9 March 2016

Dear Member / Geagte Lid

Herewith an update of industry matters for your attention and information /
Hiermee inligting in verband met die nuutste industrie verwikkelinge

1. Table Mountain Fund project kicks off

You will remember from our previous Newsletter that The Table Mountain Fund awarded a project to Cape Flora SA for a study called “Determining the scale, structure and sustainability of the Wild Fynbos Harvesting supply chain in the Cape Floristic Region”. The project is being implemented by Flower Valley Conservation Trust and the aims are:

1. To gain a fuller understanding of the structure and scale of the wild fynbos harvesting industry, including its ethical compliance with environmental, social and economic legislation and best practice;
2. To provide a baseline on the sustainability of the wild fynbos sector against which impacts of a focussed marketing strategy can be evaluated;
3. To establish the scale of activity in each unit of the supply chain with regard to product, volume, geographical origin and destination;
4. To establish the nature and profile of employment provided by each node of the supply chain.

The study will take the form of personal interviews by Kathy O’Grady and Dr David Bek (from Coventry University, UK). NO individual information will be made available in any form or format, except with consent from

DIRECTORS:
L HOFFMAN (CHAIRPERSON) • T BASSON • S CHENNELLS • J GERBER • N HALL • M KNIGHT • A RABE • L RICHARDSON • J STEENKAMP • P VERMAAK
the individual. All information is treated as highly confidential. The information gathered from this study will enable the industry to pro-actively engage with conservation authorities regarding veld harvesting and will identify current challenges and opportunities in this segment of the industry. These research priorities also refer to market information which is critical to the future survival and growth of any industry, including the fynbos industry.

Cape Flora SA would therefore like to implore all wild harvesters, pack houses and associated businesses to assist us by taking part in this study to the collective benefit of all.

2. Research Feedback: Outline of Post-Harvest Innovation projects

1. Developing innovative pulse solutions and technologies through understanding physiological processes critical to maintaining postharvest quality in Proteaceae cut flower stems

*Researchers: Drs Lynn Hoffman & Waafeka Vardien (postdoctoral fellow)*

The long-term storage and transport of Protea cut stems remains risky and a major concern for consignment rejection due to the possible development of leaf blackening. A number of approaches have been suggested to control leaf blackening such as proper temperature control, girdling, controlled atmosphere, fumigation or pulsing with ethanol and then pulsing with sugars, mostly glucose. However, to date, no method has been successful to completely eradicate this serious disorder.

Glucose pulsing, though very effective and reliable when administered under controlled laboratory conditions, have proved to be problematic at producers’ level as the unpredictable rates of pulse uptake often lead to insufficient volumes of pulse solution uptake, and thus ineffective control. Glucose toxicity may also be experienced when higher volumes than required accumulate under conditions where stems have extended exposure to the pulse solution, or where pulsing solution is accumulated at accelerated rates. In addition glucose pulsing at 1 or 2% has shown to elicit various responses in a range of Protea cultivars. Where glucose at 2% could significantly extend the vase life of Protea cultivars ‘Brenda’, ‘Cardinal’, ‘Carnival’, ‘Pink Ice’, ‘Susara’ and ‘Sylvia’ amongst others, glucose had little or no effect on postharvest leaf blackening of Protea magnifica, P. grandiceps, P. cynaroides, ‘Ivy’ and ‘Venus’. The reasons for these inconsistencies are not known and require investigation in order to extend the control offered by sugar pulsing to these commercial important cultivars as well.

Altogether, an alternative to glucose pulsing may also be required. Such options require to explore different sugars such as those that have proven to be effective in Gladioli where the mechanism of
carbohydrate action may be more geared towards the mitigation of the damaging effects of ionizing radiation and to delay symptoms of senescence by suppressing water loss. Another option is to evaluate a natural organic osmolyte which have been used in horticulture for its ability to improve tolerance to heat, cold, salinity and drought in the orchard, but also to improve flower and fruit retention and increase yields.

Recently fumigation with novel gases have proved effective to delay senescence in selected fruits, vegetables and cut flowers, as well as in both ethylene sensitive and insensitive flower species. Evaluations with indigenous Australian flora, _Ptilotus_, Kangaroo paw, _Grevillea_ and Waratah showed positive responses to the pulse treatment with this dissolved gas, allowing for extension of the postharvest life was greater than that observed for stems treated with STS (standard anti-ethylene treatment). The applicability of this technology to extend the storage and vase life of fynbos cut flower products is currently being investigated.

For the South African Fynbos industry to be internationally competitive it is essential that products of consistent high quality and a good storage and vase life are delivered to their niche markets. This study aims to obtain a better understanding of leaf blackening as a postharvest disorder, while at the same time novel postharvest handling and treatments is being evaluated for their suitability for Fynbos products.

