

UGAFLOR '96

**The Status and Prospects for the Ugandan
Rose Industry**

July 24-25, 1996 at Kampala Sheraton - Rwenzori Ball Room

CONFERENCE PROCEEDINGS

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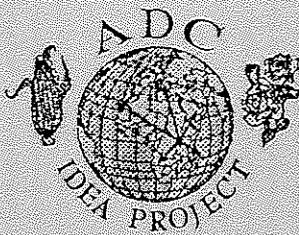
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EXECUTIVE SUMMARY

1. **Ugaflo 96**, the first international conference of the Uganda floriculture industry was held in Kampala on July 24-25, 1996. The conference was attended by more than 200 delegates from Uganda, East Africa and Europe.
2. In his opening address, the Minister of State for Trade and Industry urged growers to expand exports of flowers from the current market value of around \$10 million, to a new target of \$60 million (equivalent to \$35 million FOB).
3. Following a technical presentation and discussion on costs of production, delegates concluded that:
 - Expansion to 200 hectares, with an equivalent FOB value of approximately \$37 million, is a feasible target
 - Uganda is highly competitive in the production of small and medium length roses. By concentrating on these varieties, growers can maximise yields and compete effectively against other African producers
 - Ugandan growers do not always achieve their potential and must make greater efforts to supply consistently high quality roses.
4. Growers from the Uganda Flowers Exporters Association confirmed that rose production can be profitable, but that the introduction of VAT has caused some financial problems. They concluded that:
 - A higher level of trained Ugandan staff is necessary to reduce costs and ensure the sustainability of the industry
 - Farm managers are aware of environmental hazards and no problems have been observed so far with regard to the environment
 - A voluntary code of practice with respect to flower standards could be introduced in the future
 - The UEFA will continue to develop its capacity to represent and promote the needs of the industry.
5. Following a market analysis and presentations by two major European buyers, delegates concluded that:
 - The European market can absorb an increase of production to 200 hectares in Uganda, but that there may be some overall reduction in prices. However, Uganda should remain competitive since it is a relatively low-cost producer.
 - Uganda should concentrate on its comparative advantage for short and medium stem roses, focusing on becoming a high volume, consistent supplier of premium quality flowers
 - There is a need to screen new varieties for performance under Ugandan conditions
 - Dutch auctions will remain the main market outlet for growers for the foreseeable future, but direct sales to supermarkets should also increase.
6. It was generally concluded that roses give one of the best returns on investment in agriculture in Uganda (over 30% in some cases), and that an expansion to 200 hectares would provide 9,000 new jobs at all levels.

7. The main recommendations of the conference were:

- Makerere University, Government and the IDEA Project should work together to improve the standard of horticultural education at all levels
- Research should focus on rapid screening of new rose varieties, and new types of flower for their performance under Ugandan conditions
- UFEA should organise more workshops, functions, newsletters etc, with the objective of educating the lending agencies and government policy-makers on the commercial realities of floriculture
- Government should provide more incentives to lending agencies and investors to generate the capital required for expansion of the industry
- Government should harmonise duties and investment incentives included in the investment code, the tax code and VAT statute
- The Uganda Investment Authority should play a more active role in representing the interests of investors in floriculture, particularly with the Uganda Revenue Authority and other Government departments
- The Civil Aviation Authority should improve facilities at Entebbe Airport - a shelter is urgently needed close to the runway, to protect flowers and fresh produce waiting to be loaded
- The new airport cold store should be managed by CAA and UFEA in conjunction with a private sector contractor
- CAA and UFEA must negotiate to reduce handling costs from the current 7 US cents per kilo to a more competitive level of 4 cents.



UGAFLOR'96

The Status and Prospects for the Ugandan Rose Industry
July 24-25, 1996 at Kampala Sheraton - Rwenzori Ball Room

UGAFLOR'96 is Intended to Address Business Opportunities and Policy Issues Related to Production and Marketing of Ugandan Roses, and Prospects for Expansion of the Industry.

Conference Agenda

WEDNESDAY, JULY 24, 1996

Chairman: Clive Drew, Chief of Party, ADC/IDEA Project.

- 08.00 Conference Registration
- 08.30 Introductory Remarks. Vincent Ssenyonjo, Chairman, UFEA; Clive Drew, Chief of Party, ADC; James Dunn, IDEA Project Officer, USAID
- 09.00 Official Opening: Hon. Minister of Trade and Industry
- 09.30 Rose Production and Developing Competitive Advantage in Uganda. Roger White, Floricultural Consultant.
- 10.00 Panel Discussion
- 10.30 **BREAK**
- 11.00 Rose Production: The Growers' Experiences. Geoffrey D. Lwanga, General Manager, Ziwa Horticultural Exporters Ltd., and Vincent Ssenyonjo.
- 12.00 Panel Discussion
- 12.30 **LUNCH**
- 02.00 Market Prospects for Ugandan Roses. Steve New, Horticultural Advisor, ADC/IDEA Project.
- 03.00 Panel Discussion
- 03.30 **BREAK**
- 04.00 Marketing Ugandan Roses: An Importer's Perspective. Simon N.M. van der Burg, Tele Flower Auction, and Loek Koop, BVH Flower Auction.
- 05.00 Panel Discussion
- 05.30 Summary Remarks from Organizing Committee, Steve New
- 07.30 **CONFERENCE DINNER¹**

THURSDAY, JULY 25, 1996

Chairman: Vincent Ssenyonjo, Uganda Flowers Exporters Association (UFEA).

- 09.00 Growth Prospects for the Ugandan Rose Industry. Clive Drew.
- 09.30 Group Discussions:
 - Finance / Banking / Investment Incentives
 - Human Resource Development for the Rose Industry
 - Airport / Freight Handling
- 10.30 **BREAK**
- 11.00 Groups Presentations
- 12.00 Panel Discussion
- 12.30 Conference Closing Session
- 01.00 **LUNCH**
- 02.30 Informal Discussions, Exhibitions, Videos, Input Suppliers, ADC, Buyers.

¹

If you would like to attend the dinner (and you have not yet paid) please pay Ush. 25,000 to the ADC administrator at the entrance. Venue for the dinner: Sheraton Hotel's Rwenzori Ball Room.

1. INTRODUCTION

UGAFLOR 96 was the first international conference to be organized by the Uganda floriculture industry. It was sponsored by USAID through the Investment in Developing Export Agriculture (IDEA) Project, which is working closely with the Ministry of Trade and Industry and the Uganda Flower Exporters Association to develop exports of flowers as well as other non-traditional crops and processed products.

The subject of the conference reflected the rapid growth of production and export of cut roses from Uganda which has occurred in recent years. From a zero base in 1993, rose exports increased to 40 million stems in 1995, with an estimated foreign exchange value of more than \$6 million. Uganda has progressed from no exports of flowers in 1992 to 105th in the world in 1993 and 53rd in 1994. Export value is expected to increase by a further 20% in 1996. Investment in roses to-date is estimated at nearly \$20 million. In addition, the success of the rose industry has stimulated new investments in other floriculture products such as limonium flowers, cut foliage plants, chrysanthemum and other plant cuttings.

The primary purpose of the conference was to brief Government, banks and other lending agencies on the status of the industry, and to explain the excellent opportunities which exist for rapid growth of the floriculture industry over the next five years. Within that time, exports of floricultural products could reach more than \$50 million if the necessary steps are taken to develop infrastructure and train Ugandan technical staff. Availability of commercial loans and investment capital will, of course, be essential.

These proceedings contain summaries of the papers presented by each speaker followed by a summary of the discussion which followed each presentation. The original technical papers are included as appendices (where available - some speakers did not use notes). The recommendations of conference working groups on finance, human resources and airport handling are also included.

2. OPENING ADDRESS BY HON. DR. A. RWENDEIRE THE MINISTER OF STATE FOR TRADE AND INDUSTRY

The Chairman, Uganda Flowers Exporters Association,
The Director USAID,
Officials of the Agribusiness Development Centre,
Staff of the IDEA Project,
Invited Guests,
Ladies and Gentlemen.

Permit me, first of all, to express my thanks to the sponsors and organizers of this conference for the foresight you had when you took the decision to bring together all stakeholders in the production and marketing of roses. I also wish to thank the organizers for the invitation that was extended to me to come and participate in this conference.

Mr. Chairman, you will recall that following the experiences of the past, not only here but elsewhere in the world, Government took a major decision to create an enabling environment for the private sector to spearhead the social-economic development of Uganda. This means that the Government's role is restricted to that of formulating suitable policies and putting in place the infrastructure necessary to do profitable business. I am pleased to note that since that policy was announced, a number of Associations in the private sector have been formed and these are working tirelessly to improve the businesses on a sustainable basis. The Uganda Flowers Exporters Association is one such organisation.

Ladies and gentlemen, you may wish to know that the Flower Exporters Association is a relatively new organisation. It was formed with the active encouragement of Government. The idea then was and still is, to have a strong national body which has the interests of stakeholders at heart. With such an organisation in place, its members' interests can be catered for through constructive dialogue with Government. The organisation can propose to Government policies which, if put in place, would work in the best interest of the nation. I am glad to note that the Flowers Exporters Association has been active in this respect. You have done a commendable job given that starting from a zero base in 1993, the rose-flower exports have increased steadily. In 1995, Uganda exported more than US\$ 6m worth of roses and the prospects for further increase are very bright. I therefore, want to challenge you to do all you can to ensure that we expand the volume of such exports. What is there to prevent us from exporting ten times more, ie. US\$ 60m worth of roses? Will it be lack of technical knowhow or may be lack of investment capital? What about adequate infrastructure? If these are the problems, what is it that Government can do to solve these problems? I trust that during these two days, you will apply yourselves to finding answers to these and other numerous questions. We in Government do await anxiously for your suggestions on how best such bottlenecks can be removed so that we propel this country to greater prosperity. We have already identified infrastructure as a major constraint. This is why Government is committed to doing all that is possible to make substantial improvements commensurate with the importance placed on this sector. I am sure that in the very near future, we will register tremendous success in the Ugandan Rose Industry.

Referring to bottlenecks, I note with satisfaction the fact that substantial financial support from USAID has assisted in getting you started. They have done a commendable job. I am informed that emphasis is on research to identify new flower varieties and training of Ugandan technical managers for the floriculture industry. This, you will realise, is in consonance with the President's call to Ugandans to identify and produce high value crops as a way of eradicating poverty. Therefore, I would like to appeal to you the participants and other nationals to ensure that this support is utilized most efficiently. With determination, there is no reason why flower exports from Uganda cannot exceed US\$ 60 million especially if commercial loans and investment capital can be made available by the financial institutions.

Mr. Chairman, it is not my wish to pre-empt the discussion that you are going to have. I was invited only to open the conference but I have chosen to make comments on what you are likely to discuss. This was to provoke you so that as you deliberate, you take into account Government policy guided by the national development vision.

Once again, let me thank the sponsors and organizers of this conference for bringing together all these stakeholders to discuss issues likely to promote the rapid development of the industry.

I also thank all of you participants for the time you have taken off you schedules to come and share your experiences with your colleagues. We look forward to receiving a report of your deliberations. I want to assure you that your report will be thoroughly studied and any recommendations /remarks/observations you make will be taken into account while formulating Government policy in this field.

With these few remarks, I have the pleasure to officially open the conference and also to wish you fruitful deliberations.

3. ROSE PRODUCTION AND DEVELOPING COMPETITIVE ADVANTAGE IN UGANDA - Roger White, IDEA Cut Flower Consultant

"Can you afford to lose \$1 million?"

Striking question to open with but he quickly explained that flower growing can also be a profitable business.

"The only security in this business is to have consistent high quality; there are no marketing problems if you have consistency."

He discussed Uganda's climatic conditions that affect roses.

Cited consequences of higher temperature:

- 1) number of flowers increase
- 2) stem length is shorter
- 3) number of petals decreases

He discussed capital costs, comparing Ugandan growers to each other and to their foreign counterparts. Details are listed in his in depth report given to all participants.

"No matter how good you are you'll always have difficulty starting up.

He cautioned not to over design. (An architect/grower countered that later, saying they can also save money.)

Profitability depends on good plants and varieties that last.

If you're spending over \$40/m² you're too high. Aim for \$30. In India they're up to \$60-70. East Africa is all around \$30; Uganda, Kenya, Zambia, and Zimbabwe.

The Dutch are even higher at \$108.50/m², with their insistence on the latest technology. White was quick to point out that these are established, family businesses; and existing producers who are buying out smaller growers.

Despite the generations of experience the Dutch may have, White cited Uganda's most significant advantage as being a consistent light source. The Dutch, he said, "Cannot replace the light you have for free."

He noted that heat costs in northern climates are not as significant a factor as light availability because increases in fuel costs also cause transport/freight rates to rise simultaneously.

Total costs of management and labor runs about \$35,280/ha. Most growers spend a significant part of this on ex-pat managers (around \$70,000/yr - approximately equal to all other labor on the farm). He cited the importance of finding a manager with a track record of running a business successfully. Students and consultants, he noted, may talk flowers very well yet be unable to run a business.

He suggested growers start small and increase gradually with a phased expansion program. Interesting to note was that the average Dutch farm is under one hectare.

Uganda's capital and production costs are competitive with neighboring Kenya and Zimbabwe. However, Uganda can't compete with Kenya for more costly, long stem varieties which grow better in highland tropics. Statistics say Uganda is competitive with the large flowers yet the Uganda-grown generally tend to have smaller buds and earn less per stem than highland tropic grown.

Uganda is very competitive with the smaller roses. By sticking to the smaller, shorter stem varieties that naturally thrive here, Ugandan growers' higher yields per hectare can allow them to compete on price with their Kenyan counterparts.

Freight triples from 3 to 9.4 cents per stem when stem length doubles from 30-40cm to 60-80cm.

India exports the lowest quality roses, earning only half what Dutch flowers sell for in the auctions.

Factors influencing price:

- 1) variety to remain popular
- 2) size of bud - go for moderate length stem
- 3) stage of opening - uniform
- 4) uniformity of bud
- 5) flower color - bud damage
- 6) stem length and thickness
- 7) uniformity of stem length in bunch and consignment
- 8) leaf color and quality
- 9) freedom from chemical and water marks
- 10) freedom from dust
- 11) freedom from pests and disease
- 12) packaging
- 13) overall appearance

Uganda's advantages:

- 1) competitive capital costs
- 2) competitive unit cost
- 3) competitive freight costs
- 4) high yield potential

Uganda's track record has basically been variable with inconsistent quality. This has resulted in below average prices compared to some East African competitors. White did note that some growers are competing successfully with Kenya and obtaining competitive prices.

Issues that need to be addressed are stem length and bud size; varieties to grow; greenhouse design; management; disease control; rose quality and vase life; and postharvest handling.

White noted that Netherlands lending institutions are more willing to bank on a new grower if that person will plant the top ten rose varieties.

Every grower in Uganda should pay more attention to postharvest handling. A flower starts to die as soon as it is picked so the job of the grower is to maintain its survival as long as possible.

He cited numerous factors which influence postharvest bloom degeneration:

- 1) access to greenhouse
- 2) narrow roadways
- 3) careless handling
- 4) hand carts or no carts
- 5) time from harvest to packhouse
- 6) product flows within packhouse
- 8) cold store management
- 9) cold chain efficiency
- 10) airport facilities

White closed by saying the future depends on consistent quality with long vase life. Growers must do their part and the government must assist in improving infrastructure.

During questions that followed, growers expressed concerns about high management costs. White referred to a grower he had heard who claimed, 'I'd lost half a million before I realized I'd lost it.' He explained that cutting corners on management expense early in one's business venture could result in problems from the beginning. Plants that may be formed badly could result in the loss of a whole season.

He also countered air freight complaints among growers by revealing that every developing country who began flower growing went through a similar stage. Zambia even pooled growers to book charter flights.

Honorable Abel Rwendeire asked what Government's role in varietal trials should be.

White explained that the crucial factor in trials is that they must be held at the very best farms. They should be open to other growers, pooling information. Ugandan growers are not, he explained, competing against each other, but rather competing against growers in Holland, the market leader.

4. ROSE PRODUCTION: THE GROWER'S EXPERIENCE - Geoffrey Lwanga, Ziwa Horticultural Exporters Ltd and Vincent Ssenyonjo-Bazira, Nile Roses Ltd

Mr. Lwanga, General Manager of Ziwa Horticulture Exporters Ltd, and Secretary of the Uganda Flowers Exporters Association, spoke on the growers' experiences. In a July 1996 report, he and Vincent Ssenyonjo described the growth of the industry in Uganda from a single grower in 1993 to the current twelve projects. It could easily include 200 hectares by the turn of the century.

"Nobody wants to lose money," Lwanga said, citing the basic motivating factor of rose production to make profit and improve well-being. Peace and political stability in Uganda restored confidence in investors. The naturally good climate and soil conditions point the way to floriculture production. Abundant cheap labor in the unskilled, or semi-skilled jobs allows Uganda to compete with northern hemisphere growers who use computers and mechanisation to overcome their higher labor costs.

In the ensuing discussion, Kyorutungye Karente, member of Uganda Investment Authority, explained that the government would like to see the association serving as a pressure group, setting up a full time office.

He discussed the difficulties the tax structure places on growers. Having once guaranteed a tax holiday, there is now VAT(17%), withholding (4%), and import taxes(2%) for a total of 23% on various aspects of their business chain.

If one assumes a one \$1 million start-up cost, that means government is demanding \$100 thousand before any business is transacted. He explained there is a memorandum before government to remedy this situation.

Kyorutungye explained that despite the apparent high cost of foreign managers, there is at present no way to do without this as it is difficult for Ugandans to acquire the knowledge overnight.

He expressed concern over environmental problems with chemicals. He asked banks to be lenient, bending their requirement of 40% equity. He closed by asking if perhaps the Ugandan growers should set their own standards for export quality.

Geoffrey Lwanga answered the first question explaining UFEA is setting up a secretariat, or permanent office and that USAID IDEA Project will assist by equipping it.

Lwanga explained that business taxes do get complicated with seed zero rated but cuttings and plantlets subject to VAT. Greenhouse roofing sheets, originally considered machinery have now become subject to VAT. The Revenue Authority wants industry to pay now and claim tomorrow, a difficult proposition with the hefty outlay of rose growing.

He expressed dreams to, "Eventually Ugandanise the whole industry."

He discussed the concern over chemicals explaining that they are expensive solutions used only when needed and only to solve problems. Growers, Lwanga assured, exclusively use internationally approved chemicals at recommended rates.

Vincent Ssenyonjo addressed the issue of standards explaining that all growers strive for the best quality demanded by the market. Exporters get consistent feedback from auctions and buyers.

White explained that it is next to impossible to make separate standards for Uganda but that a voluntary code of practice might be beneficial. With shipments to the Netherlands, the ultimate quality control is, "not fit for sale," which he has never seen a Ugandan shipment labelled.

Ssenyonjo expressed growers' concern that once government sets a tax policy it should not be reversed. He cited tax incentives that have recently been withdrawn. "New projects hinge on consistency of government regulations."

Godfrey R. Ruhurira, Project Appraisal Manager of the East African Development Bank explained that today's 12% interest rates are a marked improvement over 14% a few years ago, but he still hopes to achieve 10% soon. He said that bankers are flexible with clients in offering to accept payment coincidental with the growing season, and offering a one or two year grace period on loan repayment. He expressed the continued need to secure 40% down payment ratio as a direct relation to security.

Steve New addressed the concern over chemical use especially in farms around the lake. He suggested that growers adopt a voluntary code of practice for protection of both the environment and workers' welfare. He said that Uganda is fortunate starting up late because people are already aware of the dangers of chemical use and can prevent the damage that Kenya has done to Lake Naivasha. He also said growers are already tuned in to the use of recyclable materials for packing.

It was suggested that the Civil Aviation Authority should handle training of airport staff. Someone else suggested that the IDEA Project could fund this out of their training budget.

White cited similar mishandling of fragile product all over the world. Israel, he noted, simply introduced sufficiently large boxes that they couldn't be tossed about anymore.

Nimrod Waniala, Senior Advisor - Export Development, Ministry of Trade and Industry addressed the need for improved communication, explaining that, "What we have now is the result of continuous dialogue between government and the private sector." He said the way forward is to change the minds of policy makers and to educate government to the significance of policy changes to the industry.

Loek Koop discussed the quality standards issue by referring to Netherland's four classes of quality. Each grower's shipment quality is recorded and graphed so that their growth in the market can be monitored. "It's your name in the marketplace that matters." Some environmentally concerned buyers have even begun monitoring water and chemical use, seeking out environmentally friendly growers. Scandinavian countries and Switzerland are already dictating chemical use.

5. MARKET PROSPECTS FOR UGANDAN ROSES - Stephen New, IDEA Project

Focusing on per capita consumption, Steve New explored worldwide trends in flower buying before concentrating on the European market. Statistics showed a price peak being reached in the ninth week and a trough at week fifteen extending through week 44.

Though the market has traditionally been dominated by Holland, its market share has been decreasing steadily from 76.6% in 1991 to 65.4% in 1994. The global flower trade now stands at US\$3.6 billion, with 25% of that being in roses. The rose market continues increasing at 5% per annum. Uganda's proportion of the world market has grown from a baseline zero in 1991 to 0.6% in 1994 and an estimated 1.4% for 1995.

Uganda must focus on developing its potential for specific types of roses. With prices depending on source, Uganda registers consistently lower prices than Kenya. Steve pointed out that much of this is due to the naturally shorter stem length Ugandan growers produce, but some differences in price are also attributed to reputation for consistent quality.

At the moment Uganda has approximately 40-50 hectares under flower cultivation while counterparts in Kenya and Zimbabwe have 200-300. If Uganda could increase cultivation to 200 hectares, the percentage Uganda could command of the world market might approach 15%. With the world market growing at 5%, at least 100 additional hectares are needed annually just to accommodate the rise. With the market shifting south to minimize labor costs, overseas suppliers are favored.

Trends include supermarkets increasing flower sales. Taking a more aggressive role in the market, these retailers favor smaller, lower cost flowers giving Uganda a competitive advantage. These buyers want to know where their product originates, and in turn, support their buyers' concerns for environment and worker welfare.

Uganda, New insists, should concentrate on its comparative advantage in short and medium stemmed roses, focusing on becoming a high volume, consistent, premium quality supplier. With no competitive advantage in long stem varieties, Ugandan growers could better maximize profits by going for high yields.

Concern was voiced during discussions that India might become another competitor in the rose business but Roger White disagreed. He cited pale color, less petals, and a massive potential in their domestic market as reasons they might never become real competition in the world market.

Growers were reminded that despite climatic and national differences or advantages, inevitably the quality depends on the individual grower.

White warned growers of the tendency to blame the market when something goes wrong. Taking care of one's own problems is the only way to ensure profits. Finding buyers and sticking with them instead of blaming them and moving to other buyers remains the best strategy in most cases.

6. MARKETING UGANDAN ROSES

6.1 Loek Koop, BVH Flower Auction, Holland

Private, direct sales, versus auction marketing was debated. Loek Koop listed the advantage of auction sales as the best way to bring all suppliers and buyers together. He cited the auctions' transparency and objectivity. There can be no dispute on the auction floor and suppliers are guaranteed payment, something he said could not be assured when selling directly.

The auction is also a good place for growers to receive instant feedback. In a time when flowers are a buyers' market, the ability to respond quickly to such feedback can help growers succeed. Also, it is in the best interest of auction houses to assist growers in any way they can to increase profits, whereas a private buyer could easily just shift to another supplier.

Asked why Holland so consistently dominates the world market, Koop cited the instant feedback Dutch growers benefit from being in the epicenter of market activity. The advisor/research/education triangle allows the Dutch to evaluate chances and take advantage of them when they occur. He noted that auctions were founded to give growers the chance to concentrate on what they're better with; namely growing.

He compared the color mix supplied by Ugandan growers with the mix supplied by Dutch growers. Citing Uganda heavier on pink roses and lighter on red, he suggested that Uganda might stand to profit more by following market demands. He also mentioned the seasonal changes in taste with the demand for red and white heaviest around Christmas, red for Valentines Day, yellow for Easter, and pink in May for Mothers' Day.

Koop led the group through a study on comparative prices. In the long stemmed varieties, Dutch growers received nearly 40% more per stem than their imported competitors. In the short stemmed varieties, the Dutch advantage was considerably reduced to only 5%.

What buyers don't like, Koop told the group were surprises. They depend on a consistent supply and when that is interrupted, price suffers. Although a variety may be popular and the grower may supply high quality flowers, inconsistency can prompt buyers to look elsewhere for supply.

Koop focused on European popularity of the variety *Golden Times*. He mentioned it was a good rose for Africa to grow as the labor costs were low here and the flower's bright color made it popular in the winter months.

He highlighted other flowers that could be profitable in Uganda besides roses. Limonium has a stable price and is used in completion of most bouquets. Snapdragons, which are becoming popular with Israeli growers, can be grown from seed and Koop said might be good here in mid-winter. Carthamus is one flower where imports yield better prices than the Dutch grown product. Eustoma, though a difficult crop, being subject to disease and shipping damage was also mentioned as holding opportunities for local growers.

6.2 Simon van der Burg, Teleflower Auction, Holland

This fourth generation Dutch horticulturist has been marketing flowers for African growers for more than ten years. Twenty years ago there were almost no flowers available during European winters and almost anything could be sold. Today, amply supplied by numerous growers from the southern hemisphere, Dutch buyers can afford to be selective.

He reminded Ugandans that Netherlands horticulture is based on hundred-year-old traditions. He cautioned local growers that they are already running before they ever walked. Worldwide, the main players in the rose industry are Netherlands and Ecuador. Kenya and Israel follow next. With Ecuador at 3000 meters (Uganda is at 1100m) their cooler climate favors large, long stem flowers. They do however mature more slowly yielding less stems than Uganda has the potential for growing.

Within two years India had 100 rose growing projects. It was pointed out that this still represented a low ratio per person compared to Uganda.

Van der Berg encouraged Ugandan growers to be open with information, and to work in cooperation on trials. Kenya was once secretive, working behind locked gates, though recently they've become more open with information.

He cited variety selection as critical. Again Golden Times was mentioned; the twenty-five year old variety is the standard for yellow and it keeps remarkably well in transit. The Dutch, he noted are likely to perform small-scale trials for a full year whereas Ugandans are far too likely to plant an entire hectare. Out of some 200 varieties available, some 20-40 probably grow well in Uganda and there are certainly some varieties that growers shouldn't even attempt.

The need for infrastructure improvements was highlighted. Reliable telecommunication is essential van der Berg noted for the transit of perishables like flowers. A breakdown around Christmas or Valentines Day could cost growers a fortune.

Air freight in Kenya took fifteen years to perfect. In Uganda, it was noted, one out of every five shipments is late due to flight delays or bumping. Uganda has an advantage over growers further south as an additional three hours flying time can add 30-40% to shipment costs. Continuation of Uganda's labour advantage seems assured over the medium term.

He discussed the origins of the Dutch auction 75 years ago as a means of pooling growers and allowing buyers to argue price out. As the world entered the flower market, Holland's asset was utilized. Today, though he admits there are other players in the market, the auction still remains popular.

When a grower takes his produce to auction, the whole world is watching and the grower has the opportunity to see how the rest of the world is doing. The more unique the product, the more individual phone calls a grower might have to make to sell his product. In attempting to sell directly to bulk buyers, several growers might have to pool to supply a consistent, perhaps daily demand.

Van der Berg admits that the closer growers are to the final market, skipping middlemen where possible, the more profitable they can be, but also the more complicated marketing becomes.

In a question period that followed, growers petitioned for a reduction in auction charges, citing the fact that 80% of flowers are re-exported from Holland. Van der Berg admitted that marketing was an expense whether a grower did it himself or deferred to professionals. He cautioned growers that they must concentrate on what they are best at and that growing was the most profitable part of the chain.

