PROEXAG

NON-TRADITIONAL AGRICULTURAL EXPORT SUPPORT PROJECT

EXOTIC FLOWER OPPORTUNITIES FOR GUATEMALA AND COSTA RICA

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SUBMITTED TO:

Regional Office for Central America and Panama (ROCAP)
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PREFACE

Production of cut flowers for export are a region wide priority for PROEXAG in Central America. The development of full potential to produce exotic cut flowers in Guatamala and Costa Rica is a specific priority for the project.

Two seminars were arranged, one per each country, to familiarize potential growers with the opportunities which exist for diversification into new crop areas. Information on cultural requirements, post harvest handling, and marketing were given on a range of exotic flowers.

I presented information on proteaceous material seen to have potential for the region and a full description was given on cut flower production of Zantedeschia (Calla Lilies). The information on proteas was introductory and based on data used in study guides for teaching at Massey University. The full description on calla lilies is a result of four years research and extension work with the crop in New Zealand. A similar address was given to growers at a Speciality Cut Flower Conference in Athens, Georgia on 13, 14 March 1989.

I would like to acknowledge the assistance of colleagues at Massey University and Dr Benny Tjia, University of Florida for assistance with research in these areas and making my trip to Central America possible.

SECTION I: Country : Guatemala

A. Introduction and Background

Cut flower production in Guatemala seems to be confined to traditional crops which are grown throughout the world, with the exception of Strelitzia (Bird-of-Paradise). The stabilized political situation and resumption of regular air flights creates a situation for expansion of the cut flower industry in Guatemala.

The obvious market for this expanded production is the United States and Canada. These markets are already well supplied with imports of traditional cut flowers, i.e. roses, carnations, chrysanthemums. Domestic growers, wholesalers and florists in these markets are beginning to seek a diversity in crops for their growing industry.

Guatemala is in a unique position to supply exotic flowers year-round to the North American market. The climates available will suit many species with novel attraction. With an organized industry, good transportation, and low production cost I foresee great potential for cut flower exports in this country.

B. Calla Lilies

A species of the evergreen calla lily (Zantedeschia aethiopica) is a traditional cut flower crop grown and used by the local population. This giant white calla lily grows in damp areas and is extremely prolific in its growth becoming naturalised in many parts of the world. While there is some export potential in a small dwarf form of the white calla lily (Zantedeschia Childsiana), I believe the real potential for Guatemala is the production of cut flowers from the coloured calla lily (Zantedeschia hybrids).

The coloured calla lilies are hybrids of four species originating from Southern Africa. They have been bred and produced in New Zealand over a period of many years, however, the advent of tissue culture as a rapid means of propagation has seen a mushrooming of commercial value of the crop in New Zealand.

Natural production of cut flowers in New Zealand occurs from November to March over the summer months. The tubers flower approximately twelve weeks after planting and successive plantings are made for field production in New Zealand. The peak harvest for calla lilies occurs in early December and markets in Japan, North America and Europe are supplied with produce at this time. Because of limited supply, demand for this popular new crop is still very strong. New Zealand tuber producers have realized the need for year-round production of their product and have begun supplying plant material for forcing in other countries. Dr Tjia has proven year-round production can occur profitably in Florida and the same system can be used for Guatemala.

To follow the approach which is used in Florida, growers in Guatemala would import a small growing on line tuber from New

Zealand or other suppliers at intervals throughout the year depending on availability. The first cycle of growing would concentrate on increasing tuber size. If tubers are 2 - 3 cm in diameter they can be treated with a growth regulator to flower prematurely. The size of the flower will be the minimum selling grade (20 cm stem length) and tuber weight increase will not be as great. The economics of flowering a small growing on size tuber must be investigated locally.

The first growing cycle is approximately four to five months from planting. Tubers are then lifted and given a six to eight week rest period. They are then treated with a flower promoting growth regulator and replanted. Tubers will produce multiple blooms with 60 cm stems over a six week period. Once the cycle is complete tubers are re-lifted and can be divided provided they have not been infected with bacterial or viral diseases.

Exact location and soil type for optimum production should be investigated by Dr Tjia. There may also be some recommendation for overhead cover in areas of high rainfall or shade cloth if daytime temperatures are too high.

I would recommend that sample shipments of a range of New Zealand cultivars be imported under the guidance of Dr Tjia and trialed under the various local conditions. I would be happy to assist in arranging suppliers and cultivar selection from New Zealand.

C. Proteas and other Woody Plant Material for Cutting

In discussions with Dr Tjia it would seem that some of the highland areas with free draining volcanic soils and cooler temperatures may suit production of proteaceous and other Australian native plant material. This type of plant material is currently being grown successfully on Maui, Hawaii, in volcanic areas. One could draw similar parallels for production in Guatemala.