2. **CATTS (controlled atmosphere temperature treatment system) as a post-harvest treatment for fynbos flowers and associated phytosanitary insect pests**

*Researchers: Drs Shelley Johnson & Lynn Hoffman with Anton Huysamer as Master’s student*

The presence of insects in cut-flowers is one of the most serious limiting factors influencing the South Africa protea industry. Insect damage causes flowers to become unacceptable for aesthetic reasons, while the presence of insects in flower heads makes them unacceptable for phytosanitary reasons. Tolerance for the presence of insects at inspection from South Africa is low as tropical and subtropical locations that produce commercial cut flowers and foliage are also particularly prone to important quarantine pests such as fruit flies which may be damaging to the agricultural crops of the importing countries. Importing countries demand insect-free floricultural material to prevent the establishment of any exotic species, even if that species is not considered a pest in the country of origin. Regulations by the Department of Agriculture, Forestry and Fisheries (DAFF) specifies the permissible deviation to allow for a maximum of 10 dead insects per flower carton, with a maximum of three free running insects per inspection sample per variety, where a maximum of one Athropoda species such as Red spider per container should not be exceeded. Organisms which may be a source of danger to a human being are permitted to an average of one per inspection sample.
The phytosanitary regulations of the American market are particularly strict. The presence of any insects, dead or alive, in a consignment of flowers, will result in rejection. In addition, the USA regulation state clearly that the Proteaceae products should be cultivated and not harvested from the wild.

Various pre-harvest practices are in place to ensure that insect-free products are produced, such as picking protea flowering head in the ‘soft-bud’ stage, when no pollen or nectar that would attract insects has been released yet, postharvest mitigation treatment of export fynbos flowers is necessary to disinfest the product of phytosanitary insect pests. Currently, postharvest methods followed by producers for insect control rely heavily on chemical control such as the application of a pyrethroid insecticide such as deltamethrin or on fumigation with a combination of products such as Phostoxin and dichlorovos when the phytosanitary requirements is for ‘no live insects’. Often chemical products available to the fruit industry for the control of insects are not registered for use on minor crops such as floricultural products, and can therefore not be specified and included in approved protocols. The efficacy of chemicals that have been optimized for other crops is very often not evaluated or known for the wide range of fynbos cut flower products that was available for export.

A serious need has thus been identified to obtain a more comprehensive understanding of the range and complexity of insect pests which may prevent the South African flower industry from exporting to phytosanitary controlled markets. In addition, the use of a chemical-free technology for the phytosanitary control of pests will provide the fynbos industry with a more sustainable and environment friendly alternative to the current chemical control of insects where the need for continuous product registration, the threat of chemical resistance and also toxicity to the environment and the user is always a major consideration and concern.

Recently CATTS treatment have been developed for export apples, peaches and nectarines in the USA, with further developments in South Africa for key phytosanitary pests of pome and stone fruit. CATTS combines the effects of a short exposure to high temperature and atmospheric stress, in the form of a low oxygen (1%)/ high carbon dioxide (15%) environment, to control phytosanitary pests. As a laboratory-scale experimental CATTS unit is available at Stellenbosch University, an opportunity now exist to test and develop CATTS treatments on floricultural products, such as fynbos flowers.

3. **Defining sea freight transportation conditions for fynbos cut flower products to align with new reduced energy consumption shipping technology**

*Researchers: Drs Lynn Hoffman & Marius Huysamer, Ms Anel Botes and Kobus van der Merwe with Stenford Matsikidize as Master’s student*
Conventional fixed open-air exchange vents (AirEx), which is standard in sea freighting for fresh produce, ventilate containers with 15 000l of fresh air per hour to avoid anaerobic conditions. Maersk Container Industry (MCI), which holds the major market share in sea freighting, acknowledges that this delivery rate may be excessive, but as many important variables is often not known to the shipping company such as the maturity stage of the fresh produce, allowing more fresh air to enter offers the freighting company protection against claims of postharvest fermentation and ethylene induced damage to the product. With the current system high volume of warm, moist air must be cooled down to 1°C, which cause excessive condensation on the coils, leading to unnecessary defrosting cycles during which temperature control is absent and the product is also further desiccated.

New reefer technology has been developed recently to modernize the transportation of fresh produce internationally, by improving air conditioning and thus significantly reducing energy consumption of the cooling process. This technology consist of an automatic ventilation device (AV+) which monitor the carbon dioxide (CO$_2$) level produced by the stored fresh product in transit through respiration and adjusts the amount of fresh air entering the shipping container accordingly and not delivered at the standard current flow rate. Tolerance to CO$_2$ may vary greatly, as avocados develops toxicity at CO$_2$ levels of 10% or above, whereas potatoes are considered more sensitive and may show toxicity at a level of 3% or even lower.