Koop discussed the two methods of selling available in Israel. Of the direct selling option through the national marketing agency Carmel, and the auction system, the latter is the most popular at 70-80%. With auctions, a grower's name becomes known and at Carmel he remains anonymous.

With the new trend toward supermarket flower vending, auctions have recently been asked to compromise traditional rules about highest bidder and agree to supply a large, daily volume for a fixed price. This makes it possible for good suppliers to negotiate fixed prices in advance.

7. GROWTH PROSPECTS FOR THE UGANDAN ROSE INDUSTRY

Clive Drew, IDEA Project

Clive Drew evaluated the prospects for the Ugandan rose industry, showing the impacts of expanding the industry to 200 ha by the year 2000. With flowers a big market and growing, statistics show that by simply doubling the area under cultivation from 50ha to 100ha, Uganda might be able to command a 5% European market share. He admitted that the industry's capital intensity is a constraining factor in the course of growth, yet he commended the private sector for taking the lead in diversifying Uganda's exports.

Drew pointed out that a 200 hectare rose industry would earn Uganda \$37 million in foreign exchange and employ about 9,000 people on a direct basis. There would also be the obvious multiplier effects as the service sector expands to meet the needs of the industry.

Unlike Kenya and Zimbabwe, Uganda is not constrained by shortages of water. The resources of Lake Victoria are so great that an expanded roses industry poses no threat to water supply, so long as growers continue to follow good environmental practices.

Discussions confirmed the conclusion that with Uganda's natural advantage in the short-medium stem roses, coupled with the increased demand by supermarkets for just such blooms, the country is poised to fill the market niche.

Several technical issues were mentioned which had not been covered previously. Aquaflyers are being tested to counter the complaints by European buyers that African roses don't have as long a vase life as Dutch grown blooms. Though the price for packaging and air freight might increase, the per stem yield and improvement in reputation for consistency could very well offset cost increases. Rootstock was discussed in relation to local nursery cultivation. Anton Verbeek Rozen B.V., a rose propagator admitted that it may be feasible to start a company here that could produce a more resistant rootstock.

It was generally concluded that roses currently give the most attractive return on investment in agriculture in Uganda, but that there is a need for additional financing if the industry is to meet its potential.

8. GROUP DISCUSSIONS AND RECOMMENDATIONS

8.1 HUMAN RESOURCE DEVELOPMENT

1) The group felt that foreign managers were reluctant to share their experience or dispense information. During discussion, Steve New did remind the group that in most cases, these managers were successful rose growers, not trained trainers: their subsequent failure to pass on knowledge was perhaps the result more of inability than unwillingness. **It was recommended that the IDEA Project should find ways to assist expatriot managers in the transfer of knowledge to Ugandan counterparts.**

2) **The group unanimously recommended Makerere University and other local schools to set up degree courses in horticulture.** Different options under such programs could include floriculture, and even a specific course in roses was suggested.

3) The need for practical training was stressed, specifically opening up the possibilities for university student internships. A one year period of practicals could shift interested students out to the farms for hands on learning. Makerere currently includes a 12-15 week program of practicals. **It was recommended that the IDEA Project continues to facilitate work experience for interested students so that they acquire practical skills.**

4) **Exposing existing staff to foreign production systems was recommended.** This could be as nearby as Kenya and Zimbabwe or overseas to Israel and Holland. Workers could see exactly what is being done elsewhere, as rose growing is technically different in all countries. Ideas could then be borrowed.

5) Research is lacking in Uganda. In particular there is a need for pilot nurseries and trials in Uganda's differing ecological zones, like Mukono and Kasese. **It was recommended that research should focus on screening the performance of new varieties, including their suitability for various climatic areas.**

As no government institution could afford managing the greenhouses to host such trials, it was suggested that research assistants from Kawanda and Namulonge work closely with commercial rose farms to manage the trials and to record and analyse data.

6) The necessity of floriculture literature was discussed, to provide for the people who want to go into business. **The group recommended that the IDEA Project should take the lead in procurement and dissemination of information.**

7) VOCA, reminded those present that it can assist in short term training programs. They specialize in grassroots training and can bring in experts in non-traditional exports. **Farms were recommended to make more use of this service in the future.**

8.2 Finance

- 1) **It was recommended that more short workshops be held to keep the banking institutions more informed about the flower industry, its problems, the export seasons and the effects of weather to the import market prices.** The banking institutions seem to believe that there is unlimited export of flowers to Europe throughout the year fetching very good prices which is wrong. The fact is that the export market is influenced by the weather conditions in Europe. i.e. if it is warm the local production will remain high and this will cause the import prices to drop because the European buyers prefer locally grown flowers because they reach the auction in much fresher conditions than imported flowers.
- 2) **It was recommended that Uganda Flowers Exporters Association arrange to produce a regular bulletin to educate the banking/financing institutions about the flower industry, its problems and methods of solving them.**
- 3) **It was also recommended that the banks should reciprocate by producing pamphlets to educate the investors and public at large about the respective products/facilities available in the form of loans and the terms.**
- 4) **It was recommended that a strong representation be made to Government with a request for Government to solicit for funds for lending to interested investors at easier terms than funds are presently available in financing institutions. The terms suggested were:-**
 - Interest rate less than 12%
 - Reduced equity contribution requirement from 40% to 20%
 - Extension of full repayment period of interest/principal from five to seven years.
- 5) **It was recommended that the banks refrain from demanding interest payments during the periods when growers are not in the marketing season but instead structure their claims in the flower export season which stretches from September to April/May. Growers will find it difficult to pay interest during off season and yet banks will resort to penalties creating more difficulties to the growers.**

The following recommendations were made to Government regarding export incentives:-

- 6) **Government should harmonize the investment incentives in the Investment Code, Tax Code and VAT Statute.** Government must avoid situations of "policy on the run" whereby investors are promised incentives in the Investment Code today and the incentives are removed tomorrow. For example, the Investment Code incentives of tax free inputs, have recently been undermined by VAT. This has retroactively reduced the viability of some projects.

- 7) **The Uganda Investment Authority should maintain its original role of attracting investment into Uganda** and also the capacity and authority to directly solve the investors' problems, taxes etc. with Uganda Revenue Authority. Uganda Investment Authority would understand the investors better and would be in a better position to solve their problems.
- 8) **It was recommended that Government should involve the respective investment sectors in discussions when setting policies on taxation rather than after policies have been formulated.** This would solve a lot of problems brought about by tax makers who decide on taxes based on misconceptions.
- 9) **Government should consider the establishment of an investors desk at URA customs points which in liaison with UIA should handle the specific investors problems.**

8.3 Airport Handling

The group shared experiences on the facilities at the Airport. It was observed that outward freight capacity was sufficient but the main problem being experienced by exporters was the handling of products at the Airport. It was observed that products were often left exposed, outdoors, to heat and rain.

The main issues discussed with a view to exploring resolutions were:

- Handling of Export at Airport
 - Storage before loading
 - Freight capacity
 - Scope for Development and Licensing policy Airport facilities by private developers.
- 10) **Given the present absence of adequate storage facilities, and the delays which are being experienced in moving exports from indoor stores and finally loading them on the plane, the CAA was recommended to provide a temporary shed in order to protect products from heat and rain before they are loaded.** CAA has been considering and planning for these and has already identified EDF funding to cover the costs. They hope to have the shed ready within one year. However, the decision to go ahead and construct the shed will depend on whether the Flower Exporters Association is satisfied with the services provided by the cold storage facility which is due for completion in September this year.
 - 11) Construction of the cold storage facility which is funded by USAID is in the final stages and completion of the few remaining civil works is scheduled for September. The facility will have an 18-pallet capacity which is regarded as adequate at this time.

The Civil Aviation Authority indicated that it is now in the process of identifying a firm to manage the facility. Negotiations had previously been initiated with Panalpina which now appears to have withdrawn their interest. CAA is disappointed with the lack of interest so far shown by the Flower Exporters Association concerning the management of the facility. It was remarked during the discussion, that in the early stages, operation of the facility

would not be attractive to commercial operators given the fact that the present demand amounted to 13 pallets as opposed to the 18 pallets which are available. **The UFEA was recommended to take an active interest in ensuring effective management of the facility since they had a vested interest in its smooth operation.**

- 12) The group considered the experiences of other countries namely Kenya and Zambia. It was pointed out that in Kenya the airport cold storage facilities had been extensively developed. However, it was noted that the most efficient facilities were those managed by the private sector, rather than public sector agencies. In Zambia, the flower growers' association, through a levy charged on all members, contributed towards the costs of operating the cold store. **The CAA and UFEA were recommended to pursue a private sector management contract for the cold store.**

The group requested the representatives of CAA to provide information on the cost of operating the facilities at Entebbe. The CAA representatives indicated that this information could be made available during more detailed discussion with the flower association.

- 13) The standard handling cost at Entebbe is \$0.07 per kg. This is very high compared to Kenya and Zimbabwe, where the costs were given as \$0.04 per kg. **The CAA was recommended to reduce handling costs to a competitive level.** They explained that handling at the airport has recently been privatized, and therefore, is expected to become more efficient. Procurement of improved equipment is now underway. The Association resolved to act as a strong pressure group, in order to impress upon the relevant authorities the need to make Entebbe Airport more competitive in terms of handling costs.

- 14) It was generally agreed that the outward capacity for export of flowers is quite adequate. CAA however noted that there was likely to be a decline in inward capacity. This is due to the policy of taxing all goods landed at Entebbe on CIF basis, which renders products imported through Entebbe Airport far less competitive than those imported by road or by rail.

The decline in inward capacity is, in due course, expected to have a negative effect on outward capacity. **It was recommended that the URA review its policy of applying VAT to the full C&F value.** It was resolved that the Flower Association would raise this issue with Uganda Revenue Authority, the Tax Policy Department and the Ministry of Finance.

- 15) Questions were raised concerning CAA freight licencing policy with respect to the Amsterdam route. The group was informed that CAA licensing policy is very liberal and in fact Alliance has already expressed interest in operating this route. CAA indicated that it is prepared to provide temporary approval to Alliance when they present their application, pending the finalization of government agreement.

- 16) The group enquired as to the availability of land for private developers at the airport. CAA explained that land is to be made available and tenders will be advertised soon. CAA will provide design specifications for the shelters to be constructed.

APPENDIX I

**ECONOMICS OF UGANDAN ROSE
PRODUCTION**

APRIL, 1996

Prepared by Roger White for:

The African Project Development Facility (APDF)

In conjunction with the
Agribusiness Development Centre (ADC)
Uganda's Investment in Developing Export Agriculture (IDEA) Project

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Section 1: Introduction

During the past three years, more than ten flower farms have been established in Uganda. Currently, approximately 40 hectares are expected to be under rose production for the 1996-97 season, representing an FOB value of more than \$7 million per year. Trade and technical opinion suggests that the lower production costs incurred in East Africa will lead to a transfer of production from Europe to East Africa over the next five years. Uganda, with ample water, constant temperatures and low cost labour is positioned to be a highly competitive rose producer. An expansion of the industry to 200 hectares of roses may be justified. Such an expansion would have a significant impact on the Ugandan economy, diversification of exports, and the growth of the private sector and the agricultural sector.

Rapid expansion of the industry, if it is to occur, will be financed primarily by private investors in conjunction with local/regional financial institutions (FIs). Active participation by FIs can only be achieved if the FIs have confidence in the market potential and the competitiveness of Ugandan rose producers. A market study has been carried out by the ADC/IDEA Project to assess the market potential for increased production of roses in Uganda. This parallel study is needed to ascertain the actual production costs and performance of Ugandan rose producers and to compare these with similar information from other producer countries. This information is required in order to: (1) assess the long-term competitive position of Ugandan producers; (2) enable investors, lenders, and advisers to make realistic appraisals of existing and potential projects; and (3) to attract more project sponsors and investors to the industry.

Data was collected from seven rose farms during March-April 1996. Owners and managers were extremely cooperative in providing historical information and opinions. However, with only two of the farms visited having completed a full year's production, the financial data should be regarded as the best available at present, rather than definitive figures. A follow-up analysis would be useful at the end of the 1996/97 season when at least eight farms will have more than one complete year to report on.

Section 2: Rose Growing Climatic Considerations

2.1 The Climatic Requirement for Rose Growing

2.1.1 Temperature

Optimum night temperature for most varieties is around 16-18°C and optimal day temperatures of 24-28°C. Flower quality can be affected if either night temperatures exceed 20°C or if the difference between day and night temperature is small. Flower quality is reduced where the difference between day and night temperature is less than 15°C. Figure 1 shows the effect on rose quality.

In summary, as temperature increases:

- The number of flowers increases
- The length of the neck increases
- Stem length shortens
- The number of petals declines
- Flower colour is less intense
- Bullheads and blind shoots decrease

2.1.2 Humidity

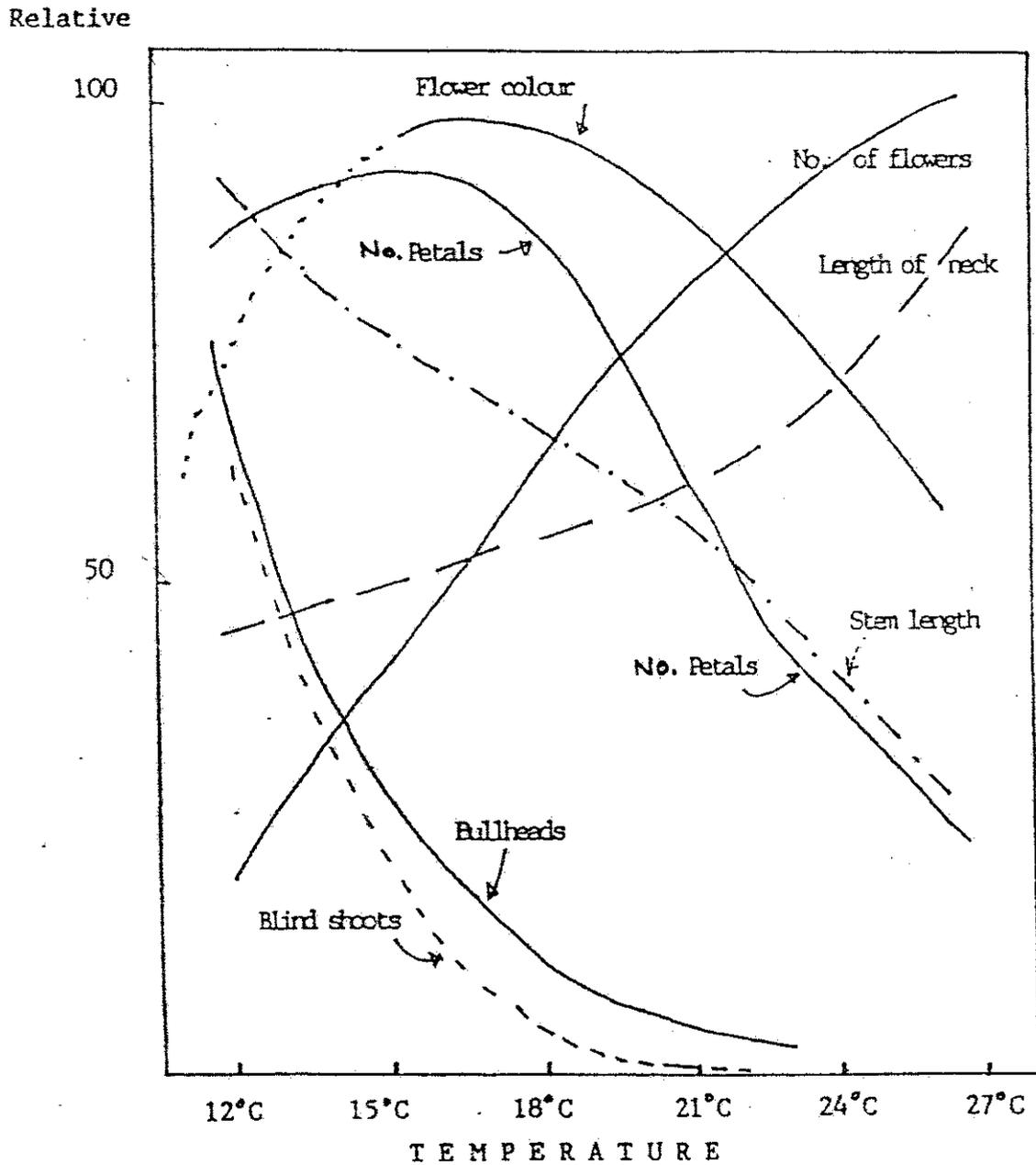
The optimum relative humidity for rose growing should not exceed 75 percent. However, in areas of high rainfall the relative humidity can be at or near to 100% for long periods. At high humidity a small fall in leaf temperature will result in condensation (dew) forming on the leaves and flowers.

When leaves and flowers remain wet for several hours the risk of disease infection from Downy Mildew, Blackspot, and Botrytis can increase dramatically.

Humidity can be controlled to some extent by greenhouse design and good ventilation, but at those times of the year when dew forms on the plants at night some rose growers (Zimbabwe and Kenya) are heating the greenhouses to reduce the risks of mildew infection.

Figure 1

The Effect of Temperature on Rose Quality Criteria (Moe 1979)



2.2 The Ugandan Climate

2.2.1 Temperature

When meteorological data for Entebbe is compared with Tanzania (Mt Arusha), Zimbabwe (Harare), Zambia (Lusaka), Ecuador (Quito) and various rose growing locations in Kenya, the differences are not dramatic. Maximum temperatures for Entebbe do not appear to be

dramatically different from Zimbabwe or Kenya. However, the difference between day and night temperatures in Uganda is smaller than in Kenya, Zimbabwe or Tanzania.

These higher temperatures combined with high humidity mean that growth of roses, and flower yields, are significantly faster in Uganda than in Kenya. In Kenya at 1,700 metres growers of long stemmed roses export around 15 flowers per month during the export season. At Entebbe 20 flowers per month is possible. The disadvantage is that stem length and flower size will be less than in Kenya.

2.2.2 Humidity

The most difficult aspect of the Ugandan climate is its high rainfall and high humidity, which is highly favourable for development of mildews and other fungal diseases. In the critical October to April export season Entebbe rainfall is more than 2½ times the rainfall of Lake Naivasha and around 35% higher than Tanzanian and other Kenyan rose growing areas. Harare is also some 20% drier than Entebbe. This high rainfall, of course, also represents a permanent comparative advantage to Uganda in terms of ready availability of water for expansion.

2.3 Effects of Climate on Marketing

In conducting the parallel marketing study both negative and positive comments were offered by trade informants concerning the implications of the Ugandan climate.

"Uganda bud sizes are a bit smaller".

"Uganda quality is slightly below Kenya".

"First Red paler colour and small buds".

"Uganda is hotter, wetter and faster".

"Don't grow botrytis and mildew susceptible varieties".

"Uganda, compared with Kenya, gives smaller heads and shorter stems but I don't know if he is a good or bad grower".

"Uganda is not suitable for large flowered long stemmed varieties. but there is a big market for shorter stem lengths".

It is clear from these comments, that to establish a good reputation in the market place, farm managers must keep a close check on disease problems, and concentrate on roses with shorter stems and small flowers. Although prices are lower for these types, yields and returns per square metre can be higher. Analysis of performance on the established Ugandan rose growers shows that high quality roses of this type can be produced profitably in Uganda. Indeed one of the leading producers is regularly obtaining comparable prices to Kenya.

Uganda rose growers can obtain the quality and consistency to compete internationally providing their production and marketing strategies take account of the following points:

- Varieties must be selected to suit Ugandan climatic conditions.
- Uganda cannot compete with Highland Kenya for long stemmed roses.
- Bud sizes will be smaller in Uganda.
- Large flowered roses eg. First Red can compete in the shorter stem lengths, ie. average 55-65 cm.
- Very high yields can be obtained for Sweethearts such as Frisco and Intermediate Hybrid T varieties.
- Greenhouse design should minimise drips which favour botrytis.
- High levels of production and management expertise must be developed.
- High standards of post harvest handling must be developed to ensure a consistent quality product.

In summary, the climatic constraints mean that Uganda should develop and promote itself as a high quality, high volume supplier of small roses, for which it has a strong potential competitive advantage.

Section 3: Capital Costs

In preparing estimates of capital costs, land purchase and clearance costs are excluded from the comparative data. This approach was adopted because some farms had owned the land for many years, others had significant land clearance and levelling costs, while others paid compensation to squatters. Miscellaneous costs including small tools are also excluded from the calculations.

Table 1 shows a range in reported capital costs of \$26.55 to \$39.25 per square metre, depending on size of farm, type of construction and specification of equipment.

3.1 Greenhouses

All the surveyed farms had wooden greenhouses. Although costs ranged from US\$3/m² to US\$5/m², standards of building were variable. The vent openings in some houses are narrow which when associated with a low height to the ridge will result in higher temperatures.

There is scope to improve gutter design, in some houses leaks are a problem, which contribute to an increased risk of botrytis.

One farm not included in the study has metal greenhouses costing US\$11/m². Rain blowing in through the ventilators is a problem in these houses, but control of temperature and humidity is superior.

Given high winds in some locations there may be a requirement to modify the design of new structures. In general whilst it is probably economically sound for the new entrant rose grower to contain costs by buildings in wood, in the longer term metal houses may offer the advantage of improved environmental control. Elsewhere in Africa there is a trend for the established and proven growers to expand their crop area with metal greenhouses.

All farms are using standard horticultural plastic sheets, of various specifications, sourced mainly from Kenya.

3.2 Irrigation and Pumps

Individual costs ranged from US\$1.5/m² to US\$2.72/m², reflecting in part the distance and height from the water source. Farms C and D had also made provision for expansion.

Several farms commented that they had installed large generators which were extremely expensive to operate during periods of mains supply failures. With hindsight they would have either installed diesel pumps or a small generator solely for the pumphouse.

3.3 Grading Halls and Buildings

There was a wide range in building costs: farms A, B and D all had grading halls which could accommodate any future expansion of the farms. Farms A (US\$3.0/m²) and farm B (US\$5.0/m²) had buildings which were substantially over specified. Farm B had a low cost umbrella building.

Table 1: Ugandan Rose Farms' Capital Costs (US\$/m²)

	Years	A (5 ha)	B (6 ha)	C (2 ha)	D (3 ha)	E (5 ha)	Average
Greenhouses	10	4.24	4.00	3.00	5.00	4.00	4.050
Plastic	4	2.00	2.50	2.00	2.00	4.50	2.600
Irrigation	10	1.82	1.50	2.35	1.93	2.25	2.117
Pumps	10	/1	1	0.375	/1	0.36	/1
Electrical Supply	10	0.60	1.00	1.275	1.833	1.16	1.427
Generators	10	0.36	0.167	/4	0.50	0.24	/4
Sulphur Burners	10	0.75	0.52	0.225	0.52	0.50	0.503
Grading Hall	20	3.00	1.25	1.80	5.00	3.66	2.942
Stores/Office	20	/2	/2	/2	/2	/2	/2
Staff Housing	20		0.917	1.50	1.67	1.00	1.017
Tractors	5	0.30	0.333	1.00	1.50	0.45	0.717
Refrigerated Truck	5	hired	0.333	1.30	2.83	0.96	1.085
Pick-Up Truck	5	0.10	0.133	0.40	0.60	0.68	0.383
Plant Supports	5	0.12	0.083	0.30	0.10	0.30	0.181
Spraying Equipment	5	0.30	0.150	0.60	0.30	0.25	0.320
Rose Plants	5	12.00	12.00	12.00	12.00	12.00	12.000
Cold Store	10	2.08	1.667	2.55	3.47	0.84	2.121
Total Capital Costs		27.68	26.55	30.675	39.25	33.15	31.463
				29.113	32.32		
Total after planned expansion							
Annual Depreciation		4.2	4.225	4.058 /3	4.756 /3	5.221	4.492

/1 included in irrigation

/2 included in trading hall

/3 based on C (4 ha) and D (5 ha) after planned expansion

/4 included in electrical supply

3.4 Cold Stores

There were wide variations in reported unit cold store construction costs, depending on the size, source and type of refrigeration equipment. All seem to be functioning satisfactorily, although the farm using modified containers is operating close to maximum capacity.

Farm	Cubic Capacity (metres)	Cost/Cubic Metre (US\$)
A	460	226.09
B	700	142.86
C	240	212.50
D	336	309.82
E	two 40 ft refrigerated containers	

3.5 Tractors

Farm tractor costs ranged from US\$0.30/m² to US\$1.50/m². The number of tractors per farm ranged from one to three. Although 50-70 HP tractors are required for pre-planting cultivation, these large machines have little value on a rose farm. None of the farms were using tractors to transport flowers from the greenhouses to the grading hall, although distances travelled by hand trolleys was often several hundred metres. One farm was using donkeys for flower collection.

3.6 Trucks

One farm had contained start-up costs by hiring refrigerated transport from a neighbour. All but one farm had purchased second hand units. Farm costs ranged from US\$0.33/m² to US\$2.83/m² for a new truck. All farms had purchased second hand pick up trucks. These were used mainly by the farm managers.

3.7 Agrochemical Spraying Equipment

Several farms had centralised spraying systems. In these systems, agrochemicals are pumped from a central point to the individual greenhouses. The operator connects a spraying hose to take-off connections throughout the farm. These systems are invariably more costly than a mobile sprayer and have a serious limitation in that they are often less effective in maintaining high pressure at points distant from the central pump house.

All farms use sulphur burners, ranging in price from US\$0.225/m to \$0.52/m.

3.8 Rose Plants

All farms had purchased rose plants from Kenya at US\$2.00 per plant. One farm has established a joint venture enterprise to produce plants in Uganda. Since this is the biggest capital cost involved in setting up a rose farm, there are potentially large benefits to be gained from any price reductions which can be achieved.

Section 4: Production Costs

The operational production costs were established following discussions with farm owners and managers. Only two farms had data from October 1995 to March 1996, the other farms having not completed a full export season. For these farms annual costs have been estimated. Annual production costs for the sample farms are shown in Table 2. There was a wide range in production costs which ranged from a low of US\$66,798/ha to a high of US\$105,865/ha.

4.1 Management

Farm Manager costs showed a wide variation from a low of US\$3,600/ha to a high for a 2 ha farm of US\$30,000. Several farms reported under-performance of past management. A manager with a proven track record of rose growing can command a total salary and benefits package in excess of US\$70,000-US\$80,000 per year, which is a significant part of the total operating costs. Clearly, if this cost is spread over a large farm the unit/ha costs are substantially reduced.

4.2 Management Structure and Farm Labour

Most farms have similar management structures. The following is typical of the larger farms:

- Production Manager (Expatriate - European/Kenyan)
- Field Manager/s
- Field Supervisors 1-2/ha
- Field Headman 1-2/ha
- Irrigation Supervisor
- Spraying Supervisor + Assistant
- Grading Supervisor + Assistant
- Drivers
- Security Supervisor
- 1 Labour Controller
- Labourers 25-45 per hectare (depending on variety)

Accountancy support varies significantly from farm to farm given that some farms are part of larger and multi-enterprise businesses.