I would recommend the importation of sufficient plant material to establish test sites at locations deemed suitable for production. The time from planting to production can vary from two years to five years. Although the plants are woody perennials their productive life also varies. I would recommend establishment of test sites to include the following:

Plant	Time to Production	Production Comments
LEUCADENDRON 'Safari Sunset'	2 years	Easy
LEUCOSPERMUM cordifolium	2 years	Can be difficult
PROTEA neriifolium	3 - 4 years	Slow
PROTEA cyanaroides	3 - 4 years	Slow
BORONIA heteraphylla	1 year	Short lived

Cultural notes have been provided to Dr Mondonedo which should assist in the initial establishment. The actual siting, density, and layout of the test plots should be carried out by someone who is familiar with local soil and climate and who has an understanding of the crop. I would imagine planting during the wet season would be a suitable time for establishment.

I am currently making arrangements for sample material to be sent to Guatemala under Dr Tjia's instruction. Time of shipment can take place between June and August. I could be available to assist with site selection in late July if my services are required.

D. Other Bulb Crops

Several new crops for the floricultural industry are under investigation in New Zealand. While they are still in the developmental stages some sample shipments to Guatemala would be useful in making future assessments on the potential of new crops.

Sandersonia aurantiaca (chinese-latern lily) is a member of the Lily family. It grows from a pronged tuber and produces long lasting flower stems in early summer when grown in New Zealand. It is native to South Africa however New Zealand is quickly becoming a major producer of tubers and cut flowers from this crop.

Vallota speciosa (Scarbrough Lily) is a member of the Amarylidacea family. It grows from a true bulb and produces an umbel of funnel shaped scarlet flowers on a thick stalk. This crop is being bulked up in New Zealand and research is currently being conducted on crop culture.

Importation of small quantities of plant material of both these bulbous crops would give some indication on their performance under local conditions. These samples can be included in other shipments to Guatemala.

XXX CONCLUSIONS

The essence of my recommendations is that trial sites should be established to test the suitability of new crops. The assessment of performance must be objective from well set out demonstration plots. Selected growers will offer good test sites but objective assessments must be made by an independent - perhaps someone working on the PROEXAG/ROCAP project. Guidance on layout and assessments can be provided by myself or perhaps more conveniently by Dr Tjia. I see the calla lily as a crop most ready for introduction to Guatemala with the other crops serving as interesting potentials.

SECTION II : Country : Costa Rica

A. Introduction and Background

My visit to Costa Rica was very brief, in fact four hours. In the short time I was able to gain only a slight impression of the needs and potentials of the growers. After discussions with Dr Tjia about Costa Rica I can come up with a few brief recommendations.

B. Calla Lilies

In discussions with growers it appears that coloured calla lilies are at present being grown and even propagated in Costa Rica. One of the problems brought to my attention was the need to find the correct soil type and environment with regard to bacteria disease control.

Now that initial testing is already taking place growers need to develop productive and economic growing systems. Costa Rica has a worldwide reputation as being one of the more aggressive countries in developing exports to the Ornamental Horticulture Industry. Because of its apparent sophistication in production and marketing I believe Costa Rica can become a producer of tubers for export as well as cut flowers. The market for supply of healthy, large sized(4 - 5 cm) tubers for the pot plant market in the USA and Europe is grossly under supplied. New Zealand cannot economically produce tubers at the time of peak demand (December - March). Co-operation between New Zealand propagators and growers in tropical areas is already established. Because of low labour cost and year-round production this is a strongly favoured option for the supply of tubers to Europe and the USA for pot plant production.

Tuber production in Costa Rica will also supply ample material for cut flower producers. If managed correctly the two production systems can overlap with economic benefits.

As Dr Tjia will be spending more time with the project I recommend he be given the task of development of the calla lily project in Costa Rica. He has the expertise and practical experience to get the industry established. His work in Florida has already greatly benefited New Zealand and Florida growers in respect to calla lilies.

The importation of sample plant material can be assisted through myself on selection of cultivars and sources.

C. Proteas and Other New Crops

Test sites should be established in a similar manner as recommended for Guatemala. Exact location and cultural imputs can be determined by Dr Tjia who is able to survey the area more closely and I can give assistance in sourcing plant material and selecting cultivars. The list given for Guatemala would also be suitable for Costa Rica.

XXX. CONCLUSIONS

Test sites are necessary to set up objective assessments of potential new crops, i.e. proteas, boronias, sandersonias, vallota. For the establishment of the calla lily industry in Costa Rica practical demonstration of applicable cultural techniques needs to occur. The level of sophistication demonstrated by Costa Rican growers in other areas of ornamental horticultural exports leads me to believe a high degree of success can be achieved with the project.