By controlling the volume of fresh air to be introduced to only the required volume, unnecessary cooling is eliminated, which will reduce energy consumption and its associated cost within the cold-chain significantly. An additional benefit, specific to the product in transit, is that a reduction in cooling would also result in less dehydration of the product, which will positively impact on the product quality. Although AV+ technology was developed for implementation in sea freighting, it is visualized that this technology could also easily be integrated to road vehicles for transporting fresh produce over land. However the South African fynbos cannot access this new revolutionizing technology as no information is available on the gas exchange dynamics of these indigenous woody stems under long-term cold storage conditions. Research is conducted to provide an understanding of the gas exchange conditions that will develop in unventilated containers under long-term cold storage conditions and to determine the basic respiration rate of fynbos product categories. It is also of critical importance to determine the atmospheric conditions of CO$_2$ which could be toxic to the foliage, stems or flowering head and to know at what atmospheric conditions of O$_2$ the stem will revert to anaerobic respiration. Only once these crucial storage parameters has been established can the South African fynbos industry tap into this more sustainable technology to deliver improved quality products to international markets, but at a reduced cost.
3. AgriSETA grant awarded to Cape Flora SA
Commodity organisations, employers, education and training providers receive an annual opportunity to apply for funding for bursaries, learnerships and skills programmes from the AgriSETA. Cape Flora SA as a commodity organisation, was granted funding for the following training during 2016:

1. **Health and Safety Representatives**
The objective of this skills programme is for Health and Safety Representatives to understand their role and to give an overview of the Occupational Health and Safety Act, 1993

2. **First Aid Level 1**
The objective of this skills programme is to enable learners to assess an emergency situation and to perform basic life support and first aid procedures.

3. **Personal Hygiene**
Personal hygiene is essential for healthy living. Negligence can cause diseases and germs can be spread amongst people. Personal hygiene is of the utmost importance in the home as well as in the workplace.

Philani Training and Development Solutions NPC, a Seta-accredited training provider, was appointed to facilitate the training. The training is conducted on a regional basis, with the Bredasdorp and George region which has already completed their training in February. The other areas will follow during March and April. There is no cost to the producer except for transportation of the trainees and refreshments, if necessary. But we want to urge those who register to send their participants and not cancel at the last minute, because non-attendance causes financial loss to Philani. If you would like to partake please contact Estelle Engelbrecht at estelle@philani.co.za or 021-8832490. If AgriSETA awards Cape Flora SA another grant for 2016/17 another three modules (different from the current) will be presented early in 2017.

4. **Tradeshows for 2016**
The South African Flower Export Council (SAFEC), of whom Cape Flora SA is a member, partners with Department Trade and Industry each year, to attend international flower trade fairs. This year SAFEC plans to attend the following fairs:

   1. Goyang International Flower Exhibition, Korea (15-29 May)
   2. International Flower Trade Exhibition, Kenya (8-10 Jun)
   3. International Flower Trade Fair, Holland (2-4 Nov)
These trade fairs were chosen for the exposure they can give SAFEC and for the markets they represent. Cape Flora would like to ask your assistance and support for these events to further the industry as a whole. Jac Duif and Karien Bezuidenhout will be the SAFEC representatives at the Goyang Flower Exhibition.

5. Terugvoer van Droë blom Uitvoerders (Thys Basson):
Ons sien reeds die laaste paar jaar dat die tradisie vir die gebruik van ons blomme vir die begrafplaas mark in Europa konstant daal. Die jonger generasie is nie meer so gefokus om blomme op grafte te sit nie. Hierdie tendens het veroorsaak dat droë blomme uit Suid-Afrika die laaste ses jaar met omtrent 35% afgeneem het. Dit is ‘n groot bron tot kommer vir die uitvoerders en plaaslike produsente het nie altyd begin begrip hiervoor nie. Hierdie afname het druk op plaaslike en uitvoer pryse gesit a.g.v. kleiner volumes.

Net soos in die geval van die vars blom mark waar bouquets ‘n al groter rol begin speel het, het bouquets ook ‘n groter rol in droë blomme begin speel. Groot vervaardigers tender by supermarkte vir groot hoeveelhede bouquets teen spot goedkoop pryse. Ons uit SA moet “baklei” om ons produk in hierdie bouquets te hou/kry, want dis nog al manier hoe ons volumes kan verkoop, maar ongelukkig is hierdie ‘n lae prysklas segment wat tot groot frustasies lei vir plaaslike produsente.

Moeilike pluk omstandighede (bergagtige terrein) en stygende lone het reeds heelwat produsente laat besluit om eerder ‘n ander rigting in te slaan. Meer velde word nou op tender basis gepluk as in die verlede.

Daar lê beslis moeilike jare voor vir ons bedryf, maar ons ondersoek konstant nuwe maniere om ons blomme te bemark en te gebruik.
6. Upcoming meetings
Cape Flora AGM: 10 May 2016, venue to be confirmed

7. Sad to greet Kobus Steenkamp

It is with great sadness that Cape Flora took note of the passing of Kobus Steenkamp. He passed away in Hermanus on 12 Febr 2016 after a short period of illness. Kobus was the manager at Protea Heights farm, outside Stellenbosch, for many years and contributed to the education of dozens of fynbos producers and students. Our deepest sympathies to his friends and family in this time of sadness.

Vriendelike groete/ Kind regards

Lynn Hoffman
Chairperson/Voorsitter