Table 2: Ugandan Rose Farms' Production Costs (US\$/m²)

	A (5 ha)	B (6 ha)	C (2 ha)	D (3 ha)	E (5 ha)	Average
Manager	14,400	10,000	30,000	4,000	3,600	
Field Manager		3,000	2,400	2,800		
Supervisors	19,200	2,400	17,000	21,666	26,400	
Labourers	/1	23,500	/1	1	/1	
Administration Staff	1,680	2,300	1,000	2,000	19,200	
Consultants				6,000		
Total Mngt/Labour	35,280	41,200	50,400	36,466	49,200	
Fertilisers/Agrochemicals	30,000	12,833	30,000	45,000	11,000	
Electricity/Diesel	4,800	7,000	4,200	13,333	9,600	
Building Repairs	2,000	2,000	1,200	8,000	4,400	
Machinery Repairs	4,050	2,000	2,600	/2	/2	
Phone/Fax	1,200	1,600	6,000	2,400	3,000	
Soil Analysis	200	165	500	666	240	
Total Production Costs	77,530	66,798	94,900	105,865	77,440	84,507
Depreciation /3	42,000	42,250	40,580	47,560	52,210	
Interest /4	19,900	19,150	20,961	23,270	23,868	
Unit Costs US Cents/Stem Sold (based on reported yields)	7.187	6.93	9.20	11.53	11.29	

/1 included in supervisors

/2 included in building repairs

/3 Farms C and D depreciation based on planned expansion to 4 ha and 5 ha respectively

/4 Notional interest based on 60% of capital borrowed at 12%

4.3 Labour Costs

Supervisors earn from US\$750 to US\$1000 per year. Labour costs including food range from US\$1.20 to US\$1.60 per day. Total direct labour costs, including management, clerical and consultancy support ranged from US\$35,280/ha to US\$50,400/ha on the smallest farm.

All owners and managers report additional indirect costs caused by problems in labour management, including:

- high turnover of staff
- inexperienced staff and shortage of trained supervisors
- low productivity

4.4 Fertilisers and Agrochemicals

Fertiliser and agrochemical costs ranged from US\$11,000 to US\$45,000 per hectare. All farms send soil samples to Holland for analysis, the cost of these services varied from US\$200/ha to US\$666/ha.

4.5 Power Costs

Electricity and fuel costs average US\$7,787/ha, with a low of US\$4,800/ha and high of US\$13,333/ha.

4.6 Building and Machinery Repairs

Greenhouse repair costs at US\$1,200 to US\$2,000 per ha may be expected to increase as the greenhouses age. Several managers report wind damage to structures.

Several farms reported the high costs of machinery spares, in particular for tractors and road vehicles, although this is not a significant amount relative to other costs.

Section 5: Rose Yields

With so few farms having more than one seasons experience of individual varieties there are wide variations in yield estimates. The leading farms have established that under Ugandan conditions varieties have the following characteristics;

- Attainment of Dutch annual yields in 8-9 months
- Higher yields than highland Kenya or Zimbabwe
- Shorter stems = higher yields
- Maximisation of yield is linked to production and management skill

The following table shows the range of yields reported by farms. For many of these varieties it is probable that higher yields are attainable.

Variety	Area (ha)	Stems/m ²
Sasha	1.0	300-320
Konfetti	3.0	150-200
Nicole	1.0	80-110
Jaguar	1.0	200
Gabriella	1.5	180-220
Frisco	3.0	330-350
First Red	13.5	130-200
Cream Prophyta	3.3	220-240
Rumba	3.3	120-140
Vanilla	0.8	220-260
Golden Times	0.5	160-180
Souvenir	2.8	290-310
Saphir	0.5	160-180
Versilia	1.0	150-170
Ambiance	0.5	140-170
Normal Prophyta	1.0	200-250
Rodeo	0.8	300-320

With most farms having both large flowered HT's and Sweethearts, average marketable per hectare yields are not comparable. A further factor is that some varieties, for example Ambiance have failed to perform under Ugandan conditions.

The failure of some varieties in Uganda in terms of yield, disease susceptibility and/or low market prices provides further emphasis on the crucial importance of Ugandan rose trials. (See also the parallel marketing study).

Estimated marketable rose yields for the five sample farms ranged from 1.36 million to 1.94 million stems per hectare.

Section 6: Marketing Costs

6.1 Packaging

All farms are importing cardboard cartons from Kenya. The landed Entebbe prices for cartons are reported as follows:

	US\$
Standard 12-14 kg	1.80
Standard 12-14 kg	1.60
Standard 12-14 kg	2.00
Standard 12-14 kg	2.40
Standard 12-14 kg	2.80

One farm is using the larger 17-kg carton at a landed Entebbe cost of US\$3.20. Kraft bunch wrapping paper costs around US\$1.60/kg, equivalent to US\$0.04 per bunch.

Aquapacks. Two farms are marketing through the Netherlands Teleflower auction using aquapacks on a trial basis. These have a rental and additional freight cost of around 3 Dfl cents/stem. Reported premiums for aquapacks range from nil to 8 Dfl cents per stem. Since aquapacks eliminate the need for retrimming of stems in Europe (normally 3cms of stem are removed) there is a weight advantage from aquapacks, offset by added water and a theoretical saving in auction preparation costs of Dfl 2.4 cents for Sweethearts and Dfl 2.6 cents for HT's. Although the optimum technology still needs to be developed, this is clearly the way to go if prices for East African roses are to be increased relative to Dutch roses.

6.2 Freight

Air freight costs for flowers to the major European markets (Amsterdam, Brussels, Frankfurt and Paris) are US\$1.70/kg to US\$1.80/kg plus US\$0.07 for handling at Entebbe. Other airport charges are US\$ 15.00 Bond Fee and US\$15.00 for the Airways bill. The British Airways freight rate to London for flowers is US\$2.20/kg. Given a wide variation in flower weights per kg the following average count/weight ratios have been used in calculations.

Pack Weight (kg)	Pack Count (stems)	Stem Length (cms)
17	1,000	30-40
17	660	40-50
17	500	50-60
17	320	60-80

6.3 Marketing Costs

Auction charges cover airport clearance, transport, preparation, bucket hire, trolley hire, commission and other charges. The total of these charges will of course depend on the sale price. Individual farm estimates of these costs are as follows:

Farm	Charges as % of sale price
A	17+
B	15
C	17
D	16-17
E	20-21

Section 7: Unit Costs per Stem

Analysis of individual farm unit stem costs is complicated by the differing proportions of Sweethearts, Hybrid T's and intermediate varieties. In terms of production costs per hectare, the Sweetheart varieties have a higher labour input but a much lower unit freight cost component.

Given that several farms have not completed a full export season, and for those established farms actual costs of short stemmed and long stemmed roses are not recorded separately, unit costs per stem, by varietal type have been estimated. The two farms selected for this detailed analysis grow both small and large flowered varieties. Labour costs for small and large varieties will differ, ie. the large flowered labour component will be around 25-30% lower than for short stemmed varieties. However in the following examples the total farm labour costs (ie. all varietal types) has been used as the basis of the calculations.

The costings include depreciation and an assumed interest component based on 60% of the investment borrowed at an interest rate of 12%. It should be noted that these costings exclude land purchase and land clearance costs.

Table 4: Farm A Comparative Breakeven Unit Costs (large/medium/small flowered varietal types, US\$/hectare)

	Large		Medium		Small	
	US\$	%	US\$	%	US\$	%
Stems Yield/m ²	140		200		300	
Average stem size (cms)	55		50		40	
Management & Labour	35,280	12.5	35,280	12.3	35,280	12.2
Chemicals/Fertilizers	30,200	10.7	30,200	10.5	30,200	10.5
Electricity/Fuel	4,800	1.7	4,800	1.7	4,800	1.7
Repairs Building and Machinery	6,050	2.2	6,050	2.1	6,050	2.1
Communications	1,200	0.4	1,200	0.4	1,200	0.4
Depreciation /1	42,000	14.9	42,000	14.6	42,000	14.5
Interest /2	19,900	7.1	19,900	6.9	19,900	6.9
Packaging /3	8,540	3.0	10,400	3.6	10,200	3.5
Freight /4	85,450	30.4	88,500	30.8	90,000	31.2
Marketing 17% /5	47,809	17.0	48,815	17.0	49,081	17.0
Total Cost /6	281,229	100.0	287,145	100.0	288,711	100.0
Break even auction price (US €)	20.09		14.36		9.62	
NL Guilder Cents /7	33.14		23.69		15.88	

Table 5: Farm B Comparative Breakeven Unit Costs (large/medium/small flowered varietal types, US\$/hectare)

	Large		Medium		Small	
Stems Yield/m ²	140		200		300	
Average stem size (cms)	55		50		40	
	US\$	%	US\$	%	US\$	%
Management & Labour	41,200	15.4	41,200	15.1	41,200	15.0
Chemicals/Fertilizers	13,000	4.9	13,000	4.8	13,000	4.7
Electricity/Fuel	7,000	2.6	7,000	2.6	7,000	2.6
Repairs Building and Machinery	4,000	1.5	4,000	1.5	4,000	1.5
Communications	1,600	0.6	1,600	0.6	1,600	0.6
Depreciation /1	42,250	15.8	42,250	15.5	42,250	15.4
Interest /2	19,154	7.2	19,154	7.0	19,154	7.0
Packaging /3	9,240	3.5	11,200	4.1	10,800	3.9
Freight /4	89,310	33.5	92,500	33.9	94,068	34.3
Marketing 17% /5	40,015	15.0	40,924	15.0	41,130	15.0
Total Cost /6	266,769	100.0	272,828	100.0	274,202	100.0
Break even auction price (US ¢)	19.05		13.64		9.14	
NL Guilder Cents /7	31.44		22.51		15.08	

/1 See Table 1 for depreciation rates

/2 Assumed 60% loan on capital at 12%

/3 Carton cost US\$1.80 farm A and US\$2.00 farm B, Kraft paper US\$1.60/kg, 4 cents/bunch

/4 Freight US\$1.77/kg farm A and US\$1.85/kg farm B (Average 55cm = 29/kg, 50cm = 40/kg, 40cm = 59/kg)

/5 Marketing costs including clearance and all auction charges

/6 Break even total clock auction sales value

/7 US\$1.00 = NL Guilders 1.65

Section 8: Comparative Advantage

Comparative advantage depends upon several key factors which affect farm profitability. The most important of these is the calibre of management. High yielding, high quality rose producers seldom fail and these producers rarely have serious marketing problems.

The exception to this rule is where the capital investment has been too high and the business is unable to service its debt. Farm failures arise primarily as a consequence of production constraints, linked to poor management, but which are frequently blamed on low market prices and marketing constraints.

In Africa rose projects linked to an established farming company producing coffee, tobacco, cereals, etc (such as those found in Zimbabwe) invariably have a major advantage in that they have substantially lower infrastructure and start-up costs. The new and independent rose project will normally have much higher costs of building staff housing, roads, office blocks and security fencing and in installing electricity and water supplies. Many of the early rose farms in Kenya and in Central America had the further advantage of utilising low cost on farm timber for greenhouse construction.

An additional common weakness of many new developing country rose projects is that investors are advised to spend on the latest high cost technologies from the Netherlands or Israel, thereby substantially increasing their capital costs. This can be a problem with some "turnkey" projects.

8.1 Capital and Annual Operating Costs

The following capital costs for Kenya, Zambia and Zimbabwe are based on individual country data and several recent reports made available by the ADC, as well as personal observations.

8.1.1 Kenya

Capital Costs. The following costs are based on 3-hectare wooden structure with infrastructure capacity to expand to 6 hectares. The project has capital costs of US\$1,137,750. (US\$ 37.925/m² of greenhouse area). Office set up costs are excluded.

Table 6: Kenyan 3 ha rose farm - capital costs

	Write Off Period (Years)	Cost (US\$)	Annual Write Off (US\$)	DFL
Land	-	125,000	-	-
Greenhouses	10	105,000	10,500	17,850
Irrigation & Pumps	10	76,150	7,650	12,946
Buildings	20	119,000	5,950	10,115
Other Tech. Materials	5	22,800	4,560	7,752

Table 6: Kenyan 3 ha rose farm - capital costs

	Write Off Period (Years)	Cost (US\$)	Annual Write Off (US\$)	DFL
Tools, Office Equip.	3	13,700	4,567	7,763
Plastic	4	30,000	7,500	12,750
Generator	10	16,200	1,620	2,754
Communication Equip.	5	11,900	2,380	4,046
Plant Materials	5	344,000	68,800	116,960
Cool Area	10	74,000	7,400	12,580
2nd Hand Vehicles	3	74,000	24,667	41,933
Land Preparation	6	126,000	21,000	35,700
Total		1,137,750	166,558	283,149

Source: ABN AMRO BANK, Netherlands

Annual Operating Costs. Annual production costs for the above Kenyan project are US\$ 1,134,000 (US\$ 37.8/m) in year 1 inclusive of air freight costs and US\$ 1,198,000 in year 2 (US\$ 39.93/m) inclusive of air freight costs. The annual costs take account of 2 directors and travelling expenses for the management to Europe. Analysis of annual costs are as follows:-

Table 7: Kenyan 3 ha rose farm - annual costs (%)

	%
Air freight and marketing	50.1 (air freight US\$1.75/kg)
Labour costs inclusive of management costs	14.0
Depreciation (based on 3 year capital repayment grace period)	13.8
Bank Interest @ 10%	4.7
Production inputs	5.2
Energy/fuel	1.4
Others	10.7
Total (Yr 2 US\$1,198,000)	100.0

8.1.2 Zambia and Zimbabwe

Capital Costs. Costings are based on 3-hecrate metal framed greenhouses with infrastructure for a 6-hectare project. The project has a capital costs of US\$941,700 (US\$31.39/square metre).

Table 8: Zambia/Zimbabwe 3 ha rose farm - capital costs

	Write Off Period (Years)	Cost (US\$)	Annual Write Off (US\$)	DFL
Land	-	10,000	-	-
Greenhouses	10	180,000	12,000	20,400
Irrigation & Pumps	10	52,000	5,230	8,891
Buildings	20	106,000	5,300	9,010
Other Tech. Materials	5	14,800	2,960	5,032
Tools, Office Equip.	3	6,200	2,067	3,513
Plastic	4	30,000	7,500	12,750
Generator	10	16,200	1,620	2,754
Communication Equip.	5	8,500	1,700	2,890
Plant Materials	5	344,500	68,900	117,130
Cool Area	10	60,000	6,000	10,200
2nd Hand Vehicles	3	70,000	23,333	37,333
Land Preparation	6	42,500	7,083	12,042
Total		941,700	143,693	244,279

Source: ABN AMRO BANK, Netherlands

Annual Operating Costs. Annual operating costs in US\$748,000 in year 1 (US\$24.93/m²) inclusive of air freight costs and US\$915,000 (US\$ 30.5/m²) in full production and inclusive of air freight costs.

The project costings include a small senior management expense but exclude any travel costs to Europe. Analysis of annual operating costs are shown below:

Table 9: Zambia/Zimbabwe 3 ha rose farm - annual costs (%)

	%
Air freight and marketing	61.0 (air freight US\$2.35/kg)
Labour costs inclusive of management costs	7.6
Depreciation*	16.1
Bank Interest	2.6
Production inputs	5.2
Energy/fuel	0.9
Others	6.6
Total (Yr 2 US\$915,000)	100.0

8.1.3 Netherlands

Capital Costs. In any comparative analysis of African and Netherlands capital costs it is important to appreciate that the majority of Netherlands rose growers are family businesses which have been established often for many years. Therefore comparatively few companies operate from a new holding. The following are the estimated minimum capital costs of building a modern rose farm in the Netherlands (excluding packhouses and infrastructure).

	US\$
Glasshouse (basic structure) Venlo design	400,000
Boiler heating and pipework	160,000
Computer control/thermal screens	90,000
Hydroponics/substrate equipment	80,000
Lighting	200,000
Rose Plants	155,000
Total	1,085,000

Annual Operating Costs. Using Netherlands standard production costs prepared by the Netherlands Ministry of Agriculture, the average producer has annual operating costs excluding greenhouse depreciation of US\$38.75/m² and depreciation and interest costs of US\$12.0/m² Giving a total annual cost of US\$50.75/m². At these costs the producer will be losing money unless he is achieving high yields of high quality.

	US\$	US\$/m ²
Output	560,000	56.0
Labour Costs	180,000	18.0
Plant Depreciation over 5 years	22,000	2.2
Heating and Lighting	95,000	9.5
Chemicals/fertilizers	14,000	1.4
Repairs maintenance	25,000	2.5
Marketing Costs	45,500	4.55
Depreciation	120,000	12.0
Total Costs	507,500	50.7

This data provides support to a widely held view in the Netherlands that approximately one third of rose growers are achieving reasonable profits, one third are breaking even and one third are in serious financial difficulty.

8.2 Uganda's Comparative Advantage

8.2.1 Capital Costs

If land and land clearance costs are excluded the costs of establishing a rose farm in East Africa appear broadly similar. A Netherlands rose nursery costs more than 3 times an East African farm.

	US\$/m ²
Kenya	29.56
Zambia/Zimbabwe	29.64
Uganda	27.68
Netherlands	108.50

Zambian and Zimbabwe costs are based on metal greenhouses and recent quotations suggest that current (1996) costs in Zimbabwe for metal would add a further US\$ 6.0 to US\$ 8.0 per square metre to the costs shown above.

8.2.2 Operating Costs

With freight costs influenced by stem length, marketing costs related to the sales price, any yield comparisons between countries are not straight forward.

Table 13 shows comparative operating costs for East Africa and the Netherlands based on a yield of 140 stems/square metre.

	US\$/m ²
Kenya	39.93
Zambia/Zimbabwe	30.50
Uganda A //	28.12
Uganda B /2	22.68
Netherlands	50.70

// Based on achievement of average Ugandan VBA prices

On the assumption that yields and quality are comparable in Kenya, Zambia, Zimbabwe and Uganda then the comparative operating costs per stem would be as shown in Table 14. The cost calculations have been based on yields of 300 stems/m² of small flowered and 140 stems/m² for large flowered varieties, using a combination of data from this report and AMRO Bank data. Netherlands costs are based on the average of 109 farms. Freight costs are based on Kenya US\$1.70/kg, Zambia and Zimbabwe US\$2.35/kg and Uganda US\$1.77/kg.

Table 14: Comparative Unit Costs of Production (including air freight charges – large and small flowered varieties (US\$ cents/stem)

	Small flowered 300/m ²	Large flowered 140/m ²
Kenya	13.90	29.79
Zimbabwe	12.31	26.38
Uganda A /1	12.62	25.69
Uganda B /1	11.84	25.14
Netherlands	17.06-26.47	28.36-40.97

/1 Based on achieving average VBA auction import prices

Given the potential in Uganda to achieve higher yields than Kenya and Zimbabwe comparative unit cost advantage lies with Uganda.

8.2.3 Margins

Flower farm profitability is closely linked to yield and above all quality. Table 15 shows the 1995 VBA average price (US Cents) per stem by country of origin for the varieties First Red and Frisco.

At 1995 average VBA import auction prices of 16.4 US cents per stem for FRISCO the Ugandan producer is highly competitive. However, in 1995, FRISCO consignments from Uganda averaged only 15 US cents, even at this value the Ugandan producer remains profitable with a theoretical margin per square metre of US\$7.14 to US\$ 9.48.

If however the Ugandan producer had been achieving Kenyan prices then the profit margin per square metre would have been around US\$16.00. Whereas the Kenyan producer would achieve a margin of US\$12.9 given his higher costs.

In 1995 the average VBA import price for First Red was US 45.45 cents but the Ugandan average price was only US 32.1 cents, at this price the Ugandan producer would in theory make a margin of US\$9.74 per square metre. If Kenyan prices could have been achieved then the margin increases to US\$18.35.

With shorter stem lengths for Ugandan First Red than Kenyan First Red, Uganda would have been unlikely to achieve a comparable margin to Kenya, this example does demonstrate the critical importance of achieving high and consistent quality.

Thus the full benefits of Uganda's low unit costs can only be realised if quality standards are high.

Table 15: Comparative Rose prices by Source
(1995, US\$/stem)

	First Red	Frisco
Netherlands	49.1	16.4
Kenya	38.8	18.2
Zimbabwe	35.8	12.4
Tanzania	48.5	
Zambia	29.7	
Malawi	29.1	13.3
Uganda	32.1	15.2
Israel	41.2	19.4
India	26.7	
USA	41.8	
Average	45.5	16.4

Source: VBA Netherlands

Section 9: Technical and Quality Issues

9.1 Stem Length and Bud Size

Under conditions of high temperature the number of stems will increase, but the length of individual stems will be shorter and bud size reduced. Every effort must therefore be made to reduce greenhouse temperature. In this context greenhouse design is extremely important. Experimental evidence in the tropics indicates that no plant should be more than 20 metres from a side or end ventilation opening to ensure maximum cooling, even in tall houses with continuous roof ventilation. Some of the existing rose greenhouses are of dubious design which contributes to the problem of small bud size.

9.2 Humidity and Disease Control

High humidity assists plant establishment and cooling during the summer. Many farms have therefore installed overhead sprinkler systems in addition to drip irrigation systems. The use of overhead misting will also discourage powdery mildew as well as stimulate crop growth. Powdery mildew is unlikely to be a problem if the relative humidity in the greenhouse is above 75% during the day. Providing the crop dries out by late afternoon other fungal diseases (downy mildew and botrytis) should not be a problem.

9.3 Pruning and Bending

Following the trend in Holland many growers are adopting the "bending" technique. Whilst this system has benefits under the poor light conditions of Northern Europe there are doubts as to its validity in the tropics.

In Holland with experienced growers the system works, but in the tropics Red Spider Mite can become a very serious problem. Low level bending provides the ideal conditions for the pest and the dense canopy created by bending makes effective spraying impossible. RSM once established is both difficult to control and reduces yield. The pest can be effectively controlled environmentally by creating a humid atmosphere, and keeping the foliage away from the soil. Downy Mildew can also be extremely difficult to control where bending is practised. There is therefore an urgent need to fully evaluate the advantages of standard pruning practices as against the bending technique.

9.4 Flower Quality and Vase Life

All the flower farm managements recognised the importance of high quality, and good post harvest handling. Although all farms claim to practice optimum post harvest handling systems there was evidence of some inappropriate practices on all farms visited. Examples of problems observed were:

- Access to houses and within houses is badly planned with long, narrow roadways. This can result in damage during handling of blooms due to tired workers and an increased interval from harvest to arrival at the packhouse.

- With only hand carts and long distances to the packhouse the interval between harvest and arrival at the packhouse is too long.
- Aluminium sulphate is widely used as a post harvest bactericide but trials are required to establish if vase life could be extended by adoption of other post harvest chemicals.
- Rough handling of flowers in the packhouse leading to increased mechanical damage.
- Product flows through most packhouses were slow with considerable scope to reduce handling and thereby limit mechanical damage.

An improvement in post harvest handling of flowers is essential if the overall quality and image of Ugandan roses is to be improved. Some quality problems can also be attributed to the inadequacies of airport handling and cold storage facilities. Unless a complete cold chain can be maintained from farm to market there is no prospect of Uganda achieving its full potential for rose growing.

9.5 Varietal Selection

Given the characteristics of the Ugandan climate the risks of failure with new varieties is higher than in most other East African countries. It is therefore essential that a continuous programme of commercial trials is instigated with a wide range of new varieties. It is suggested that at least 250 plants of each new variety should be planted to ensure sufficient flowers are available for market scale trials. It is further recommended that trials should be concentrated on the best farms where management standards are high.

9.6 Management

In common with other new industries in other parts of the world there is an acute shortage of trained and skilled rose managers and supervisors in Uganda. Although Uganda is fortunate to have several high calibre expatriate managers from the Netherlands, Israel and Kenya there have been problems on some farms where expatriate managers have lacked the necessary essential "practical horticultural skills".

It was observed on several farms that there is an overdue emphasis on high technology. Most farms for example regularly send soil samples to the Netherlands and rely totally on these recommendations. Soil analysis is an aid to crop management it can never be a substitute for the basic horticultural production skills of reading the plant. Roses cannot be grown by the book, there can be no substitute on a farm for the 'grower'. If the Ugandan industry is to achieve its full potential all farms have to develop these very basic horticultural skills.

Section 10: Training Needs

There is a requirement to establish a training programme for potential managers and supervisors. The programme should include the following components:

- Basic physiology of the rose plant
- Rose propagation
- Nutrition
- Pruning
- Post harvest handling
- Farm planning and greenhouse design
- Principles of efficient labour organisation and work study
- Labour management and motivation
- Identification of pests and diseases
- Establishing and monitoring pest and disease control systems
- Pesticide application technology and practice

Section 11: Conclusions

1. The Ugandan climate offers the potential for higher yields than in neighbouring 'Highland' regions of East Africa. The Ugandan climate does however impose some climatic constraints, which unless countered by high calibre management can result in inconsistent quality standards.
2. Low Ugandan unit production costs linked to a very competitive freight rate offer the potential for a 12 month export season. This potential can only be realised if consistent quality is achieved. In this context post harvest technologies have to guarantee an extended vase life of 8 to 10 days following harvest.
3. It will be necessary to improve cold storage facilities and handling of roses at the Entebbe airport before any significant expansion of the industry can be achieved..
4. There is a requirement for new rose farms to be better planned to offset climatic constraints. However, farm profitability will remain dependent on management skills. In this context experienced and practical horticulturalists are essential within all management teams.

APPENDIX II

**ROSE PRODUCTION:
THE GROWERS' EXPERIENCE**

JULY 1996

Prepared by:

**Geoffrey D. Lwanga and Vincent Ssenyonjo
on behalf of
the Uganda Flowers Exporters Association**

Introduction:

In this discussion, I will focus on the overall experiences of the Ugandan commercial rose grower, because we have all shared similar experiences in setting up and running our projects.

Commercial growing of roses in Uganda is a very recent phenomenon, dating back only three years. In this short spell of time, we have seen a very rapid development of this industry from one project in 1993 to 12 projects to date. There is positive indication that we could easily have 200 hectares of rose production in Uganda by the turn of the century.

Rationale for Investing in Rose Production in Uganda

The basic motivating factor for our investment in rose production, as it is with all business, is to make a profit and improve our well-being. Though we have started later than some of our neighbors and other countries around the world, there has been a dramatic leap in investment in this industry in Uganda. Some of the attributable factors for this are outlined below:

1. Peace and Political Stability

This has been the paramount reason for us to even start thinking about investment in Uganda. The peace ushered in by the NRM in 1986 has restored our confidence, and that of financing institutions, to invest and lend money for projects in this country.

2. The Good Climate

Uganda is naturally endowed with a climate suitable for year-round production of excellent quality roses. This offers us a comparative cost advantage over other competing countries, many of which are compelled to use machinery to heat or cool their greenhouses in order to simulate an ideal climatic condition.

3. Land

Suitable land for development in Uganda is readily available and is still reasonably priced compared with any other competing country in the world.

4. Labour

There is abundant labour available at reasonable rates. Though Uganda still lacks indigenous skills in rose husbandry and has to employ expensive technical personnel from abroad, the major bulk of work is done by unskilled and semi-skilled workers. This offers an advantage over some competing countries which have to use expensive computers and robots in their rose production, and also have very high labour rates.

5. Government Policy

Since 1986, we have seen improvement in government economic policies which have attracted investments to Uganda. These include:

- The government foreign exchange liberalisation policy and 100 percent foreign exchange retention policy.
- The advent of the investment code and the Uganda Investment Authority, which has helped us greatly.
- The government tax policies that are conducive for establishment of investments in Uganda.

6. International Support

As an ACP country, Uganda benefits significantly from lower tariff barriers than many of its competitors.

International institutions such as USAID and FMO, etc, have also contributed greatly by providing grants for management, technical assistance and other support in establishing and promoting non-traditional exports (NTE's) from Uganda.

7. Establishment Costs

The total establishment costs for rose projects in Uganda are much lower than for many of our competitors. For example, the cost to set up a one hectare greenhouse structure in Holland is about US\$400,000, compared to about US\$75,000 in Uganda. Even though we must bear the added cost of airfreight, it has been established that other cost factors outweigh the airfreight disadvantage.

