell them, you need to work backwards from the market and adds that good relationships with marketers are essential.

"You need to know what they want and you need to be able to supply it exactly. It's not a case of growing flowers and hoping for the best.

### 'GROWERS MUST WORK BACKWARDS FROM THE MARKET. GOOD RELATIONSHIPS WITH MARKETERS ARE ESSENTIAL.'

It's important to be consistent and deliver high quality, because you are only as good as your last delivery."

#### EXPORT QUIRKS

Pomona proteas are grown for export to the US, the UK, Canada, Japan and the Netherlands, which is Europe's flower hub. Rob says his proteas go as far afield as Russia. "We specialise in pincushions and have

the whole range for our exporters. It's a fussy market though. The English use proteas for bouquets and will only take 50cm stem lengths, the Japanese market likes a longer stem and a perfect flower. The Europeans have started to buy down since the economic recession and are taking shorter stems than they did before, because they are cheaper."

Rob says that although proteas may be very exotic for the overseas market, they are good value for

money. "They last a long time in the vase, whereas most other flowers last for only a week. To a European, flowers are an essential part of life, not just a way to say sorry – as is often the case in South Africa."

#### CHALLENGES

The recession in Europe remains a primary challenge as it has caused a declining flower price. Rob

#### ABOVE LEFT:

A Tango pincushion shrub at various stages of flowering. Each shrub is harvested many times so that blooms can be picked at exactly the right stage.

#### ABOVE:

The Madiba variety of the king protea (Protea cynaroides). The king protea has one of the largest flower heads in the protea family.

maintains the only way to combat this is to increase production and find new markets. Some believe that in a recession, alcohol, tobacco and flowers gain in popularity.

As a director of Protea Producers of South Africa, Rob adds that there is a big drive to be more pro-active with marketing.

#### NICHE MARKET REWARDS

"Proteas are a challenging and beautiful product to work with, and they are high value per volume. With flowers we count stems, not boxes. When we started farming we were looking for a profitable product we could farm intensively on a small farm. We are a recognised pincushion producer on 20ha, whereas 20ha of fruit is a small operation. Pomona grows apples, pears, peaches and nectarines.

"We've specialised in pincushions because we can produce a high quality product here, late in the season. For example, last night we delivered 254 cartons of about 120 flowers each to seven exporters. This year we should do about 8 000 cartons, which translates into roughly a million stems across all varieties.

"We pick fruit from the end of November until the middle of May. Our staff takes a break in June and we take a break in July. In August we start harvesting flowers again. You can see we are kept busy."

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