SECTION XXX. FINAL CONCLUSIONS

Central America is well situated with respect to potential markets for horticultural exports to North America. Developing countries in such regions have a great need to earn overseas revenue. This is usually achieved by the production of agricultural products. Commodities such as sugar cane, coffee, cotton and meat products are vulnerable to world price fluctuations or over supply. Ornamentals in the form of cut flowers and plant material are seen by developing countries worldwide as a way to increase the value of export earnings from an agricultural based economy. It is also a way of introducing producers to the applications of higher technology which is within their capability, therefore reducing dependence from developed countries.

New Zealand's agriculturally based economy has gone through a restructuring process in order to reduce its dependence on commodity products such as meat, dairy products and wool. Horticulture has been a bouyant area of this diversification. Kiwifruit has been a good example of a successful new product for export. Now that kiwifruit is being grown worldwide our producers must turn to other new crops as profitability has dropped due to high production costs in New Zealand and lower world prices caused by competitor countries.

I see a parallel existing with new cut flower crops. New Zealand growers will profit from initial supply of cut flowers until volumes of plant material are established in countries with lower production cost and closer access to markets. The dual gain for New Zealand will be in the production of planting material for these new crops. Therefore New Zealand has a role of introduction of new plant material for the International Floricultural Industry. Provided we continue our breeding and development work our position is secure.

It is therefore beneficial for New Zealand producers to enter into partnerships with other producing countries to increase efficiency, production levels and seasonal availability of new crops. With the level of available expertise, affordable labour, conducive climate and strong grower organization observed in Guatemala and Costa Rica, I believe co-operation with New Zealand for exploitation of new crops will be mutually beneficial.

The developmental work on calla lilies carried out by Dr Tjia in Florida has been of mutual benefit. We believe he can play a similar role in Central America with calla lilies and other new

crops. I will continue to work with Dr Tjia on sourcing plant material and new cultivars with potential for Central America.

I will be travelling to the USA in late July - early August and I am available for any follow up work with field test or grower training if my services are required. I am particularly interested in helping with establishment and evaluation of test sites. I would also benefit from a closer study of growers properties in Guatemala and particularly Costa Rica where I was only able to spend a few hours during my visit.

I would like to thank Chemonics and those on the project for involving me in two very professionally organized seminars.

T C Welch

30/3/89

Executive Summary

The production of cut flowers for export is a priority for PROEXAG in Central America. Suitable climate, closeness to markets and affordable labour costs are key advantages for diversification into this area. World demand is increasing for cut flowers, with new and unusual flowers being seen as profitable items that are in demand. To assist potential growers on the Region in making selections of products, seminars were organized to convey crop familiarity, production and marketing techniques of a range of exotic cut flowers deemed suitable for the Region.

In Guatemala there is a strong history of flower production, however, exports have not reached their potential in recent years. Recent worldwide popularity in the coloured calla lily as a cut flower makes the crop attractive for local production. The available climate should allow for year-round production which will allow for lower cost in overall production and a higher product return as supply can be targeted for periods yielding higher prices in the market. With good management and culture the crop should be a success as it has already been proven in similar climates. Other new crops such as proteas, Australian shrubs and unusual bulbous plants should be investigated on a smaller scale as there is less experience with their culture in the tropics.

Costa Rica will have slightly different opportunities for expansion into exotic cut flower exports. They seem to have more experience and an international reputation in the export of ornamentals. A lot of the current export from Costa Rica is in plant material and seeds in addition to cut flowers. Expansion into exotic flowers and plant material for crop establishment will offer a dual role for producers. With good links to the suppliers of wholesale plant material in North America, cut flowers and tuber production can be done simultaneously with calla lilies. Costa Rica could also serve as the producer of plant material for other countries in the Region.

Both countries will need to obtain initial plant material for testing and eventual establishment of exotic cut flowers. New Zealand will be a source of the initial establishment material and could play a more long te. ı role in the continual introduction of new and improved plant material. Relationships have already been established with other countries to grow on and force plant material bred and propagated in New Zealand.

Dr Tjia will be instrumental in establishing test sites and an objective form of assessment. It will also be necessary to have someone close at hand for technical advice on culture and post harvest handling of the flower. I believe Dr Tjia is best suited for this role.

I will be liaising with him on selection of cultivars and sources of plant material for test sites. I will be available in late July to early August to give on-site assistance with site selection or further grower training seminars. I will be travelling through the USA at this time and will be available for consultancy work.