Rose Projects - Financing

All rose projects in Uganda have mainly been funded in the following ways:

- Medium-term loans with interest, ranging between 12%-14%. The major lenders in this sector have been DFCU, EABD, IFC, FMO, UDB, and PTA Bank.
- Owners' equity contributions
- Grants from agencies such as USAID and FMO for management and technical assistance.

Production Operations

Area. The total area devoted to rose production in Uganda today is approximately 40 hectares. Roses are mainly grown in wooden greenhouses made out of Eucalyptus poles and timber. Only one project is currently using steel structures. Roofing is by special UVI-treated PVC/Polytherene sheetings, which are imported. There is some outdoor production as well.

Seasonality. Production of roses in Uganda is geared to supply the European markets during the nine months between September and early June, when the European production is at its minimum.

Employment. The rose industry in Uganda directly employs over 3,000 people.

Management. Production operations are usually handled by expatriate managers, who are responsible for overall crop management to ensure production of quality roses. They are assisted by local staff and periodical visiting consultants.

Transportation to the Market. Flowers are harvested daily and kept in cold rooms at the farm before being dispatched in refrigerated trucks for export by air through Entebbe Airport. At the airport, Uganda Airlines/Enhas handles the product and is responsible for palletising and loading onto the aircraft. The majority of farmers export 3-4 times per week aboard Sabena, Gulf Air, Triangle Airlines, Das Air Cargo and lately, Air France and Alliance Airlines.

Paperwork. At the airport, Ministry of Agriculture Plant Protection Department issues phytosanitary certificates for every shipment. Uganda Customs is responsible for processing all the necessary Customs export entries. Among the forms accompanying the shipment are the BOU, CD3, and UEPC EURO1 Certificate of Origin.

Marketing. Marketing is mainly done through agents on a commission basis. These agents are responsible for preparing and selling the product directly or through the Auction system in Holland. Some farmers export directly to importers in Sweden, Holland, the UK, France, etc. Reports are sent from the market by fax to every farmer on a daily basis, giving the prices achieved and any quality comments on the particular shipment.

At a glance, the whole process seems to be very smooth and easy. However, I would like now to share some of the experiences, difficulties and observations gained from operating in the Ugandan rose industry. It is hoped that sharing these experiences will give rise to discussions and solutions to some of the obstacles which still stand in the way of growth.

Observations and Suggestions

1. Financial Institutions Must be Educated About the Industry

The lending institutions have to learn more about this new industry in order to understand it fully. They need to understand that this industry is controlled by market forces in Europe which the Ugandan grower can hardly influence. Flowers are sold mainly (safely) at Auctions which belong to co-operative societies which have to protect their own interests first. The commissions and other charges levied by the Auctions are determined without consulting the exporter.

Another major factor affecting the industry is the European weather. If cold weather is late coming to Europe, then prices for imported roses will remain low until the winter makes it difficult and expensive for the European grower to continue producing flowers. If the European winter is too cold, this can also reduce prices for imported roses because then retail outlets' sales will be limited. It is only when the winter temperatures average 1C to 6C that imported flowers, in general, fetch reasonably good prices.

For example, in the just-concluded season, the weather has behaved very unusually and caused very poor prices throughout the season. At the beginning of the season in September, we saw a continued warm climate in Europe which meant continued supply of flowers to the market by European growers. This increased supply obviously depressed prices, especially for imported roses. Also, during our peak time of December to March, the winter was so severe (-0C) that demand for flowers in general was below usual levels, and prices suffered again.

For these reasons, the lending institutions are requested to re-examine their current lending policies and consider the following:

- Be flexible to borrowers in hard times, especially as a result of bad marketing seasons.
- Allowing a longer period of grace before commencement of loan repayments (for example three years) to enable projects to mature and reach optimum levels of production/size.
- Reducing interest rates to the range of 8-10 percent in conformity with the international lending/interest rates.
- Carefully schedule loan interest and principal repayments to coincide with the projects' healthy cash flow period, ie. during the export season.

2. Market Behavior is Difficult to Predict

When we are making feasibility studies, many assumptions are made, but it is difficult to cater for all circumstances and eventualities which may affect the prices of the product.

The biggest costs for the Ugandan producer are still marketing costs (ranging from 17-21% of gross sales) and airfreight (US\$1.95/kg). These rates are exorbitantly high and account for almost 40% of gross sales.

3. Farms Must Operate at Optimum Levels

Getting to optimum levels of operation as quickly as possible minimizes a farm's cost of production because it leads to efficient use of personnel and infrastructure. Experience in Uganda suggests that the optimum project size for a loan-funded project would not be less than 4 hectares.

4. UEB Power Supply is Unsatisfactory

The process of applying for and getting a power supply is long and cumbersome and the cost is exorbitant. At times, investors have had to import their own transformers from abroad.

After the power is installed, the main problems begin.

- Power is unstable, at times blowing up our machines without any fall-back position to UEB.
- Power supply is very intermittent and unreliable, with very frequent interruptions.
- The UEB power tariff is very high because presumably the few people which UEB can land on are paying for power consumed by people who are not billed or who have illegal connections. By doing this, UEB is hurting its good customers.

5. There is a Lack of Locally Available Skilled Manpower

The floriculture industry is one of the few sectors in Uganda which lacks qualified, skilled, and experienced local personnel. As a result, large sums of money are spent on expatriate expertise who are, at times, unwilling to import knowledge to local staff.

However, many projects have recruited local personnel to understudy the expatriate managers and some projects are now undertaking training programmes for their workers with the assistance of the USAID IDEA project.

6. The Availability of Inputs

In the beginning, growers had to import the whole bulk of required inputs from abroad, such as fertilizers, chemicals, packaging materials, etc. This was time consuming and costly and caused serious cash flow constraints to the projects, because the time it took to order and receive goods required the grower to stock materials for at least six months.

This situation has now improved. Many foreign companies have now set up in Uganda and are trying to cope with the importation of stocks generally required by the farmers.

7. Importation Procedures

All the goods subjected to S.G.S. inspection are delayed. This area should be opened up since there are other recognised inspection bodies which are more efficient.

Initially, goods were often delayed at Nakawa Customs due to the long and laborious process of clearing. This has now been eased and the attitude of the customs officers has greatly improved this year.

8. Airfreight Space

Last year there was fierce competition between exporters for airfreight space due to very few airlines flying direct to Europe from Entebbe. This situation has improved with Sabena introducing more flights and new airlines coming in. However, we are now being informed that some airlines are going to cut down on their flight frequency from EBB.

9. Cold Storage and Proper Handling Facilities

There is a lack of cold storage facilities at the airport, which is unfortunate since maintaining a cold chain is essential to maintaining good quality roses. As a result, goods are left in the open while customs export documentation is being processed. This greatly compromises the quality of our product.

Recently, USAID approved funding for the construction of a cold storage facility at the airport, and we hope this will solve the problems of exporters of perishables.

The handling of roses at Entebbe Airport leaves a lot to be desired. There is neither the necessary equipment, nor the trained personnel required to properly handle perishables. In addition, there is no shaded holding bay to keep the pallets before loading onto the aircraft. As a result, boxes are left open to sunshine and rain, which obviously has an adverse effect on quality and, therefore, on the price of the product.

Investment should be made in improving these facilities at the airport as a matter of urgency.

10. The Issuance of Phytosanitary Certificates

All agricultural exports must be accompanied by a phytosanitary certificate in order for the goods to be allowed into the importing country. In Uganda, these certificates are issued by the Ministry of Agriculture. However, since the major bulk of exports are sent during the night, on many occasions there are no officials from the Ministry to issue the required permits. We have raised this matter with the Ministry and the situation has now improved.

11. The Uganda Investment Authority Has Been a Great Help

The UIA has tirelessly facilitated our industry in the following ways:

- By issuing of investment licences and certificate of incentives, whereby all project capital inputs are free of taxes and duties.
- By granting concessional tax holidays during the investment period.
- By processing work permits for our expatriate staff.
- By liaising with government bodies when we encounter problems.

Without these facilities, these rose projects would be more of a myth than reality. We would like to commend the entire staff of UIA for their transparency and objectivity when handling our issues.

Contributions of the Ugandan Rose Industry

I would like to point out some of the significant contributions of the rose industry and its impact on the economy so far. In only three year, the rose industry has accomplished the following:

- Created over 3,000 new jobs in rural areas.
- Generated gross foreign exchange earnings of over US\$10 million during 1996 into the economy.
- Developed local expertise through on-the-job training of local personnel in the specialised skills of rose production and management.
- Developed airfreight capacity dedicated to the transportation of horticultural products, which was initially lacking.
- Improved the lives of rural women. Almost 85 percent of all farm workers in the rose industry are women. As a result of their employment, income levels in villages adjacent to rose farms have increased, standards of living have improved and we are also seeing more stable homes.
- Contributed to the development and widening of the government tax base by introducing a new crop over the traditional export crops.
- To a commendable extent, has stopped rural-to-urban migration by providing jobs in the rural areas.
- Catalysed the development of commercial forest growing, ie Eucalyptus forests.

Summary

In summary, I would like to make the following comments, observations and recommendations:

1. The Uganda Flowers Exporters Association (UFEA) should be supported and strengthened as a vehicle for the development of the industry in Uganda.
2. Policies likely to affect the industry should be discussed with UFEA before being enacted, to avoid double standards and injuring the sector at such an infant stage. For example, we have already noted some negative effects of the VAT system on the flower industry, which we have now addressed and will put forward a memorandum to the Hon. Minister of Finance for discussion.
3. The CAA should make it a priority to improve on the infrastructure at the airport and make an effort to get its staff trained to professionally handle perishable products.
4. UEB must expeditiously solve the power problem as it is definitely going to influence industrial development in Uganda.

The rest of my recommendations are directed to the rose growers:

5. Take utmost caution when choosing the varieties, in order to ensure good returns for your projects.
6. Proper farm management practices should be adhered to, so that Uganda gains a reputation for good quality product. This will lead to better prices.
7. In order to minimize costs, farmers should ensure that they achieve optimum levels of production as fast as possible.
8. Workers' safety and environmental protections should remain our top priority in exploiting resources.

Uganda Flowers Exporters Association

Objectives of the Association

- a. Represent the interests of all the flower exporters in Uganda;
- b. Seek recognition, cooperation and support of the Government of Uganda, relevant government institutions and other bodies;
- c. Seek recognition, cooperation and support of other exporters' associations in Africa, and other international institutions connected with the floriculture industry worldwide;
- d. Promote flower growing and the floricultural industry in Uganda;
- e. Encourage, assist and support members of the Association to succeed in their business enterprises and to help them acquire all the necessary information in the successful development of their flower export businesses;
- f. Encourage, promote and protect the interests of the members of the Association and of other persons who are interested or concerned in the flower business by ensuring that proper standards and business ethics are maintained throughout the trade and to take in consultation with the members of the Association such measures as are designed to achieve this objective;
- g. Discourage unfair competition without necessarily interfering in any way with individual members' initiative in trade;
- h. Promote friendly relations and cooperation among the members of the Association;
- i. Provide machinery for consultation and negotiation between the Association and other organisations, Government and/or institutions concerned with the development of the floriculture industry in Uganda;
- j. Advise the Government from time to time of developments in the floriculture industry both locally and internationally;
- k. Do all such things as are conducive for the better attainment of the objectives of the Association.

Uganda Flowers Exporters Association

Present Membership

1. Nile Roses, Ltd.
2. Ziwa Horticultural Exporters, Ltd.
3. Scoul Roses, Ltd.
4. Victoria Flowers, Ltd
5. Pearl Flowers, Ltd.
6. Nsimbe Estates, Ltd.
7. Mairye Estates, Ltd.
8. Tropical Flowers, Ltd.
9. NBA Roses, Ltd.
10. Royal Flowers, Ltd.
11. Jambo Roses, Ltd.
12. Equator Roses, Ltd.

APPENDIX III

**EUROPEAN MARKET PROSPECTS
FOR UGANDAN ROSES**

APRIL, 1996

Prepared by:

Stephen New

Agribusiness Development Centre (ADC)

Uganda's Investment in Developing Export Agriculture (IDEA) Project

BACKGROUND

1. Ugandan production of roses for export has increased from a zero base in 1993 to 32 hectares under production in January 1996, with an FOB value of more than \$5.0 million in 1995. Production is expected to increase by another 25% or more in 1996.
2. As a result of increasing costs in the Netherlands and other European countries, the general opinion in the flower industry is that, in the future, substantial production will shift from Europe to southern hemisphere countries such as Uganda.
3. The purpose of this study is to provide investors with an objective forecast of rose market trends in Europe for the foreseeable future, and to evaluate the potential for increased production in Uganda. The study was carried out by the Agribusiness Development Centre, under the USAID-funded Investment in Development of Export Agriculture (IDEA) Project. The data and information was collected in Europe during the period January-April 1996.

WORLD TRADE IN CUT FLOWERS

4. Total world imports of cut flowers amounted to US\$ 3,568 million in 1992, up from US\$ 2,512 million in 1988, an increase of 42% during the five year period. With the introduction of the EU single market, trade data for 1993 onwards is not exactly comparable with previous years, but imports appear to have increased by at least 5% per annum for the period 1993-1995.
5. Developing countries' share of world trade in cut flowers has increased annually since 1988 to approximately 23% of total trade in 1994, valued at over \$800 million.
6. Germany is by far the largest import market in the world, although its share of world trade has declined from 50% in 1981 to 37% in 1992. In 1994, Germany was the world's largest flower import market, worth approximately US\$ 964 m, followed by the USA (US\$ 517 m), France (US\$ 267 m), United Kingdom (US\$ 319 m), Netherlands (US\$ 262 m), Switzerland (US\$ 147 m), Japan (US\$ 191 m), and Italy (US\$ 123 m).
7. The Netherlands dominates world export trade in cut flowers, with exports valued at more than US\$ 1.9 billion in 1994, representing 58% of world trade. Colombia was the next largest exporter in 1992, with 14% of world trade, followed by Israel (4.5%), Kenya (2.6%), and Thailand (2.3%). Kenyan flower exports in 1994 totalled US\$ 85 million. Exports from Zimbabwe in 1994 were valued at \$37 million.
8. Roses account for more than 25% of world trade in flowers, with roses, carnations and chrysanthemums together accounting for around 50% of total flower imports.

CUT FLOWER CONSUMPTION

9. Cut flower consumption is increasing in all European countries. Per capita levels of consumption in 1994 were: Switzerland (\$108), Norway (\$63), Austria (\$49), Netherlands (\$47), Germany (\$44), Belgium/Lux (\$ 44), Italy (\$38), Sweden (\$38), France (\$35), Denmark (\$35), United Kingdom (\$21), and Spain (\$15).
10. Per capita rose consumption in 1994 was: Germany (69 stems), France (53 stems), Switzerland (52 stems), Belgium/Lux (45 stems), Netherlands (44 stems), Denmark (39 stems) and Italy (32 stems).

EUROPEAN TRADE IN ROSES

11. The total volume of EU rose imports increased from 1.76 billion stems in 1991 to 2.39 billion stems in 1994, an increase over the period of 36%.
12. The average market price of all roses on the Dutch auctions has remained relatively constant over the past four years:

1992	36 DFL cents/stem
1993	39 cents
1994	38 cents
1995	37 cents

The average price obtained in 1995 by First Red from Uganda, the main variety exported, was 53 DFL cents/stem.

EU Rose Import Market (millions of stems)							
Market	1991	%	1992	%	1994	%	91-94 Growth %
Germany	1,179.8	67.2	1,143.0	62.7	1,279.3	54.0	8.4
Netherlands	173.0	9.9	243.3	12.9	526.8	22.2	204.5
France	165.3	9.4	172.1	9.4	221.6	9.4	34.1
U.K.	91.3	5.2	94.9	5.2	123.7	5.2	35.5
Denmark	48.4	2.8	51.6	2.8	56.5	2.4	16.7
Belg/Lux	44.2	2.5	50.3	2.8	62.5	2.6	41.4
Italy	28.4	1.6	35.1	1.9	63.2	2.7	122.5
Spain	19.5	1.1	35.2	1.9	20.6	0.9	5.6
Ireland	4.3	0.2	4.7	0.3	9.3	0.4	116.2
Greece	1.0	0.1	1.3	0.1	1.3	0.1	30.0
Portugal	0.1	-	0.6	-	2.9	0.1	2800.0
Total	1,755.3	100.0	1,823.1	100.0	2,386.2	100.0	35.9

13. Germany is the largest import market for roses, accounting for 54% of EU trade in 1994.
14. In 1994, the Netherlands supplied 65.4% of the EU rose market with exports of 1,561m stems. The next largest supplier was Israel with 232m, followed by Kenya with 197m, Zimbabwe (124m), Ecuador (40m), Canary Isles (36m), Colombia (35m), Morocco (25m), Zambia (22m), Brazil (17m), Tanzania (15m), Uganda (15m) and Malawi (14m). There were more than 30 countries supplying cut roses to the EU market in 1994.
15. The Netherlands has a dominant market share in all the EU markets.

Netherlands Share of EU Rose Imports (% of volume)			
	1991	1992	1994
Germany	88.3	88.3	88.0
France	74.9	80.2	95.4
U.K.	65.3	60.3	56.0
Denmark	94.9	94.9	97.5
Belgium/Luxemburg	97.2	95.2	93.1
Italy	79.7	73.1	43.8
Spain	19.9	10.3	17.2
Ireland	75.6	76.7	86.3
Greece	90.0	93.9	85.9
Portugal	77.0	52.8	58.0

THE EXPANDING SUPERMARKET TRADE

16. Supermarkets are becoming a major outlet for roses, particularly in the UK, where they are aggressively expanding sales of all cut flowers. Their market share is currently estimated at 26%, which is predicted to increase to 38% by the end of 1996.
17. In Germany and the Netherlands, supermarkets control 10-15% of the retail market and this is expected to increase in future, but at a slower rate than in the UK.
18. UK supermarkets mainly procure supplies through 3 major packers: Lingarden, Zwetloot and Flowers Plus.
19. All European supermarkets have procurement strategies which require consistent high quality and a guaranteed long vase life. They also have stringent conditions for supplies in terms of staff health and welfare and environmental protection.

UGANDA'S COMPARATIVE ADVANTAGE

20. Cost of production in the Netherlands is 50-100% higher than in East and Southern African countries (see table on next page). Capital costs of greenhouse production are up to 300% higher in the Netherlands, which in practice excludes any new project investment in roses.
21. Based on similar yield assumptions, Uganda has significant cost advantage over Kenya and comparable costs to Zimbabwe. In practice Uganda can achieve 5-10% higher yields than Zimbabwe under good management, due to climatic advantages.
22. Although the Ugandan climate is hotter, more humid and less favourable for long-stemmed rose production than Kenya or Zimbabwe, Uganda has the potential to produce very high yields of small-flowered roses. These varieties account for more than 60% of the European market.

Comparative unit costs of production, for large and small-flowered varieties, including air freight - US\$ cents/stem

	Small-Flowered 300/sq.m. (US cents/stem)	Large-Flowered 140/sq.m. (US cents/stem)
Kenya	13.9	29.8
Zimbabwe/Zambia	12.3	26.4
Uganda	12.2	25.4
Netherlands	21.8	34.7

Costs shown are an average for each country

23. Although Uganda cannot compete on quality terms in the production of very long stemmed roses, its quality is highly competitive up to 60-65 cm stem length. Given higher yields in Uganda than Highland Kenya and Zimbabwe, Uganda First Red producers have a potential competitive advantage in this range.

Large Flowered 'First Red' Roses: Average Price by Source (1993-1995, Dfl cents/stem)			
Origin	1993	1994	1995
Netherlands	103	101	81
Kenya	73	65	64
Tanzania	67	67	80
Zimbabwe	68	64	59
Malawi	61	55	48
Zambia	55	63	49
Uganda	-	60	53

Large Flowered 'First Red' Roses: Average Price by Source (1993-1995, Dfl cents/stem)			
Origin	1993	1994	1995
Israel	108	85	68
Ecuador	81	70	65
Swaziland	-	39	-
USA	-	69	69
India	-	-	44
Average	86	81	75

Source: V.B.A. Netherlands

24. Uganda prices are below the average price of all imports but higher than some other African suppliers. Ugandan First Red is discounted in price because of small heads but this is less significant for stem lengths up to 65cm.

VARIETIES

25. Varieties normally have a high price in their first marketing year followed by a gradual decline. For some new varieties, price decline can be dramatic. For example, in 1993 Rodeo variety debuted at 133 DFL cents/stem, and then dropped in year two to 41 DFL cents.
26. Given that few new rose introductions ever make the top 20 listing, the risks of planting large areas of a new variety can be exceptionally high. It is essential to test new varieties as early as possible to take advantage of high prices if they become popular.
27. There are very wide differentials in price between the same variety from different countries or suppliers.

Small Flowered Roses: Average Price by Source (1993-1995, Dfl cents/stem)									
Origin	Frisco			Jaguar			Souvenir		
	93	94	95	93	94	95	93	94	95
Netherlands	30	27	27	40	35	34	32	27	27
Israel	33	29	32	43	41	39	36	34	29
Zambia	-	-	-	49	47	39	-	-	-
Uganda	-	20	25	-	28	34	-	21	24
Kenya	31	29	30	-	26	33	41	38	40
Zimbabwe	32	23	20	25	20	55	-	-	22
Malawi	27	23	22	38	30	-	17	-	-

Small Flowered Roses: Average Price by Source (1993-1995, Dfl cents/stem)									
Origin	Frisco			Jaguar			Souvenir		
	93	94	95	93	94	95	93	94	95
Tanzania	-	-	-	27	24	-	32	29	30
Ecuador	39	40	40	-	-	-	-	-	-
Thailand	-	19	-	-	-	-	-	-	-
Average	30	27	27	42	34	39	34	31	31

Source: V.B.A. Netherlands, Note: Average takes into account the relative amounts supplied by each country

SUPPLY AND DEMAND TRENDS

28. Between 1991 and 1994 the EU market demand for roses increased by 5% per annum. If account is taken of the additional demand from new and developing Eastern European markets, Europe absorbed an extra 130-200 million stems each year. This required an annual increase in production area of 70-100 hectares, and this trend should continue at least over the next 3-5 years.
29. There is potential for production to increase by more than 150m stems/annum, through a combination of increasing yields and new production areas. This will inevitably cause downward pressure on prices and favour lower-cost producers such as Uganda. The area under production in Holland will either remain static or, more probably, go into slow decline. This will allow new production in excess of 100ha per annum to be taken up by more competitive suppliers. East African countries, because of their climatic advantages and relative proximity to the market, will be in the best position to take advantage of this.
30. It is possible that oversupply will cause average rose prices to decline by up to 10% over the next few years. This will accelerate the trend towards increased production in countries where unit costs are highly competitive. However, there is no danger of average prices for small/medium-sized roses falling below the break-even levels (less than 20 DFL cents/stem) for well-managed farms in Uganda.
31. Worldwide plantings of large flowered roses are increasing at a faster rate than small flowered varieties. Given that the demand for large flowered varieties has remained almost constant at around 35%, there is a considerable risk that large flowered varieties will be more vulnerable to price pressures.

QUALITY

32. Quality and reputation are critical factors in determining price. The most important quality parameters are freshness, vase life, uniformity and consistency. The potential cost advantages referred to above in relation to Uganda cannot be realised unless high

quality roses are delivered to the market.

33. Whereas the average price of roses may decline, it will not be a consequence of an oversupply of high quality roses. The main problem facing the industry is a potential over-production of low to moderate quality roses.
34. Below average price returns indicate that some Uganda producers may not have the consistent quality needed to withstand price reductions without improvements in management.

CONCLUSIONS AND RECOMMENDATIONS

35. The European market for roses should continue to expand at more than 5% per year. However, new suppliers have the potential to expand at a rate faster than this. This may exert downward pressure on prices and shift production from high-cost suppliers in Holland to low-cost southern hemisphere growers at a rate of at least 100ha per annum.
36. Uganda has the climatic conditions to produce very high yields of short and medium stem length roses (40 cm - 65 cm). In this stem length range, Uganda is internationally more competitive than other East African producers. Uganda's break even unit costs are lower than all competitors. Rose market prices are unlikely to fall below Uganda's costs of production, providing quality standards are consistent.

Recommendations

- **Concentrate production on high volume varieties and stem lengths which maximise Uganda's competitive advantage and promote Uganda as a high quality supplier of this type of rose.**
 - **Increase production area to at least 200ha to achieve further economies of scale.**
37. There are wide differentials in price between the same variety from different country suppliers. With few exceptions, Ugandan producer prices are below the average for all suppliers and lower than some of its major competitors. This is due to inconsistent quality.

Recommendations

- **Improve farm management to raise production standards.**
- **Improve post harvest handling practices to maximise vase life and improve product consistency.**
- **Select and promote varieties which do well under Ugandan conditions**

38. The market price of all rose varieties declines over time irrespective of overall market conditions. Initially, most new varieties command very high prices when market supply is low, and prices decline as supply increases. It is essential to select and increase production of appropriate new varieties as early as possible in their commercial life cycle.

Recommendations

- Instigate trials of all new varieties to assess yield quality, vase life, market acceptance and price.
 - Develop close relationships with the leading rose breeders, ie. Kordes, Tantau, and De Ruyter and don't gamble on high priced introductions in the absence of trials.
39. Dutch auctions will remain the main market outlet for Ugandan roses. However, airlines have under-utilised freight capacity to the UK, where supermarket and multiple outlets have an expanding demand for roses, but are currently unable to identify suppliers who are able to supply consistent quality. Demand is primarily for the shorter stem lengths where Uganda has competitive advantage.

Recommendation

- Carry out a detailed study of the UK market and the potential for direct sales to multiples.

APPENDIX IV

**MARKETING STRATEGIES FOR
UGANDAN ROSES**

APRIL, 1996

Prepared by:

**David Jones, Marketing Consultant,
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**Agribusiness Development Centre (ADC)
Uganda's Investment in Developing Export Agriculture (IDEA) Project**

1. Introduction

In collecting rose production and market data for the Ugandan floriculture industry, a number of key strategic issues emerged. These need to be considered by investors, lenders, technical support agencies and Government, as part of their decision-making process, and in ensuring effective allocation of resources. This summary paper draws attention to the key issues and makes recommendations for appropriate action. It should be read in conjunction with the two parallel study reports prepared by the ADC:

Economics of Ugandan Rose Production - April 1996
European Market Prospects for Ugandan Roses - April 1996

2. Uganda's Image And Reputation

Import companies in Europe who handle Ugandan roses on a regular basis, reported that inconsistent quality was sometimes a problem. Small bud size of long-stemmed roses was a common criticism. Since the price obtained at auction is influenced by the reputation of both the country and the farm, there is a need to improve performance. However, Kenya and Zimbabwe also at times attract comment for inconsistency.

A more objective assessment of Uganda's performance can be gained from comparative analysis of auction prices. VBA country/supplier data reveals that Uganda's performance is below average for some varieties traded on the auction. However, in 1995 Uganda achieved higher average prices than Zambia, Malawi and India for 'First Red'; and higher average prices for 'Frisco' than Zimbabwe and Malawi. The best Ugandan growers are obtaining prices comparable to Kenyan growers.

3. Does Potential Exist For Expansion Of The Greenhouse Rose Sector?

The Ugandan climate is hotter and more humid than most of its competitors. These conditions offer scope to produce very high yields of small flowered roses of 45-65 cm stem-length. Uganda should be promoted as a high quality supplier of this type of rose. Critical to the success of such a strategy, however, are high standards of management and production expertise.

If these standards are achieved, Uganda has significant competitive advantage over most of its international competitors. Unit production costs are amongst the lowest in East Africa, there is a high-yield potential for small-flowered varieties, and air freight costs are quite competitive.

Climatically, the existing rose producing areas of Uganda are less favourable than some other East African countries for production of long-stemmed roses. Higher humidity and comparatively high night temperatures limit the range of these varieties which can be grown successfully for international markets.

Potential therefore exists in the medium term to expand the sector, providing a fully integrated production and marketing strategy is adopted and appropriate varieties are selected. However, management and production expertise will have to be maintained at a *consistently high standard*, and farms not accepting the necessary discipline will be at risk during periods of sustained low

prices. Priority should be given to raising the productivity and quality of existing farm production.

4. Market Growth And Demand

Netherlands auction sales of roses were about \$600 million in 1995 and sales will probably continue to increase at a rate of about 5% per annum. Therefore, concerns as to the rate of European market growth are irrelevant in establishing if Uganda has the potential to expand production and compete in the international market place. In a market as massive as the rose market, the total size of the market will never be a constraint to development. *Ugandan producers will succeed or fail solely on their ability to produce consistent high quality roses at a competitive cost.* Of course, marketing is important, but no strategy can overcome the problems associated with marketing flowers of low or inconsistent quality.

Competitive production costs are a potential advantage for Uganda, because world production of roses, at least in the short term, is likely to be greater than the European markets can accept without a decline in price. This provides the opportunity for Uganda to expand its production of roses at the expense of other higher cost producers.

5. Identification Of Market Opportunities

In undertaking the programme of market research a number of specific market opportunities were identified:

- Potential exists to increase prices by raising quality standards and improving product uniformity.
- The European market is currently, and for the foreseeable future likely to be *undersupplied* with high quality, consistently graded roses.
- The UK's two leading supermarket suppliers have expressed an interest in Ugandan short-stemmed roses, providing quality and vase life can be guaranteed. Cut flower sales to supermarkets are expanding rapidly in the UK, in comparison to Germany and the Netherlands, where growth is slow.
- Direct market opportunities exist in Germany. With consistent quality, exclusive direct sales can give higher prices than Netherlands auction sales.
- All the Netherlands auctions, including the Teleflower auction, are accepting Ugandan suppliers, subject to consistent quality standards and disciplined marketing.
- Potential exists with the Auctions to develop direct sales.
- Direct sales through independent importers in the Netherlands are always possible. In practice the most reputable companies are only interested in high quality producers.

6. Airport Facilities

All the world's leading flower exporting countries operate fully integrated cold chain systems for flowers. On-farm cold stores; refrigerated transport from farm to airport; airport cold store facilities; and provision for farm refrigerated trucks to unload pre-palletised cargo immediately prior to airline departure are essential components. Although individual farms have invested in good equipment, there is a need for much improved handling facilities at Entebbe Airport.

For various reasons, airlines also claim that the cost of re-fuelling in Entebbe is higher than in other neighbouring countries. This acts as a barrier to direct charter flights between Entebbe and Europe. The situation should be examined by Government and airport authorities, in conjunction with airlines, to examine the possibility of reducing costs.

7. Selection of Varieties

Selection of varieties which are adapted to Ugandan conditions is essential for growth of the rose industry. Varieties should be selected for trial on the basis of their vase life, market potential, yield and suitability to the Ugandan climate. Identified candidate varieties should be included in on-farm trials at leading farms. Leading rose breeders (Tantau, Kordes and Meiland) have all expressed an interest in establishing trials in Uganda. Farm trial results should be made available to all members of the Ugandan Flower Exporters Association.

8. Quality Assurance

A recommended code of post harvest handling practice should be established to raise Ugandan flower quality standards. It is suggested that the Ugandan Flower Exporters Association should investigate the possibility of establishing a Ugandan Quality Assurance Mark. Only producers with full cold chain facilities and who agree to follow approved practices should be eligible for entry to the scheme. Under the scheme, a recommended code of good practice would be established. Initially, it is suggested that donor support should be sought for appointment of a full-time flower specialist to both draw up the code of practice, train the candidate producers and regulate the scheme for a period of 3 years.

9. Workforce training programme

Production of consistently graded flowers requires commitment and dedication from the entire workforce. To achieve this requires implementation of staff training programmes for all workers, not just senior and middle management. Supermarket buyers in particular will only trade with a company when they are satisfied that the workforce are trained particularly in terms of health and welfare issues, agrochemical use, grading and packing standards, and environmental awareness. The supermarket buyer cannot risk the publicity of being associated with a company that exploits its workers or damages the environment.

10. Establishing an Appropriate Marketing Strategy

If an individual Ugandan farm has established a high quality standard of production, then there is no reason why the complete range of marketing options should not be available to that farm. The

following are the implications of adopting each of the various marketing options.

10.1 Netherlands Auctions

The advantage of marketing through a Dutch auction is that it enables a producer to grow a very limited range of varieties. The option of developing sales through the auctions' direct sales bureaus are also potentially attractive. Given Uganda's climatic constraints, the ability to market a very restricted range of varieties through the auction system offers the prospect of maximising yield and potentially increasing profitability. The other attraction of the auction system is security of payment. The weakness of the auction system is that when market conditions are poor prices can be very low, especially if the grower does not have an established reputation.

10.2 Direct sales through a Netherlands Import/Export company

In any business there are good and bad importers, and the Netherlands flower industry is no exception. When selecting an importer, ask for names of his senders and don't be afraid to take up references. There are a number of highly reputable importers in the Netherlands, and these companies are often very selective in terms of the quality of flowers they will accept. The advantage of trading with a Netherlands-based importer is that they invariably have the ability to market a complete range of varieties and stem sizes. Many of the better companies will place a percentage of each consignment on the auction, thereby providing the producer with comparative prices. On balance, this is the simplest marketing option but profitability will be dependent upon selecting the right company.

10.3 Direct marketing in Germany

Again, everything depends upon quality. German buyers are very quality-conscious, and variable quality will be unacceptable to the better companies. Given consistent quality, a large importer will have the capability to market the entire farm production. Once established as a reliable and regular sender and if trading is on an exclusive basis, then prices are likely to be more stable than the auctions. In general, prices will never achieve the auction highs, but in times of low auction prices there can be greater stability of prices in Germany.

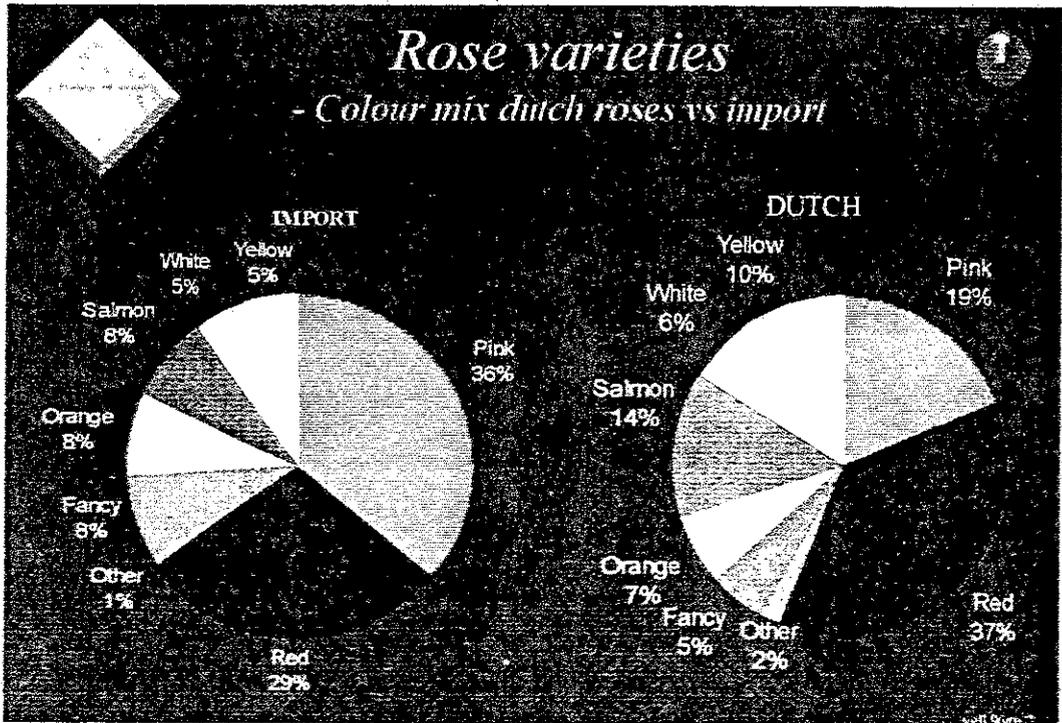
10.4 Direct Marketing to a British Supermarket

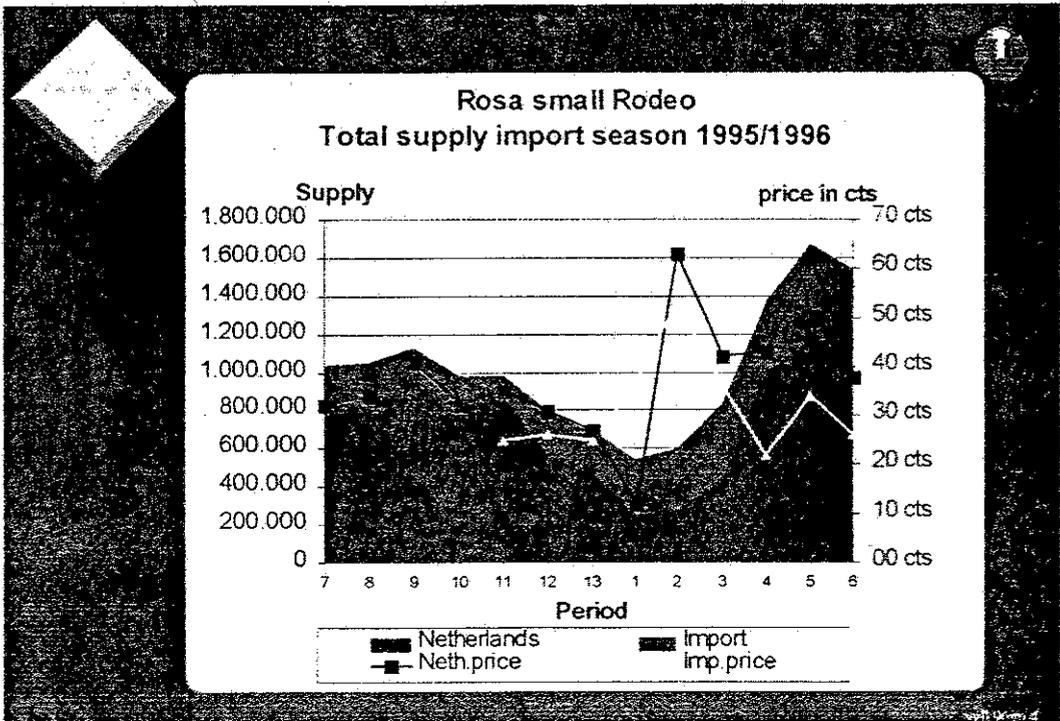
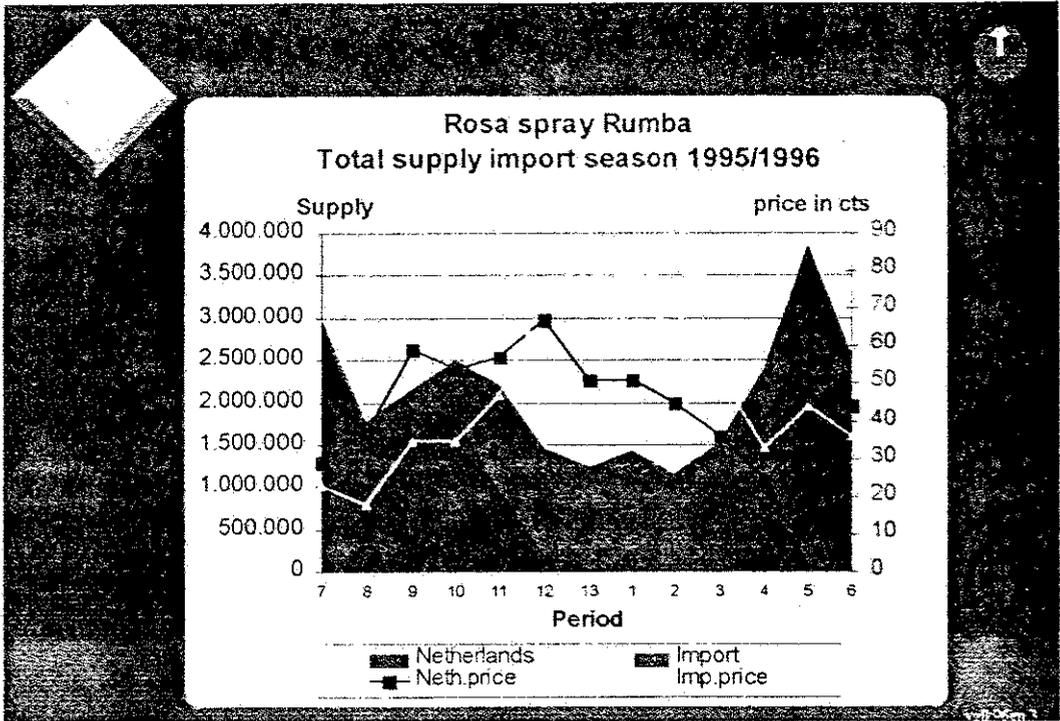
Uganda has frequent direct flights to London which are not fully utilised by rose exporters. The best opportunity in the UK is to sell to supermarkets through an approved packer such as Lingarden or Zwetloots. Both companies have good reputations, and both supply most of the UK supermarkets. Both companies also have direct mail flower services serving the public. Lingarden is able to offer a complete marketing service to overseas growers. Initially, a potential supermarket supplier would have consignments marketed through one or more of the 19 regional wholesale flower markets, or through a secondary wholesaler.

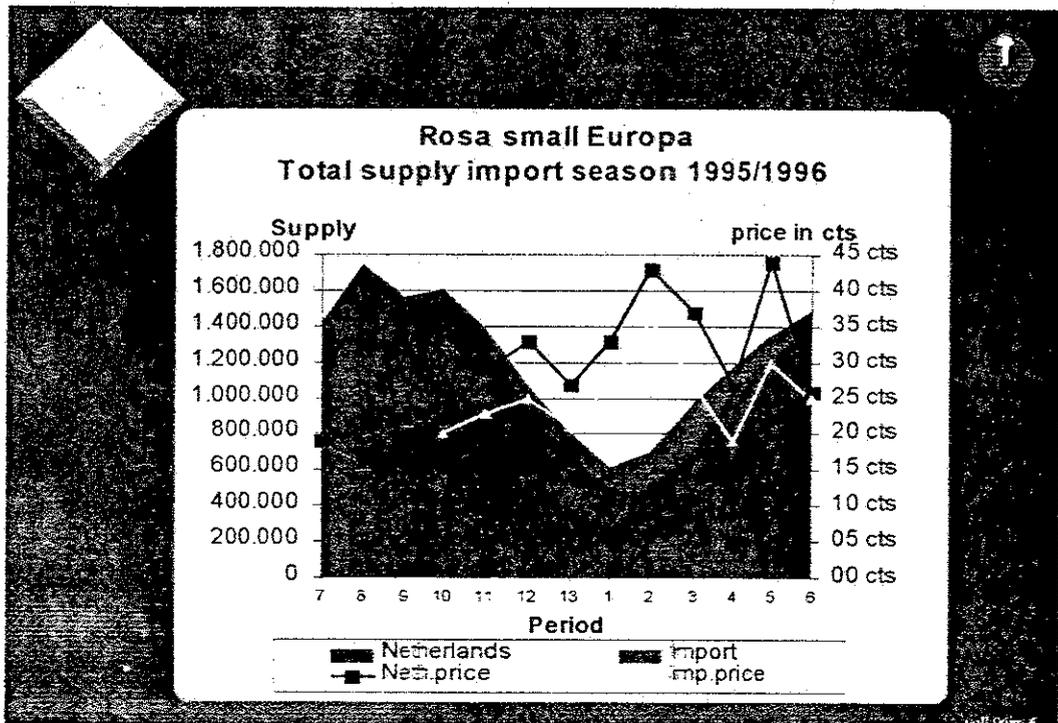
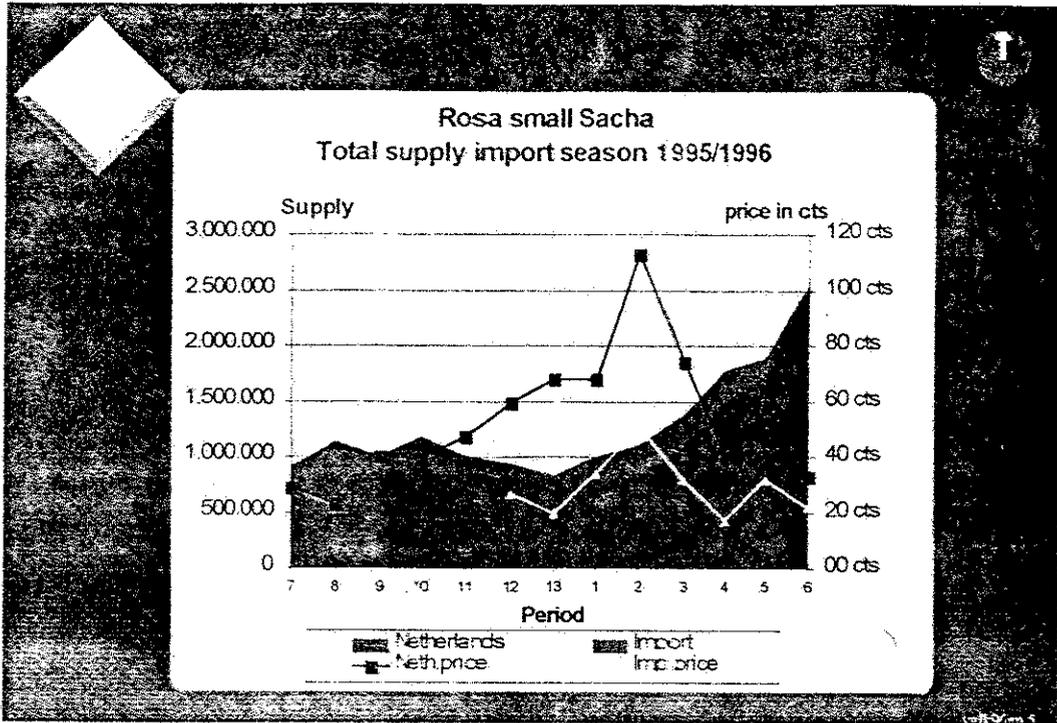
For the consistent and high quality producer, supermarket sales offer the prospect of high volume sales and stable prices often on a long term basis. The other attraction of trading with UK supermarkets is that their pricing will be more stable than the auction or open market. The disadvantage of supermarket trading is that it requires considerable discipline on the part of the producer, as supermarket buyers can be extremely demanding in their requirements.

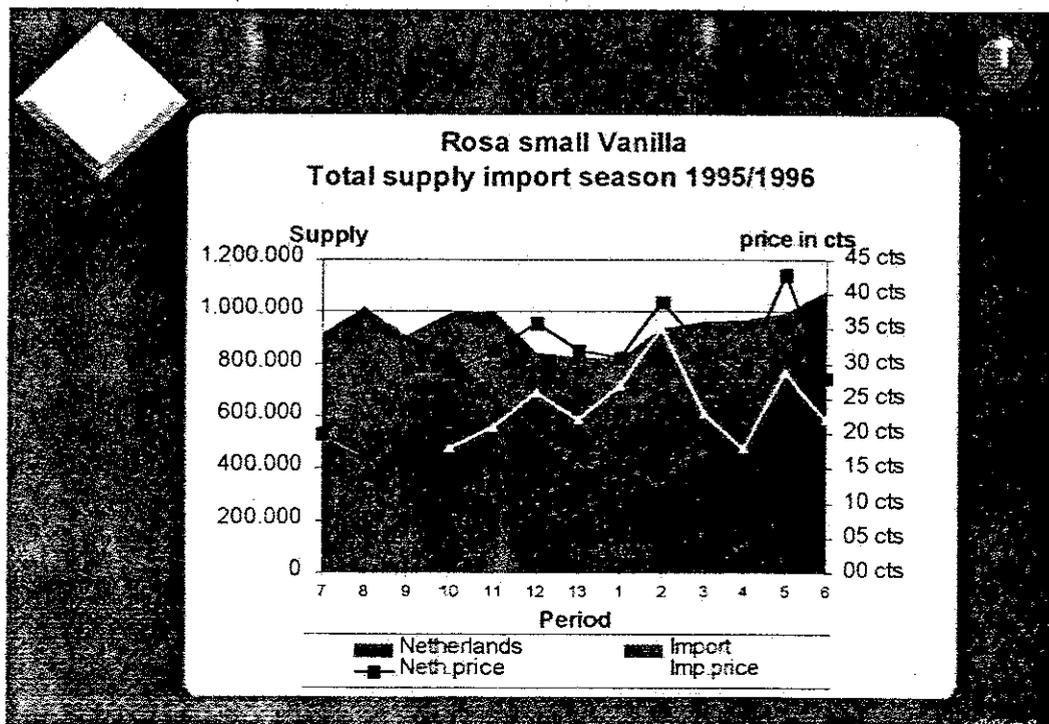
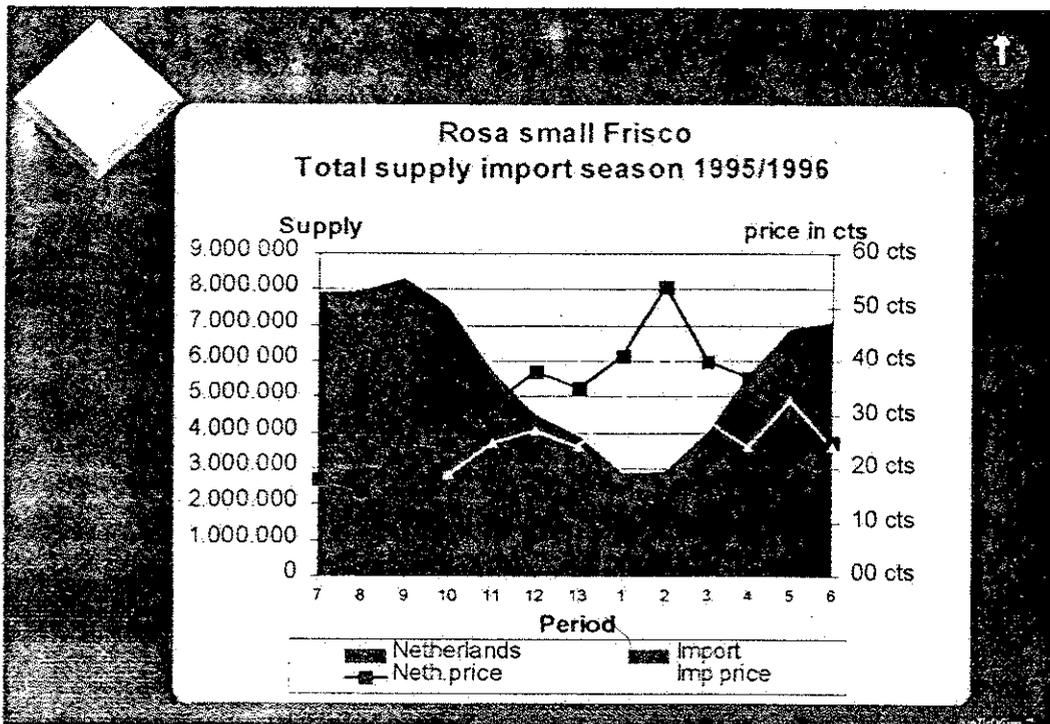
APPENDIX V

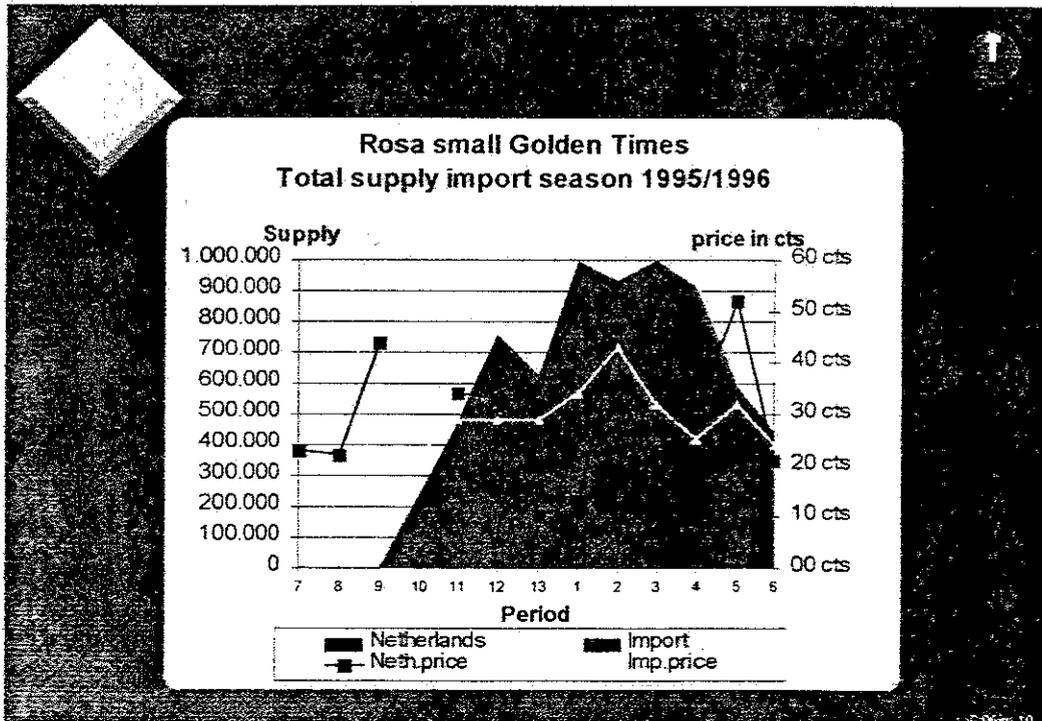
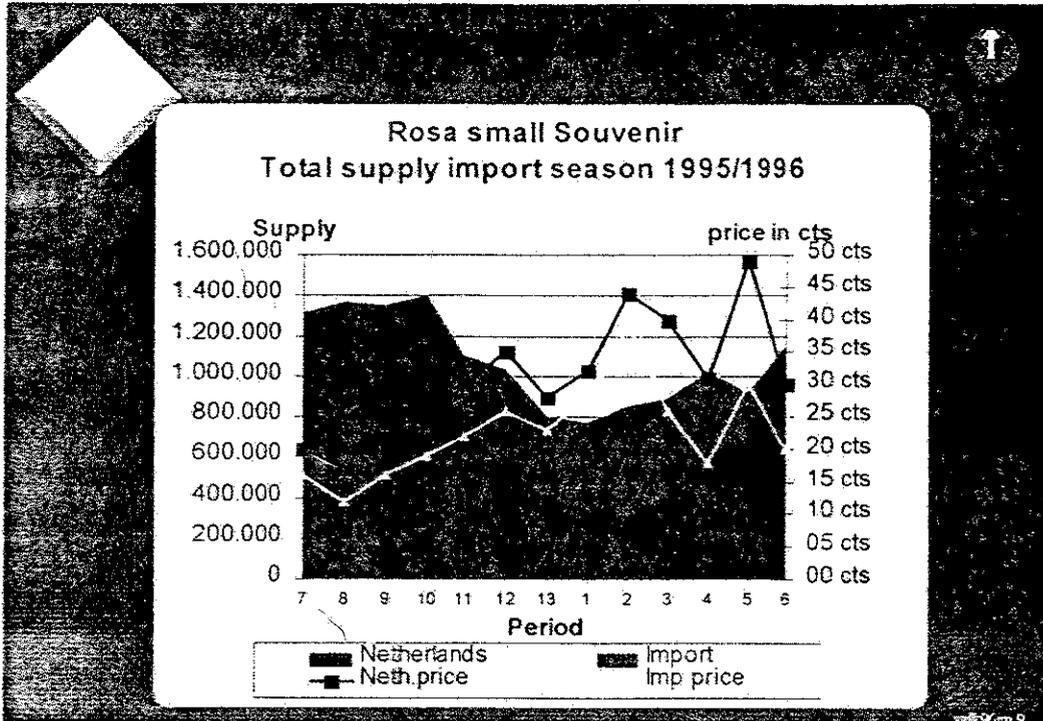
**FLOWER SALES STATISTICS
FROM THE BVH FLOWER AUCTION, HOLLAND**

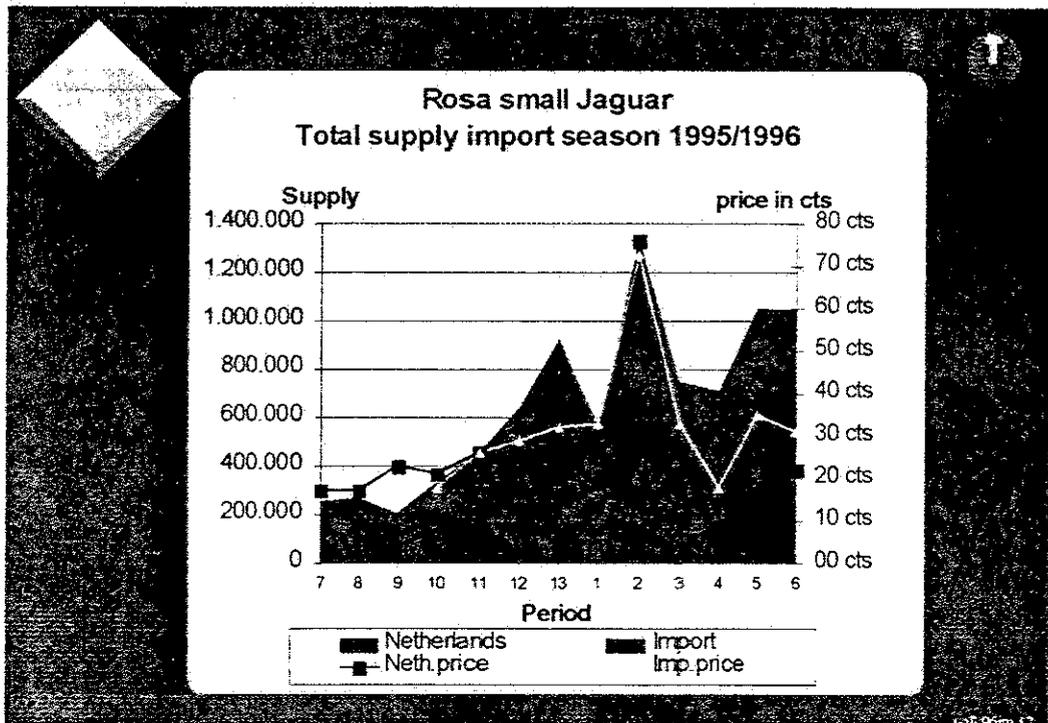
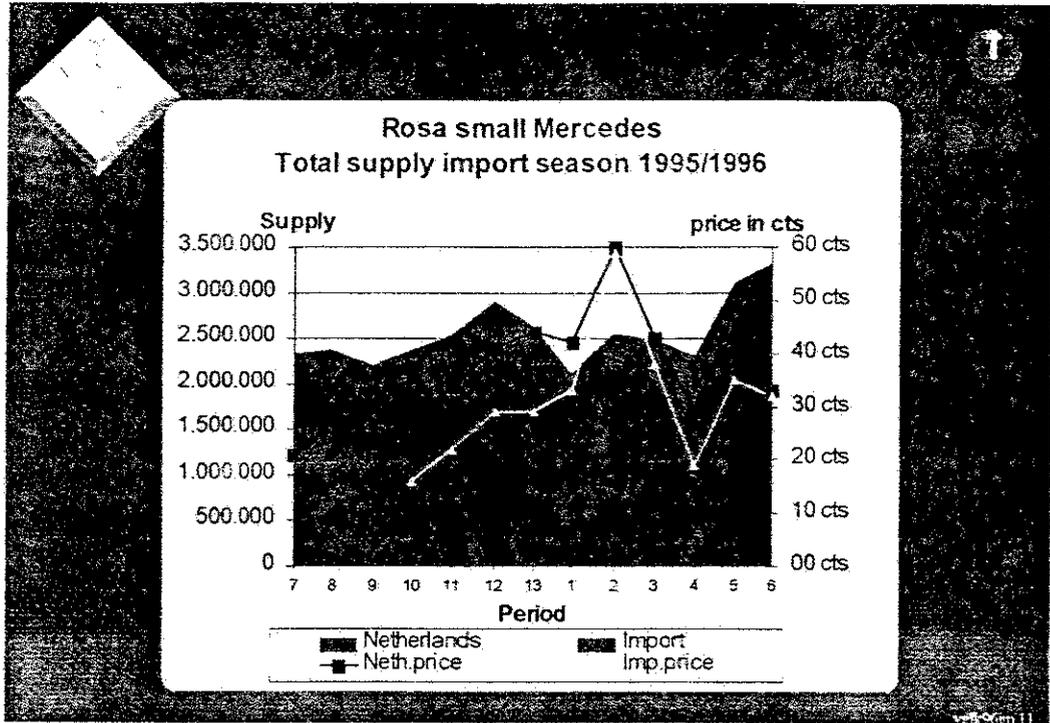


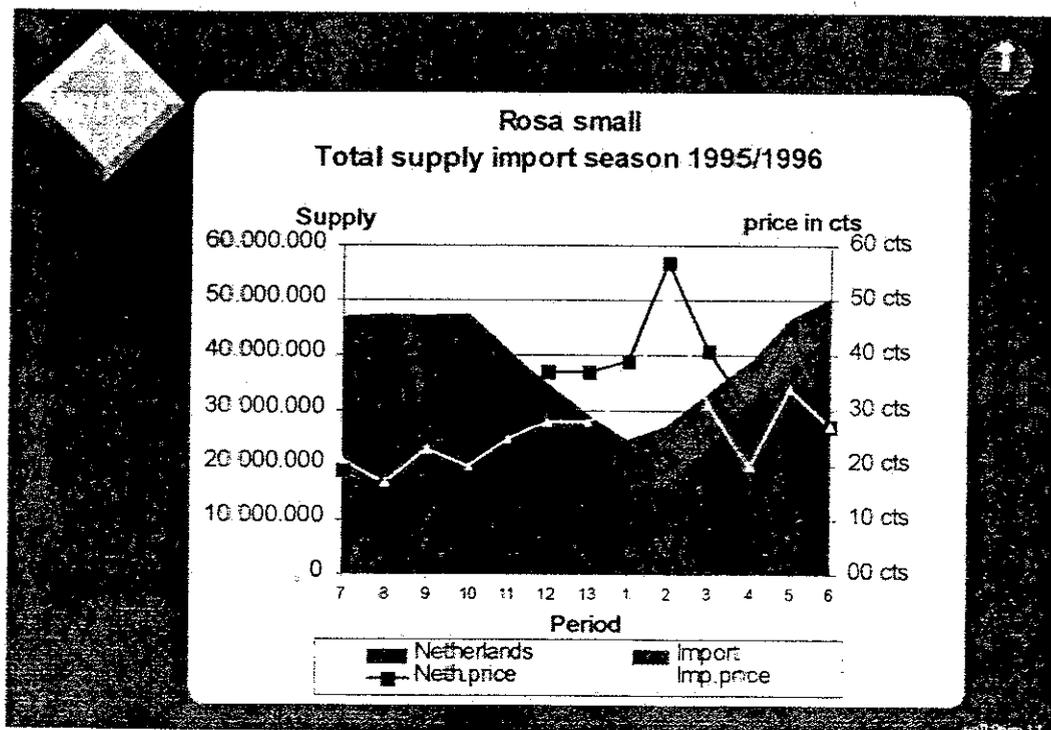
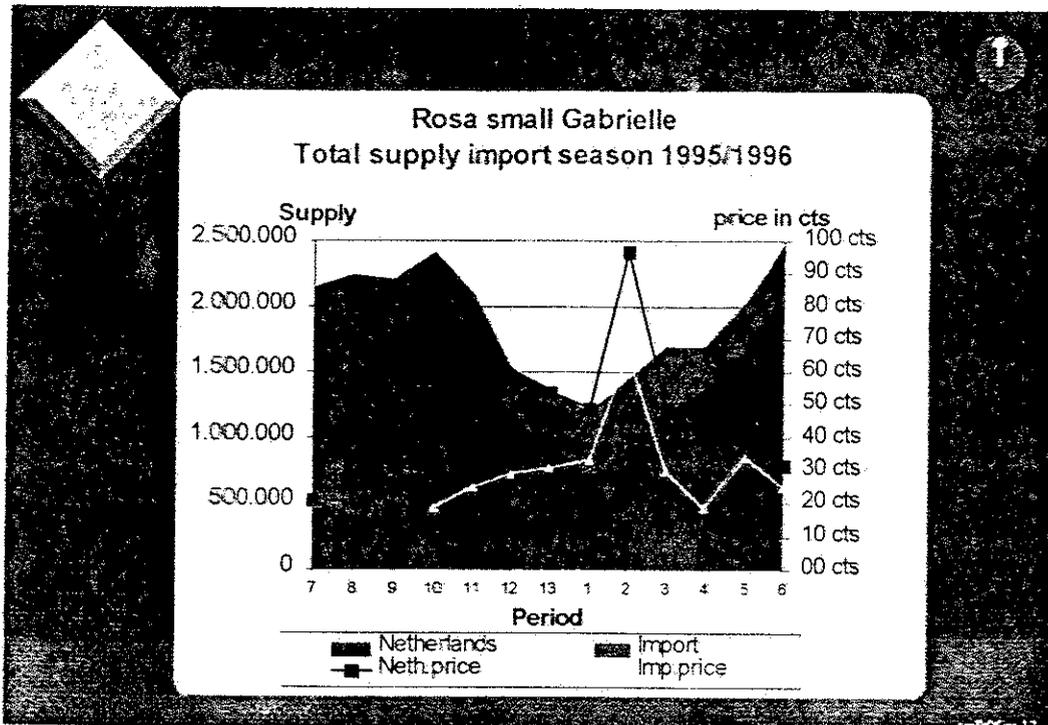


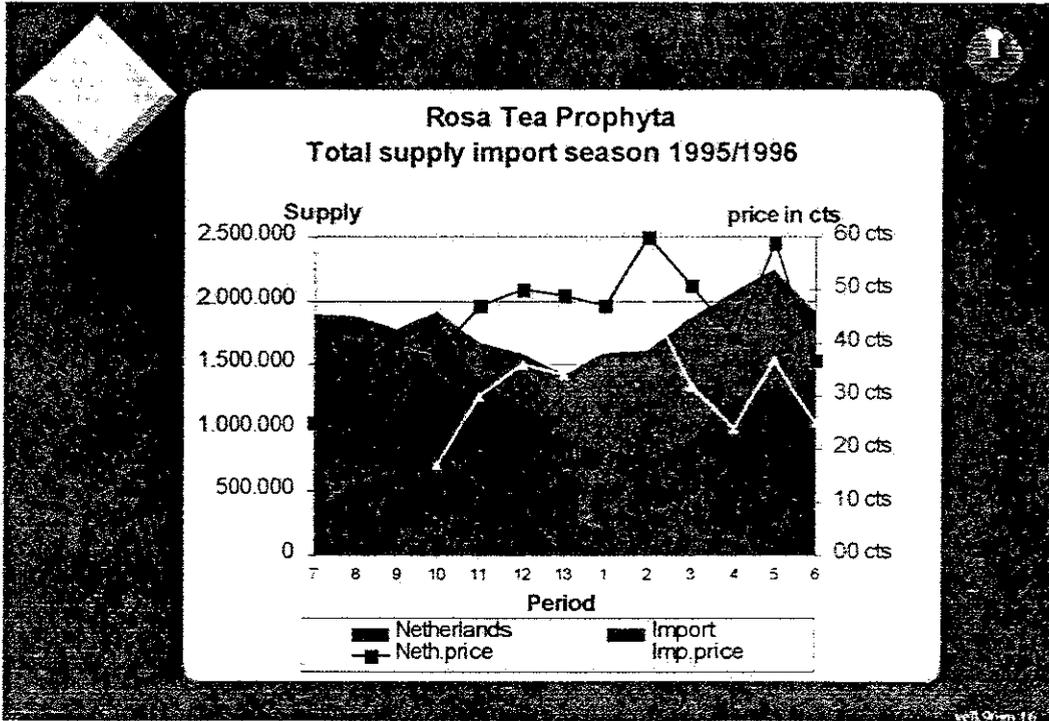
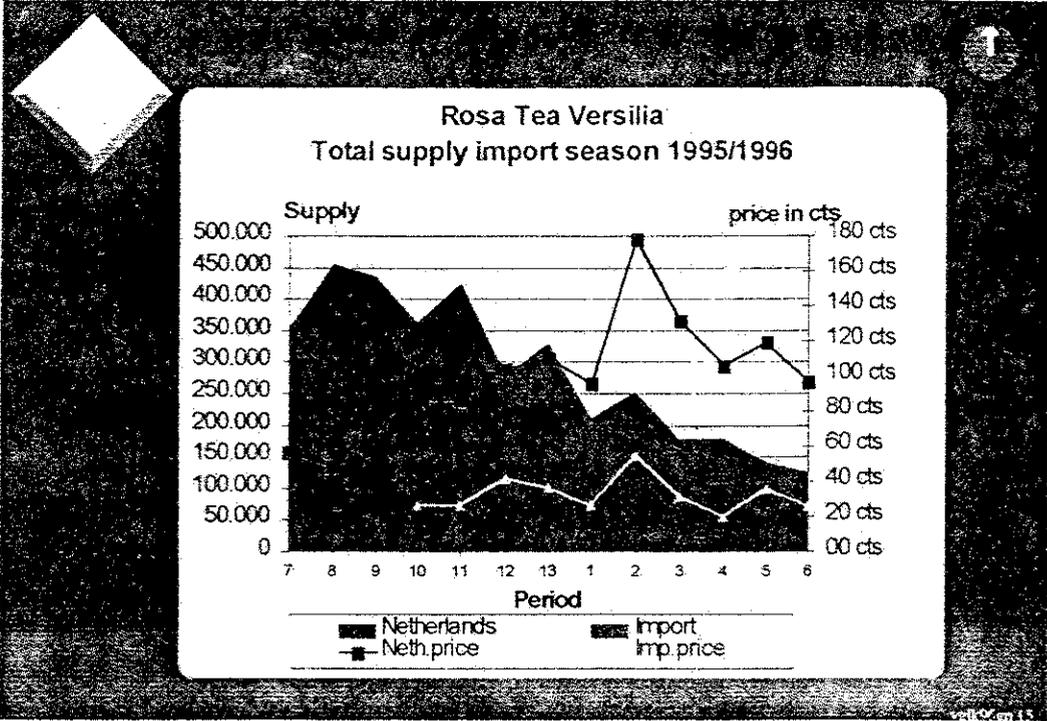




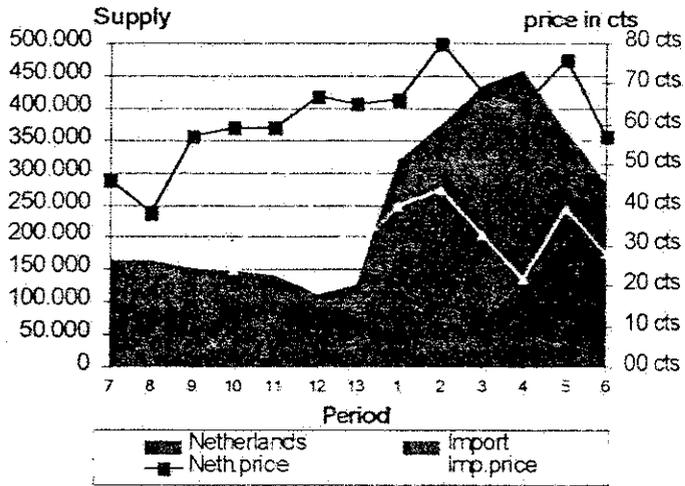




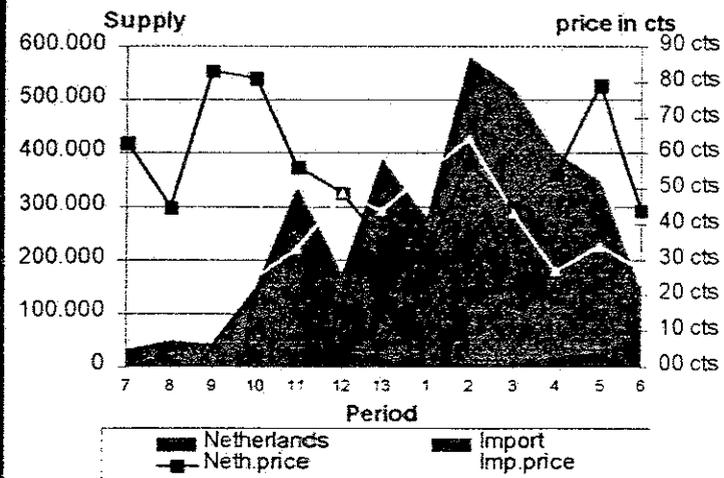


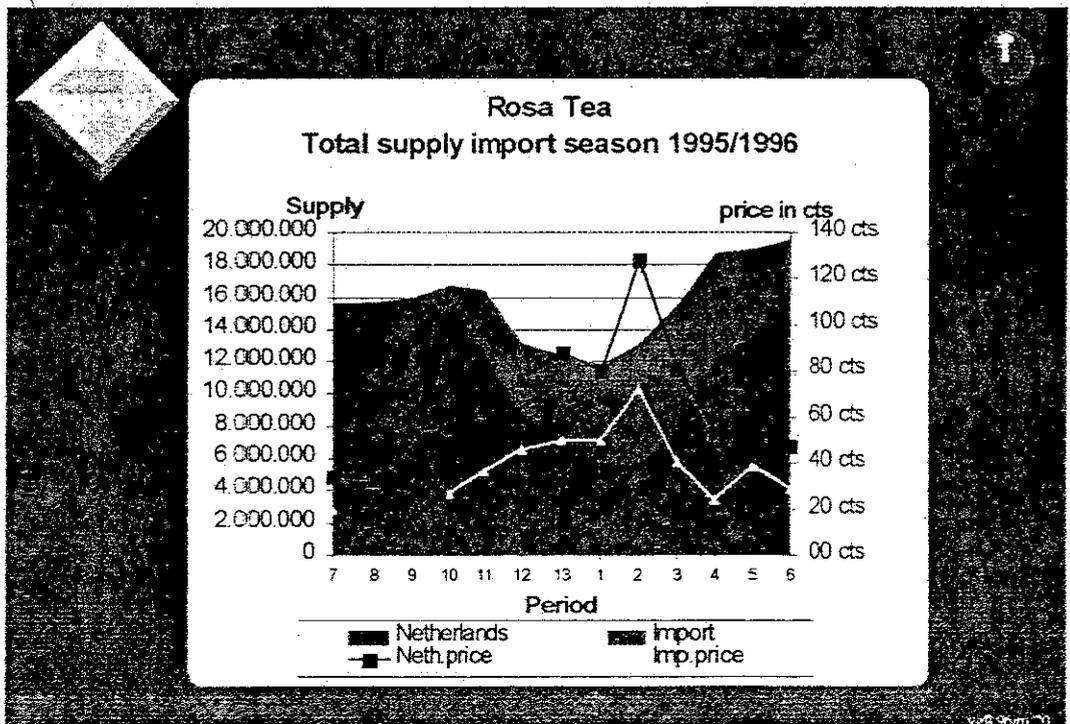
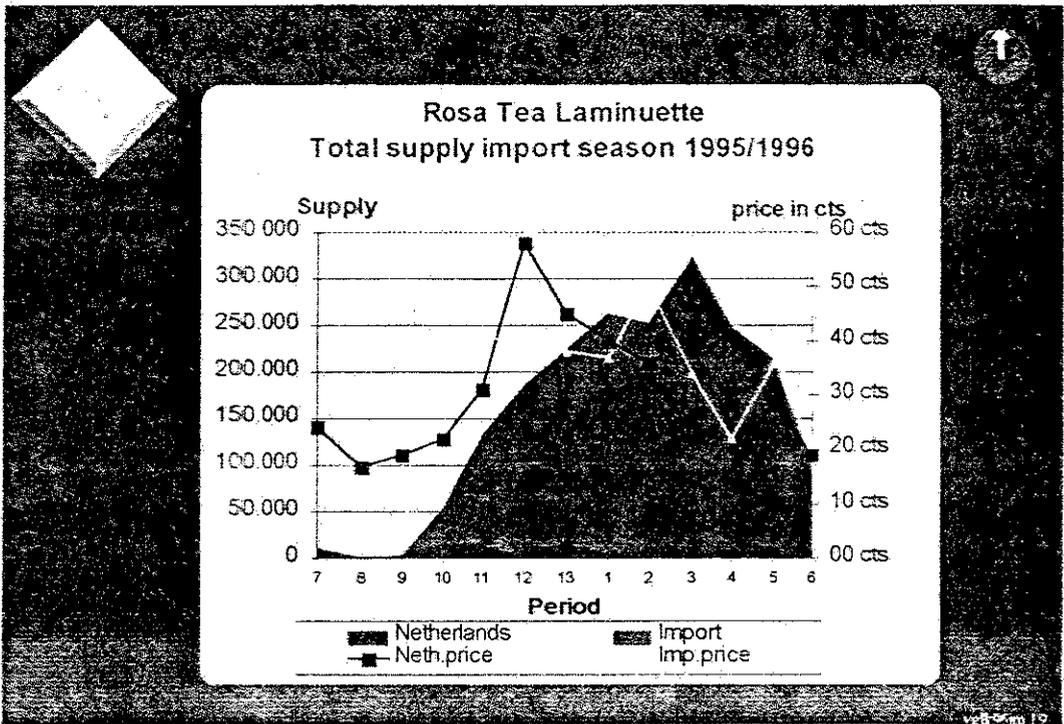


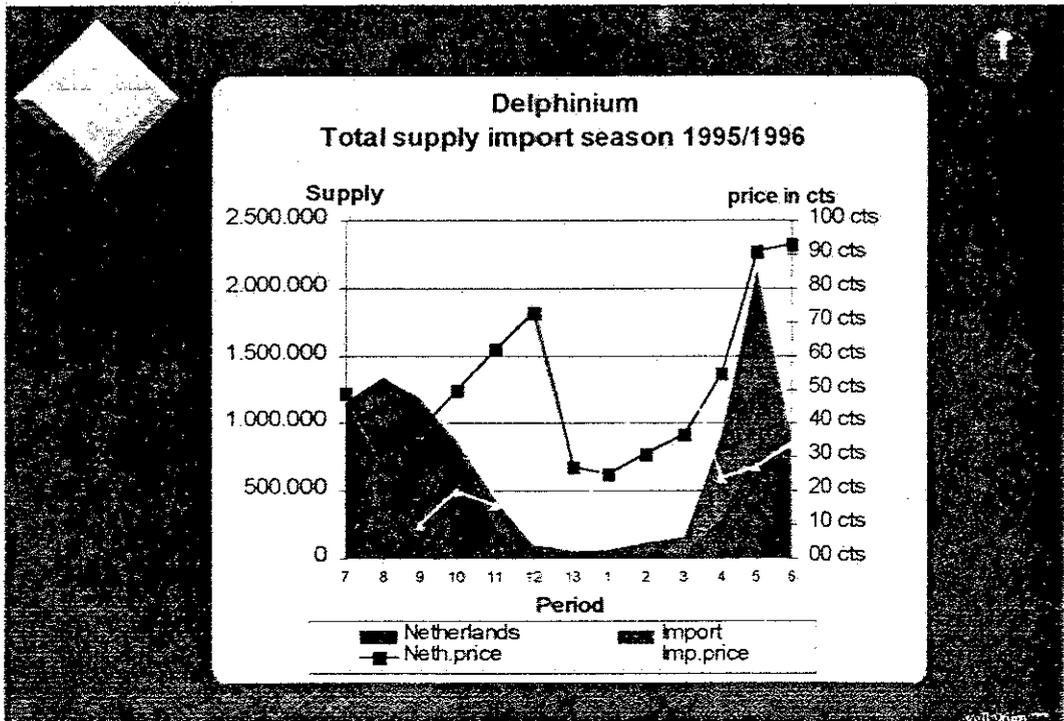
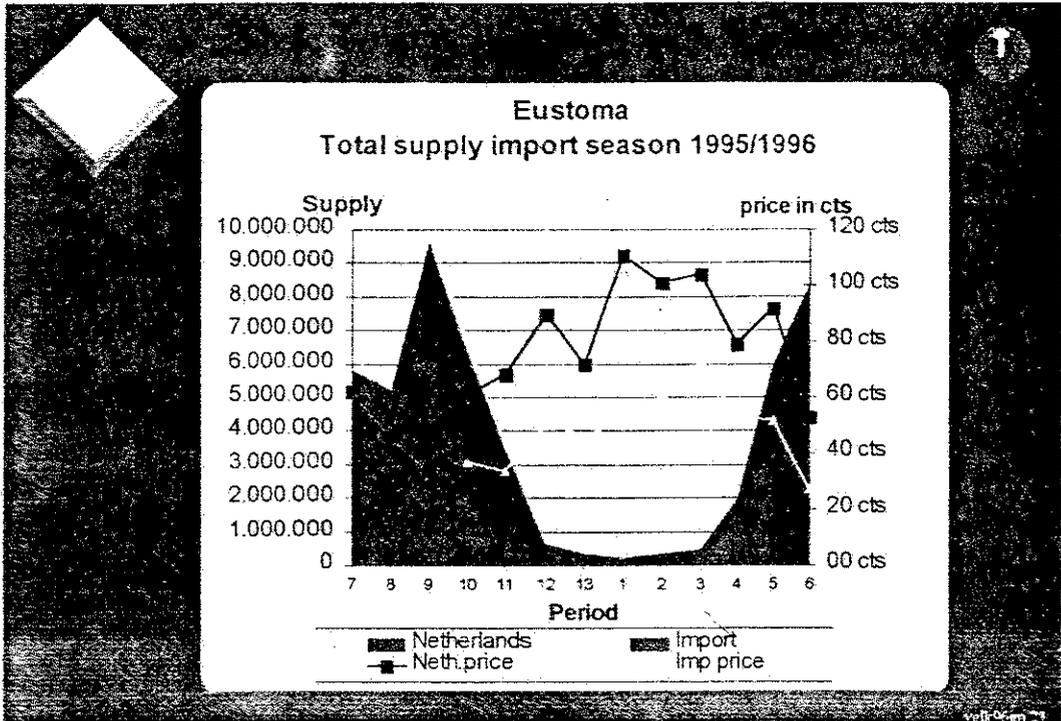
Rosa Tea Cream Prophtya
Total supply import season 1995/1996

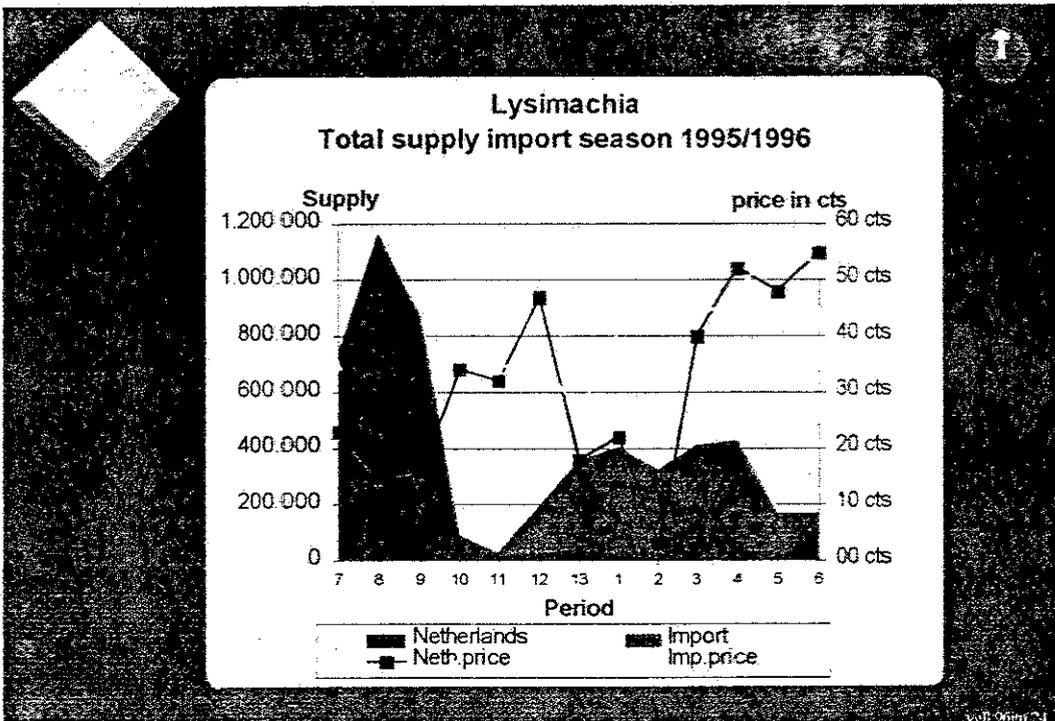
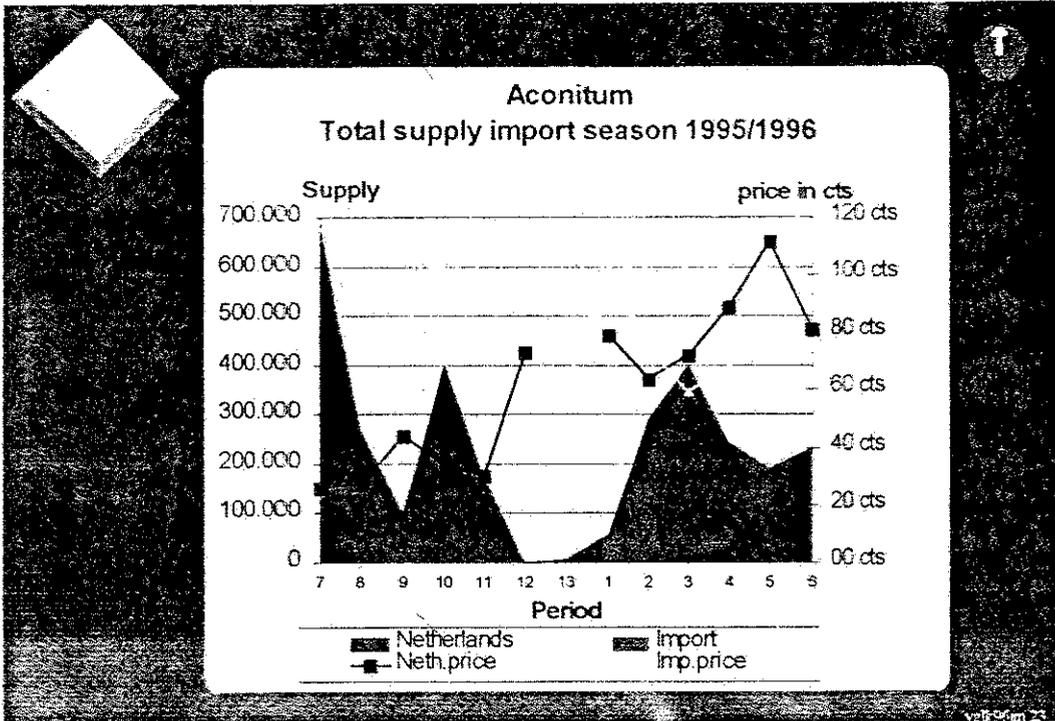


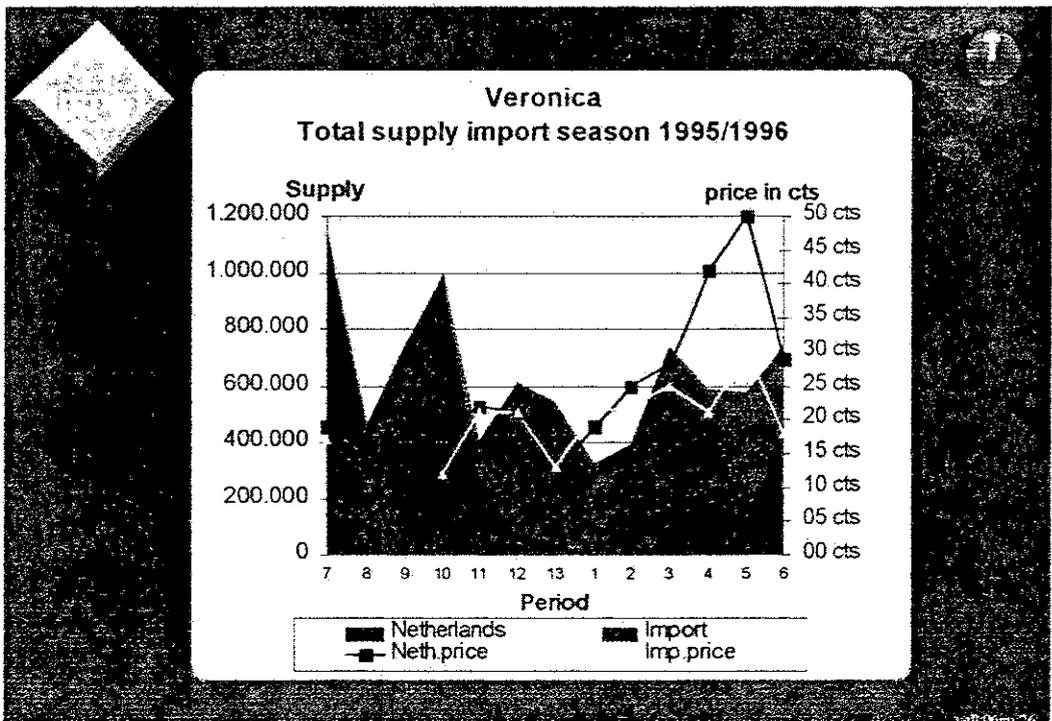
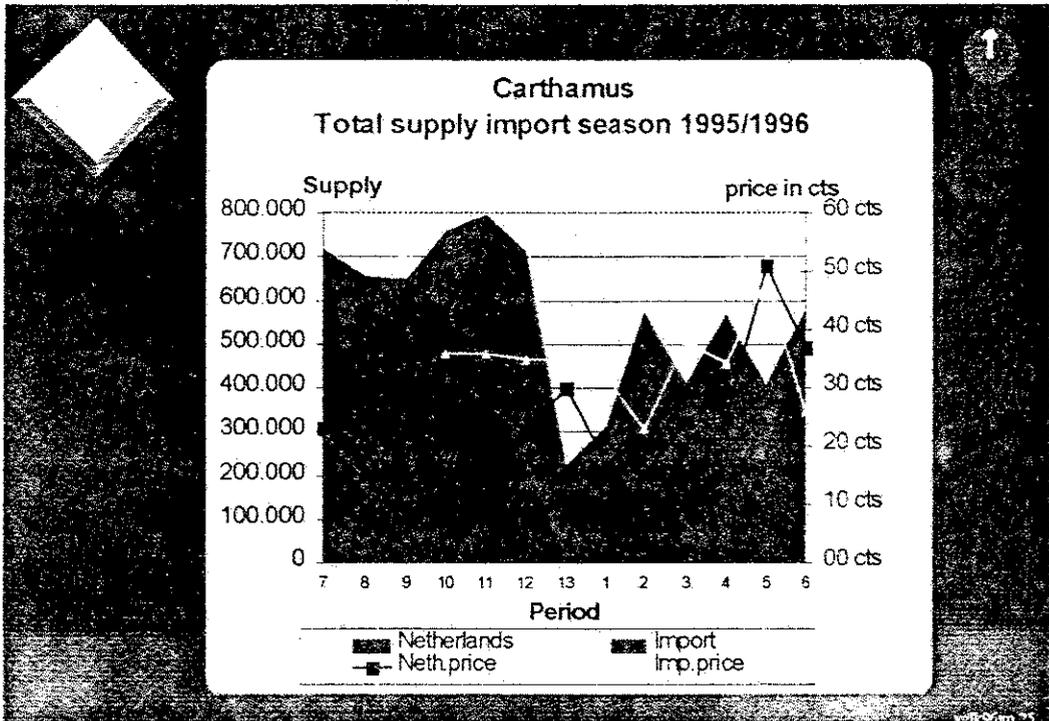
Rosa Tea Konfetti
Total supply import season 1995/1996

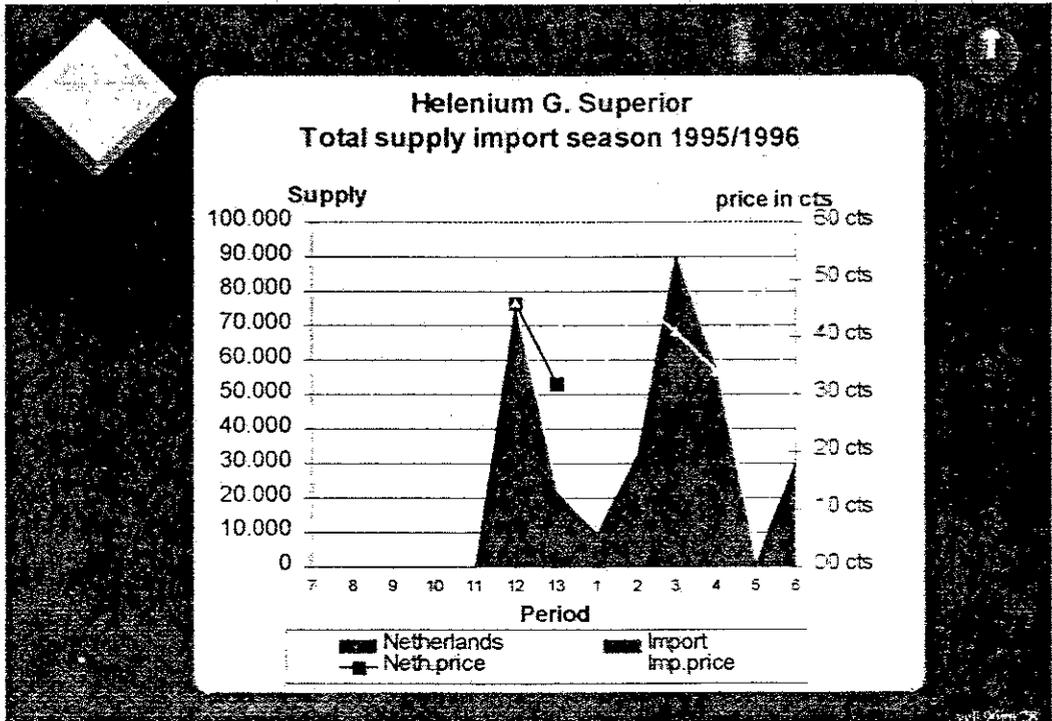
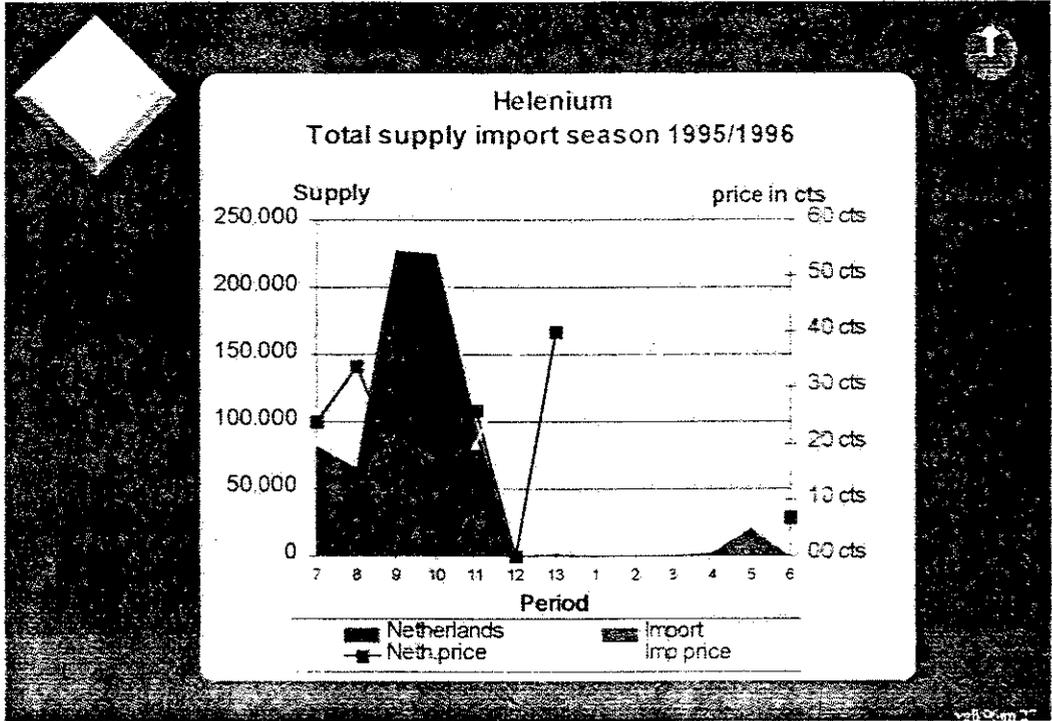


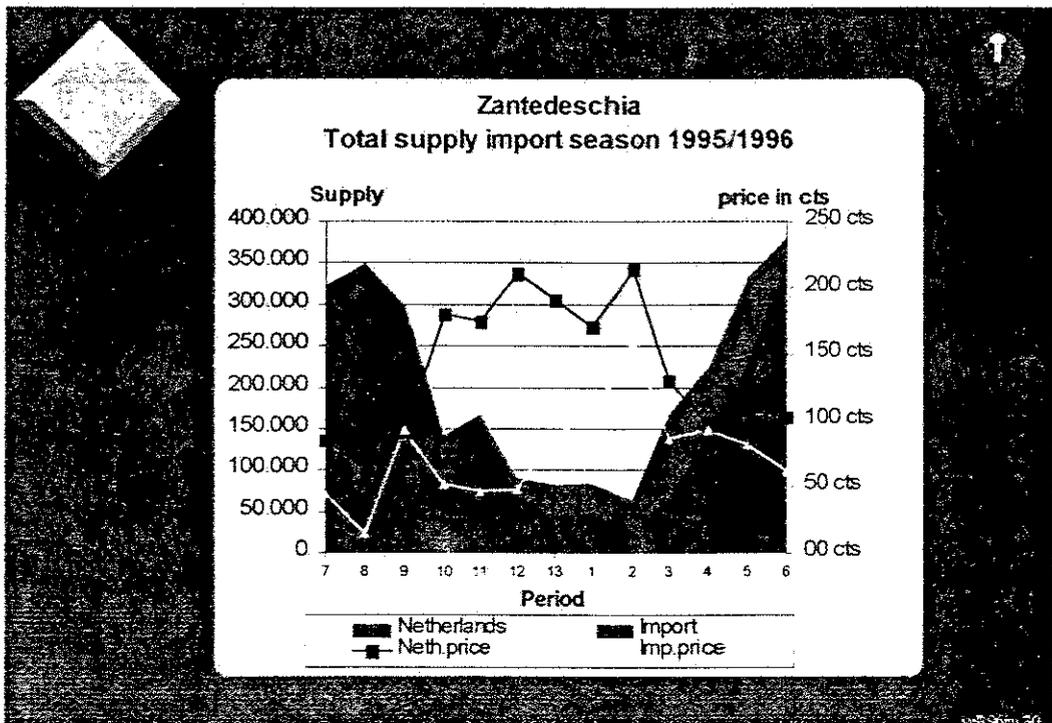
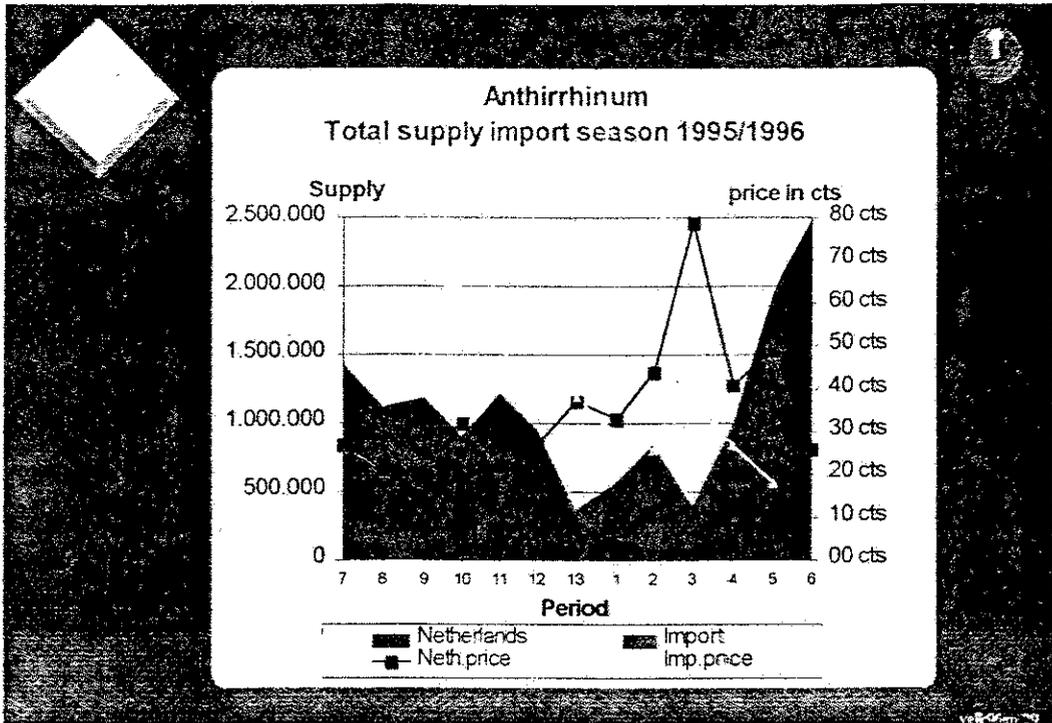


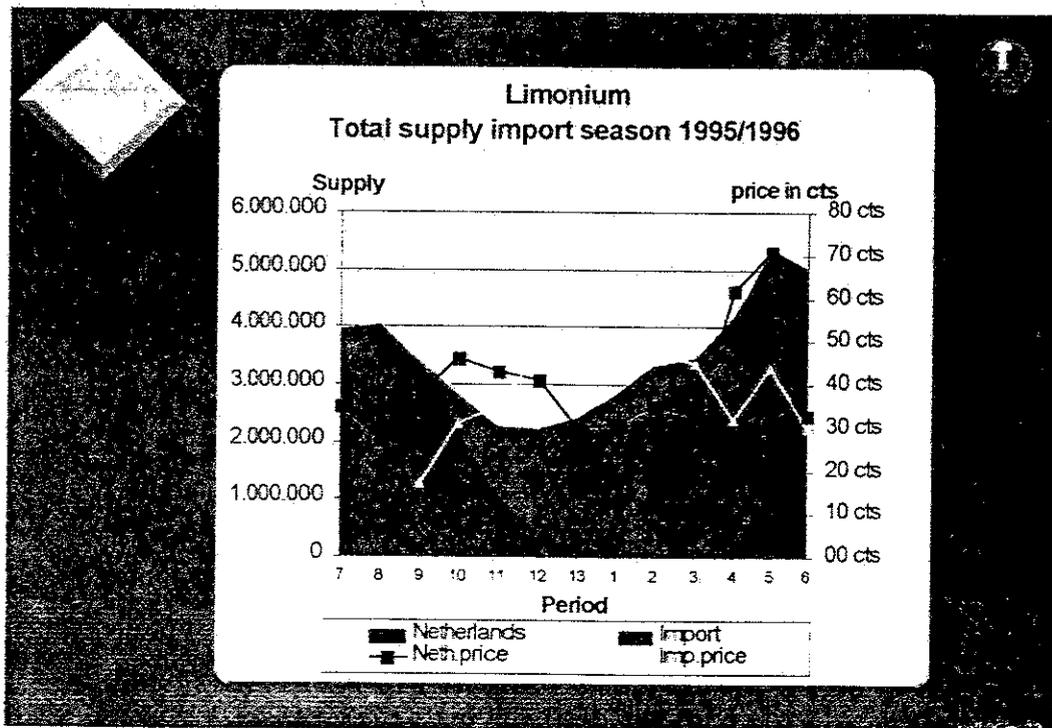
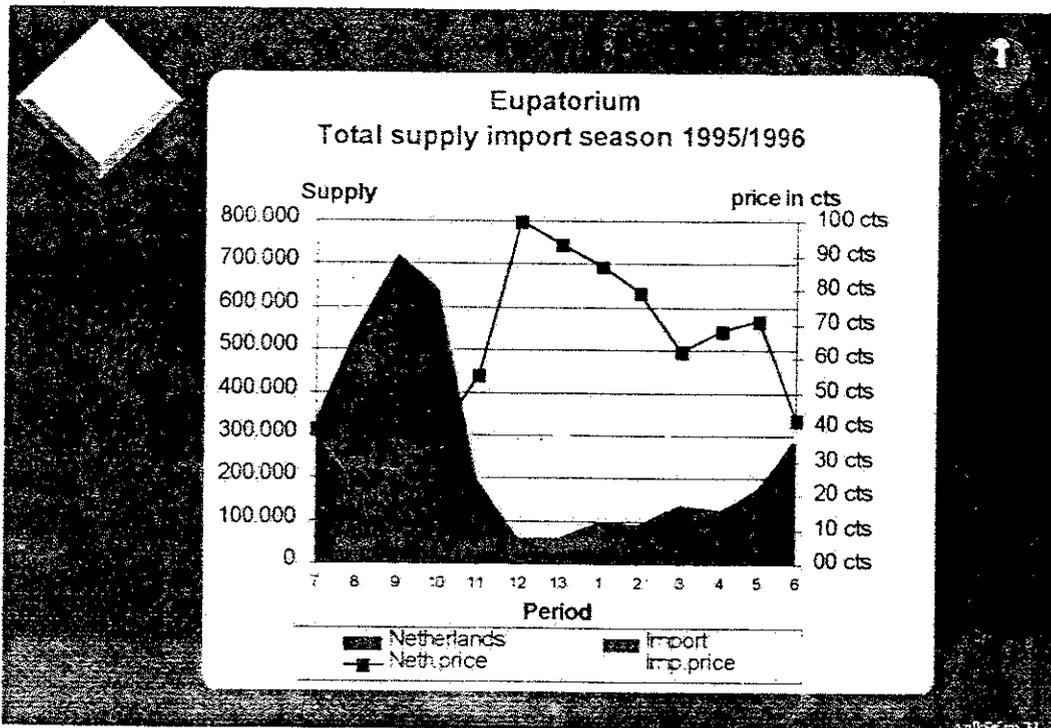












Production in Holland

Spring 1996

Rose varieties - long stem

		production in millions	import	change vs 1995
1	First Red	34.1	(1)	- 31%
2	Prophyta	15.3	(3)	- 22%
3	Madelon	13.8	(-)	- 41%
4	Red Velvet	9.1	(64)	+ 6%
5	Starlite	5.9	(40)	+ 295%
6	Escada	5.8	(10)	+ 13%
7	Bianca	5.4	(52)	+ 171%
8	Texas	5.2	(34)	+ 9%
9	Jacuranda	4.9	(54)	- 43%
10	Grand Gala	3.9	(15)	- 35%
11	Ravel	3.7	(24)	+ 70%
12	Noblesse	3.7	(2)	- 13%
13	Sangria '92	3.1	(44)	+ 20%
14	Tinckle	3.1	(7)	+ 1%
15	Capuccino	3.0	(31)	-
16	Ambiance	2.8	(17)	+ 23%
17	Parco	2.6	(14)	+ 0%
18	Palline	2.5	(13)	+ 11%
19	Cream Prosperita	2.5	(6)	+ 36%
20	Charmita	2.5	(75)	+ 45%
21	Renais			

Production in Holland

Spring 1996

Rose varieties - small

		production in millions	import	change vs 1995
1	Frisko	99.6	(9)	- 12%
2	Escimo	41.0	(17)	- 22%
3	Kris	34.6	(6)	- 16%
4	Lambada	29.0	(5)	+ 11%
5	Gabriella	23.1	(11)	- 2%
6	Molrea	23.0	-	- 36%
7	Sacha	17.8	(16)	+ 267%
8	Safari	17.7	(33)	+ 1%
9	Rodeo	17.4	(12)	+ 80%
10	Mercedes	15.4	(1)	+ 12%
11	Surprise	13.5	-	+ 134%
12	Aruba	10.4	-	+ 22%
13	Tina	10.1	(19)	+ 19%
14	Dream	8.9	(18)	+ 423%
15	Souvenir	8.5	(8)	- 36%
16	Vanilla	7.6	(7)	+ 2%
17	Europe	7.3	(13)	- 28%
18	Manhattan Blue	6.7	-	+ 2%
19	Pink Tango	6.7	-	+ 15%
20	Presto	6.3	-	+ 15%

*Production in Holland
Spring 1996
Rose varieties - spray*

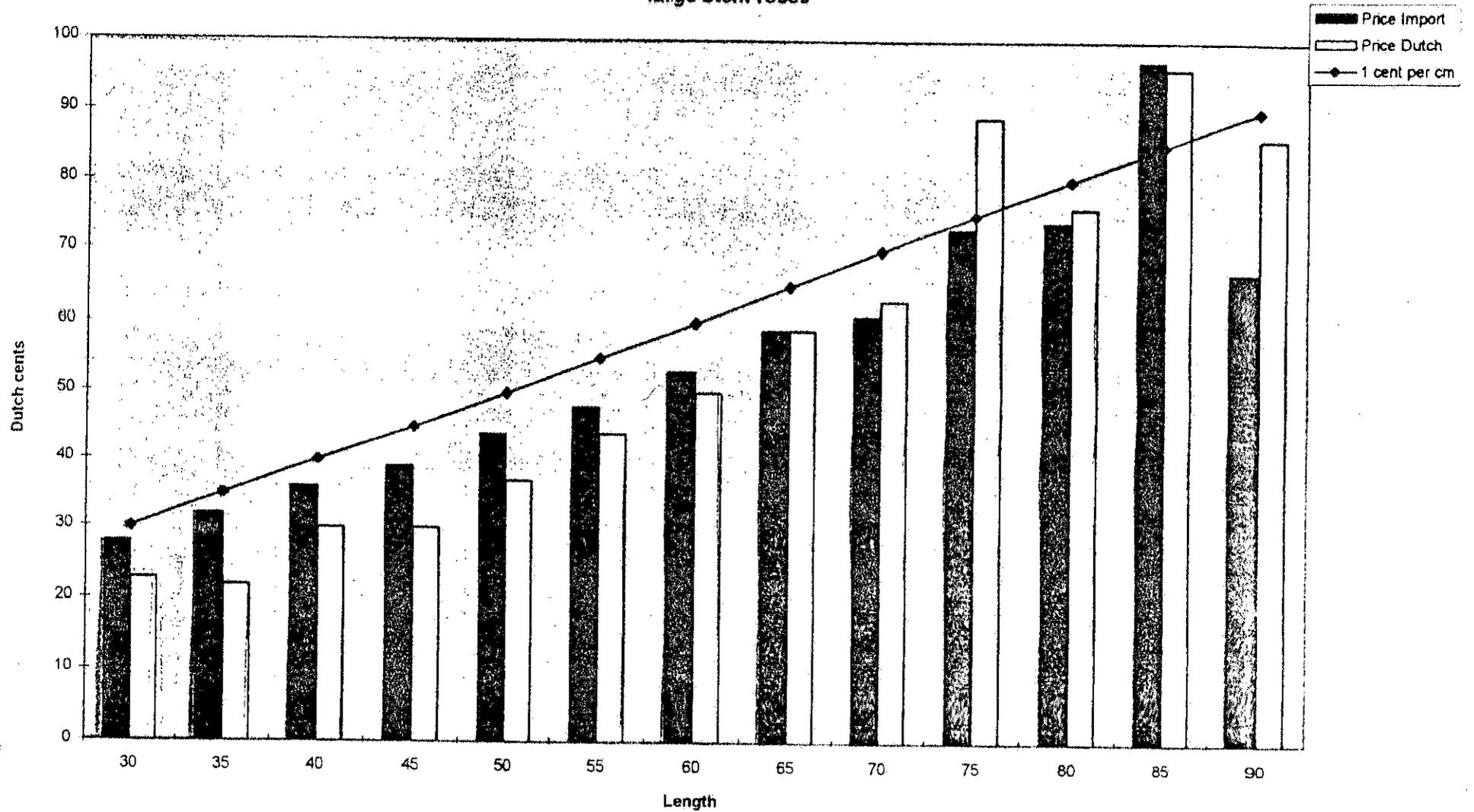
	production in millions	Import	change vs 1995
1. Surprise	72	(-)	+ 337%
2. Evelyn	28	(6)	- 32%
3. Lydia	25	(-)	+ 134%
4. Nikita	16	(-)	+ 48%
5. Rumba	15	(1)	- 28%
6. Purple Prince	11	(11)	- 13%
7. Princess	9	(13)	- 18%
8. Yellow Det	9	(-)	+ 72%
9. Sentyna	6.5	(4)	- 40%
10. Red Ace	6.5	(-)	- 25%
11. Mariska	6.5	(-)	+ 135%

*Average selling prices
Spring 1996, in cents*

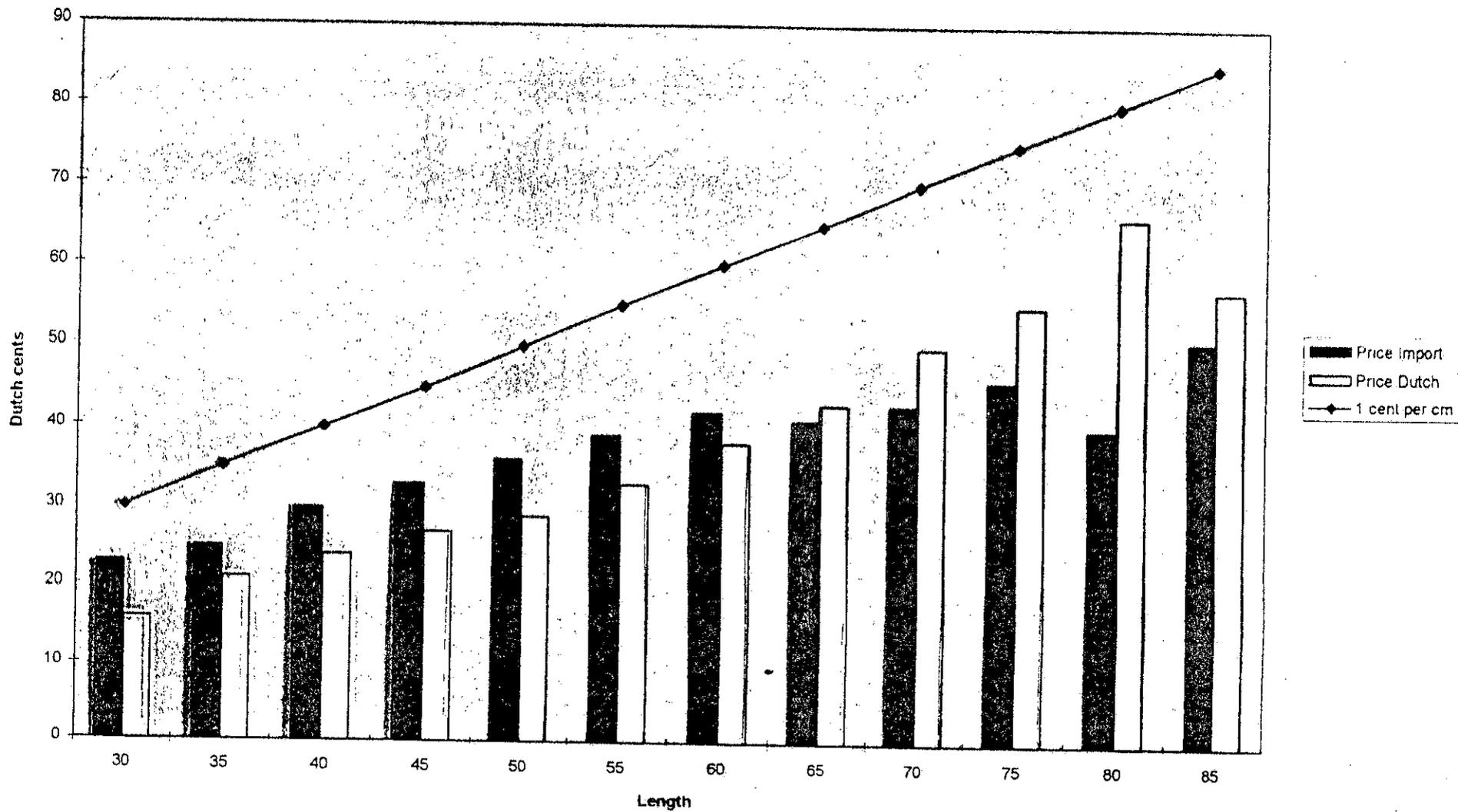
	Dutch	Import
First Red	93	59
Prophyta	45	36
- Average longstem roses 1995	- 72 - 67	- 44 (-39%) - 50 (-25%)
Mercedes	45	40
Trisco	37	34
- Average shortstem roses 1995	- 38 - 39	- 34 (-5%) - 37 (-5%)
Rumba	49	31
- Average spray roses 1995	- 61 - 37	- 34 (-44%) - 37 (-35%)

		Flower production Israel	
		at BVH (180 million stems)	
		in %	increase decrease
1.	Gypsophila	17.2	
2.	Roses small	15.2	
3.	Waxflower	9.6	
4.	Limonium other	9.0	
5.	Carnation standard	8.0	
6.	Solidago	7.4	
7.	Roses large	4.7	
8.	Helianthus	3.9	
9.	Aster	3.5	
10.	Foliage	3.5	
11.	Asclepias	3.2	
12.	Hypericum	2.7	
13.	Leucadendron	2.3	
14.	Trachelium	2.0	
15.	Limonium situatum	1.9	
16.	Anigozanthos	1.7	
17.	Azonitum	1.2	
18.	Anthrimum	0.9	
19.	Phlox	0.7	
20.	Lilium longiflorum	0.6	
21.	Delphinium	0.2	
22.	Zantedeschia	0.1	

DUTCH PRODUCT YEAR ROUND / IMPORT SEASONAL
large stem roses



DUTCH PROUCT YEAR ROUND / IMPORT SEASONAL
short stem roses



APPENDIX VI

**SOCIO-ECONOMIC BENEFITS
WHAT DOES EXPANSION MEAN
FOR UGANDA ROSES?**

JULY, 1996

Prepared by:

Clive Drew

Agribusiness Development Centre (ADC)

Uganda's Investment in Developing Export Agriculture (IDEA) Project

A USAID-funded Project

Chemonics International, Inc

technical assistance for this report provided by Fintrac, Inc.

Contract #623-0125-C-00-5040-00

Introduction:

Previous speakers at this conference have clearly demonstrated that Uganda has a comparative advantage, and a potential competitive advantage, in producing roses for the European market. Future growth prospects are also good.

The pioneers of the Uganda rose industry have been able to address the technical, marketing, managerial and business aspects of rose production. Practically all have succeeded in their endeavours, which gives further credibility to the fact that Uganda can become a more significant player in the market, and that rose production in Uganda can make an important contribution to the economy.

With this in mind, the technical professionals at the ADC, in collaboration with the Uganda Flowers Exporters Association (UFEA), have taken a close look at the future of the industry and its impact on the Uganda economy. This paper estimates the benefits to Uganda of further growth in the rose industry, and details the investments which will be necessary for such growth to occur. We see this as an important exercise to share with the growers, investors, bankers, planners and policy makers whose input and cooperation are essential to the success of the industry.

It should be noted that the data presented in this report are "order-of-magnitude" estimates. Individual farm performance will differ, but we have attempted to talk in terms of industry averages or reasonably attainable performance. Also, note that in most calculations we assume greenhouse production of small roses such as Frisco and of larger-headed roses such as First Red variety, grown at high density to produce medium-length stems.

1. Industry Size

For purposes of this exercise, we are using a 200 hectare (ha) industry. This is not an unrealistic parameter. If we consider the number of firms already in the industry and their expansion plans, plus those investments that are in various stages of incubation and a few more new entrants, it is quite easy to arrive at 200 ha of roses in Uganda within the next five years.

2. Industry Concentration

Given the economies of scale in rose production, the competitive nature of the business, the capital investment and managerial expertise required, we are anticipating (and recommending) that enterprises must be of sufficient size to benefit from these factors. We consider 5 ha to be a minimum size commercial rose farm, and some will conceivably be 20+ ha in size.

With an average farm size of 10 ha, a total industry size of 200 ha can therefore be achieved with about 20 enterprises.

3. Land Area Requirement

The total land area requirement for 200 ha of greenhouse rose production is not large.

If we consider that approximately another 50% of land is required for alleys within greenhouses, adequate spacing between houses for air movement, packhouse and storage facilities, roads, other infrastructure, setbacks, unutilised areas, etc. then the total industry requirements are 300 ha.

It is quite apparent that rose production is an intensive enterprise in terms of land utilisation. Availability of suitable land is not a constraint.

4. Expected Production

For purposes of illustration, we are using an industry average of 150 stems produced per m² per year. This equates to 1.5 million stems/ha. Total production for 200 ha is then 300 million stems/year.

If we consider that some 10% of stems are not marketable, and that some of the area will be under new plantings (even in a static situation), then the total marketable stems from the industry would be about 270 million stems/year.

For a nine-month harvest season, the average production for Uganda would be about 30 million stems/month.

5. Market Share

We may think that production of 30 million stems/month of the particular varieties that can be produced in Uganda is a huge number of flowers to market. However, the total European market for roses is about 220 million stems/month and is increasing at a rate of 5% per annum. Therefore, production of approximately 30 million stems from Uganda represents only about 13% of the available market in Europe (other markets are not considered here, but do offer potential). This is similar to the current volume supplied from Zimbabwe and Kenya.

This amount of additional supply is not likely to have a price depressing effect because of the overall upward trend in the market for roses in Europe and the likely decline of European domestic rose production. Uganda's competitive advantages (climate, freight rates, labor costs) will certainly allow it to achieve this market share if high standards of management are maintained.

6. Value of Production

The average auction price range for the type of roses that Uganda can produce competitively is US 15-30 cents per stem. This gives a potential market value (in Europe) of approximately US\$59.4 million from 200 hectares of mature plants.

Marketing costs represent about 20% of the auction price, or about US 4.4 cents per stem. So the net CIF price is about US\$47.5 million.

Airfreight costs are approximately US\$16 per box, with an average of about 20 bunches (20 stems/bunch) per box. Airfreight costs are therefore about US 4.0 cents per stem, or approximately 18% of auction price.

The FOB Entebbe value is therefore approximately US 13.6 cents per stem. This gives a potential FOB market value of US\$37 million.

Obviously, a US\$37 million FOB industry is a significant export earner for Uganda, all in hard currency.

7. Employment

Direct employment on a rose farm is approximately 40 persons per ha in the field and packhouse, plus another 5 persons per ha involved in management, transport, etc.

Therefore, a 200 ha rose industry provides direct employment for about 9,000 persons. There will also be the obvious employment multiplier effects as the service sector expands to meet the needs of the industry.

Rose production is gender-friendly. Employment in the Uganda rose industry today comprises about 75% women, and we do not foresee any reason for this to decrease.

Total earnings per rose industry employee (inclusive of salary, meals, and other direct benefits) are approximately US\$100 per month for 11 months of the year. This equates to US\$1,100 per year. Total earnings from employment are therefore almost US\$10 million per year from 200 ha.

8. Packaging Requirements

As stated above, there are approximately 20 x 20 stem bunches per box, or 400 stems per box. Therefore, exports of 270 million stems per year from 200 ha would require 675,000 boxes.

Currently, a rose box costs approximately US\$1.80, including duties. Annual expenditure on boxes would therefore amount to approximately US\$1.22 million, which provides a significant commercial opportunity for local manufacturers. However, Government needs to review the duty structure on raw materials versus imported boxes, which currently seems to discriminate against local manufacture.

9. Air Cargo Requirements

As discussed above, the airfreight bill is about US 4.0 cents per stem. Therefore the total airfreight bill on 270 million stems is about US\$10.8 million per year.

Shipping 675,000 boxes over 9 months involves an average of 75,000 boxes per month and a box of roses weighs approximately 10 kg. Therefore, the average weight shipped per month is approximately 750,000 kg, or about 180 tons per week .

Even with the anticipated increase in scheduled passenger flights, there will clearly be a need for dedicated charters to meet the needs of an expanded flower industry. Up to 4 charters per week using DC 10s or similar aircraft would be required.

One disadvantage for Uganda is the high cost of refueling at Entebbe, reported to be 25% higher than Nairobi. The exact causes of this need to be reviewed and action taken to reduce costs as much as possible.

10. Water Requirements

Water requirements for roses in Uganda are approximately 60,000 liters/ha/day.

One of Uganda's strong comparative advantages in relation to Kenya and Zimbabwe is having adequate land for rose production in the vicinity of Lake Victoria. Reservoirs and wells drilled in the vicinity of the lake are relatively shallow, reducing pumping costs. They are not prone to drying up during periods of drought and will have infinitesimal impact on the water level of the lake.

11. Investment Requirements

Current investment requirements are approximately US\$3-400,000 to establish one ha of greenhouse roses, including associated infrastructure. Therefore, total investment requirements for a 200 ha industry are in the order of US\$60-80 million.

Given that approximately 50 ha of production are already established or funding is in place, there is approximately US\$45-60 million in equity and medium-long term loans required for the Uganda rose industry to expand to 200 ha. There is also the need for additional working capital.

12. Propagation Material

The economic life of rose plants is about five years at maximum. Therefore, a 200 ha rose industry will require approximately 40 ha to be replanted each year. This amount of propagation material certainly justifies having local propagation services, providing commercial opportunities for specialist farms. It should also be noted that the success and expansion of roses will certainly increase demand for other types of flowers from Uganda.

14. Greenhouse Materials

There is a considerable quantity of materials required to establish 200 ha of roses. The type of structure will determine the materials required and local component.

Wooden structures require the use of treated poles and sawn trusses, both of which can be produced on a sustainable basis in Uganda. Specialist horticultural plastic needs to be replaced about every 3 years and this will also provide commercial opportunities for local manufacturers.

15. Conclusions

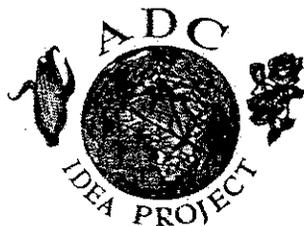
- Roses give the most attractive return on investment in agriculture in Uganda (30-40%) but require a high investment (at least \$1.2 million for minimum scale enterprises).
- Expansion requires a small number of enterprises, a small area of land, there are good employment opportunities, additional air cargo space is required, and there are other spinoffs. There is need for additional financing for this profitable industry.
- The market could absorb an increase of production in Uganda to 200 hectares, which will bring in foreign exchange earnings of \$37 million from roses. An additional \$5-10 million could also be expected from other flowers, driven by the success of the rose industry.
- This will bring substantial employment benefits. It will also provide significant commercial opportunities for local manufacturers of greenhouse construction materials and packaging.

UGANDA'S 200 HA ROSE INDUSTRY

PARAMETER	ASSUMPTIONS	INDUSTRY MAGNITUDE
1. SIZE	Short-medium term prospect	200 ha under production
2. CONCENTRATION	Average 10 ha farm to benefit from economies of scale	20 farms
3. LAND AREA	150% of area under production	300 ha
4. EXPECTED PRODUCTION	150 stems/m ² , 90% exportable, 9 months production/yr	270 million stems/year 30 million stems/month
5. MARKET SHARE	270 million stems/year production	13% of the European rose market
6. VALUE OF PRODUCTION	US 22 cents auction, 4.4 cents marketing, 4 cents airfreight	US\$ 59.4 million Auction value US\$ 47.5 million CIF value US\$ 37.0 million FOB
7. EMPLOYMENT	45 employees/ha	9,000 employees
8. PACKAGING	400 stems/carton	675,000 cartons
9. AIR CARGO	US 4.0 cents/stem 10 kg/carton, 75,000 cartons/month	US\$ 10.8 million airfreight bill 750 tons/mo., approx. 4 charters/week
10. TRUCKING	600 cartons/trip	125 trips/month
11. WATER REQUIREMENTS	60,000 l/ha or 60cu.m./ha/day	12,000 cu.m./day
12. INVESTMENT REQUIREMENTS	US\$0.3-0.4 million/ha	US\$60 - 80 million
13. PROPAGATION MATERIAL	US\$120,000/ha/5 years	US\$4.8 million per annum
14. GREENHOUSE REQUIREMENTS	US\$50,000/ha/5 years	US\$2.0 million per annum

APPENDIX VII

**ADC COMMERCIALISATION BULLETIN:
FRESH CUT ROSES**



ADC Commercialisation Bulletin #4

FRESH CUT ROSES

1

Production Method

The basic stages of rose production are:

1. Land preparation, including bed preparation, soil fumigation, and drainage installation.
2. Planting of rose plants. Spacing depends on the bay width of the greenhouse and the variety produced. Planting density is generally 60 to 70 thousand plants per hectare. A bed support system may be needed (wooden poles or reinforcing rods, with support wire stretched between).
3. Care of roses. Regular/daily soil analysis (water content, salts, minerals, pH levels), monitoring of humidity within greenhouses, application of fertilizers (usually

ADC Commercialisation Bulletins are published by the Agribusiness Development Centre of the USAID-funded Uganda's Investment in Developing Export Agriculture (IDEA) Project. The bulletins provide potential investors with a quick reference to production and market characteristics for various high-value export crops. For additional technical details, contact:

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through irrigation system - 'fertigation') and pesticides. Insects controlled by night time operation of sulphur evaporators.

4. Harvesting. Roses grow in flushes generally spaced 28 days to 60 days apart, depending on the variety and temperature. Flushes can be evened out by sequencing the planting and later the pruning. Pick at the exact time of petal opening. May need to be picked two to four times per day, particularly in warm climates. A flower not picked in optimum condition will not achieve Class I and will be discounted by as much as 20-30 percent. Workers will need to be trained carefully on recognizing when the flower needs to be picked (varies depending on variety) and how to pick. Harvesters should use sharp rose shears and place flower immediately in a bucket (cleaned every day and filled with 3-4 litres of water containing bactericide). Transport to Packhouse. When the bucket is full, take to the end of the row and place on trolley (protected from the elements) with other filled buckets. Immediately move to cold store (2°C) and keep there for at least 2 hours.

5. Sort flowers by quality and size according to market specifications. Bunch flowers according to market specifications (10s, 20s, 25s, 50s) and trim stems to same length for each bunch. Stand bunches in water again with preservative and put back in cold store before final packing into boxes with sleeves around each bunch (see below).

6. Boxes should be pre-cooled and transported to the airport via refrigerated truck

2

Varieties

There are many varieties of roses with new varieties developed continuously. Rose varieties can be divided into three groups:

1. Hybrid Tea. Long and medium-stemmed, generally 50-120 cm in length, larger flower and generally more tender than Floribunda, smaller yields, shorter vase life, higher prices. New medium-stemmed roses are 50-75 cm in length and are often higher yielding with longer vase life.

2. Floribunda. Short-stemmed, 35-60 cm stem length, lower prices, higher yields, better vase life.

3. Spray. Often as much as 6 flowers per stem, but generally uneconomical for long distance shipping and a limited market (same for minis).

The top sellers on the Dutch auctions in 1994, included:

Large-Flowered: Madelon, First Red, Prophtya, Jacaranda, Tineke, Vivaldi, Idole, Texas, Nobless, Sonia, Red Velvet, Escada

Small-Flowered: Frisco, Escimo, Motrea, Kiss, Mercedes, Lambada, Gabrielle, Souvenir, Europa, Jaguar, Carolien, Flirt, Safari

Before deciding upon a variety or varieties for production, growers

should analyze the market and growing characteristics of each variety carefully. Some varieties are more suited to Ugandan growing conditions and some have a proven track record in the market. Newly introduced varieties may earn high prices in the first year of production, but prices generally fall in following years. Tried and true varieties are the safest bet for a new producer. Also, choice of variety will significantly affect a farm's cost for planting materials -- not only for the planting material itself, but, often, for royalty payments to the breeder.

Recently, new rose varieties (eg. Diadem, Rumba) suitable for outdoor production in Uganda have been introduced on the market, offering significant potential savings in greenhouse construction costs. A few Ugandan farms are producing limited quantities of these varieties. It is unclear at this point what the potential market demand for these varieties will be.

3

Yield

Table 1 shows the top varieties produced in

Uganda and range of yields reported by local farms.

4

Time to First Harvest/Seasonality

The first blooms appear about 4 to 5 months from planting. It takes up to one year to reach full production. Peak yields coincide with the export season of October-April. Yield drops 10-20 percent in the later years of useful life (generally 6-8 years) of the rose plant.

5

Pests and Disease Prevention

Downey Mildew, Powdery Mildew, Gray Mold. Good ventilation, particularly at night, coupled with sulphur burners and appropriate fungicides, are essential.

Red Spider Mite. Regular inspection of leaves followed by application of appropriate insecticide such as Ambush before majoe infestation occurs.

Botrytis. Protect the heads from water which will cause botrytis in the bloom; keep irrigation below the heads of the plants. Use sulphur burners and fungicide as required.

Some pesticides and insecticides may be harmful to certain varieties of roses. Check with the breeder before applying chemicals or test an application on a small area of the variety before spraying the entire crop.

6

Fertilizer Requirements

Soil analysis should be conducted regularly and levels of required fertilizer will vary depending on the nursery. If nutrient deficiencies are found, fertilizer applications will be required. Basic elements required are nitrogen, phosphorous, calcium, magnesium, and sulphur. Supplementary elements are iron, manganese, copper, zinc, boron (trace), and molybdenum (trace). Fertilizer applications are typically done through irrigation lines ('fertigation').

7

Water Requirements

A rose farm will need a good irrigation system installed which typically also applies fertilizer to the crop. As with fertilizers, soil should be monitored frequently (daily) for moisture content. Irrigation systems should be designed to avoid spraying water on the heads of plants which will cause botrytis.

Along with water requirements during harvesting and packing, a rose farm is a high water consuming operation. Therefore, a large and reliable source of water should be available on-site.

Table 1

Ugandan Rose Production and Yields by Variety

Variety	Area (ha)	Stems/m ²
First Red	13.5	130-140-200
Cream Proplyta	3.3	220-240
Rumba	3.3	120-140
Frisco	3.0	330-350
Konfetti	3.0	150-200
Souvenir	2.8	290-310
Gabriella	1.5	180-220
Normal Proplyta	1.0	200-250
Sasha	1.0	300-320
Nicole	1.0	80-110
Jaguar	1.0	200
Versilia	1.0	150-170
Rodeo	0.8	300-320
Vanilla	0.8	220-260
Golden Times	0.5	160-180
Saphir	0.5	160-180

million stems per year.

In 1994, the Netherlands supplied 65 percent of the EU market with exports of 1,561 million stems. The next largest supplier was Israel with 233 million stems, followed by Kenya (197 million), Zimbabwe (124 million), Ecuador (40 million), Canary Islands (36 million), Colombia (34 million), Morocco (25 million), Zambia (22 million), Brazil (17 million), Tanzania (15 million), Uganda (15 million), and Malawi (14 million).

The European rose market is expected to continue to grow, with small-flowered varieties maintaining their dominant market share. Some industry sources estimate that demand will increase a further 150 million stems per year over the next 3 to 5 years. Coupled with an expected decreasing Dutch production area, another 100 hectares of production area will be required. East African countries, because of their climatic advantages and relative proximity to the market, will be in the best position to take advantage of this.

13 Prices

Most sales through the Netherlands are determined using the auction system. Deductions from the sales price varies by the type of import system used:

Dutch Auctioneers: clearing costs and transport to auction of Dfl 1-3 per box + cost for store facilities; repacking at the auction of Dfl 2-4 cents per stem; auction commission 7.2% (Auction Flora) with bucket hire and other costs about 10% from the total selling price

Import Auctioneers (Tele Flower Auction): clearing and transport to auction of Dfl 1-3 per

Table 2
Average 1995 Rose Prices on the Aalsmeer Auction
(US cents/stem by source for First Red and Frisco varieties)

	First Red	Frisco
Netherlands	49.1	16.4
Kenya	38.8	18.2
Zimbabwe	35.8	12.1
Tanzania	48.5	
Zambia	29.7	
Malawi	29.1	13.3
Uganda	32.1	15.2
Israel	41.2	19.4
India	26.7	
USA	41.8	
Average	45.5	16.4

box + cost for store facilities; repacking of Dfl 2-4 cents per stem; auction provisions of 7% from the sale price

Sales through Import Companies: If sold directly to exporters, wholesalers and supermarkets -- clearing costs similar to auction; 2-4% for repacking by importer; 5-10% for importer commission. If sales are not direct, but through importers, add auction provision costs.

Of course, an exporter has the option of shipping directly to a wholesaler or supermarket, in which case only transport and clearing costs would be incurred.

Flower prices vary depending on variety, quality, season, and source. Average 1995 rose prices (US cents/stem by source) on the Aalsmeer Auction in Holland for First Red and Frisco varieties are given in Table 2.

14 Competition

Ugandan production has been increasing steadily. A recent survey of rose farms

found that production area stands at around 32 ha in 1996. Uganda will be competing in the European import markets with suppliers from Africa (many of which have been increasing production also), the Netherlands, and South America. Ugandan production of roses dwarfs the 900 hectares under production in the Netherlands. While Dutch production is expected to fall in the future, because of an increasing inability to compete with lower cost suppliers, no one expects it to lose its market dominance nor reputation for top quality to other suppliers. Estimated rose production area for leading African producing nations is provided below:

Zimbabwe	200 ha
Kenya	80 ha
Uganda	32 ha
Zambia	20 ha
Tanzania	18 ha
Swaziland	9 ha
Malawi	6 ha

A recent study on comparative production costs amongst rose producers in Zambia, Zimbabwe, Kenya, and Uganda showed that capital costs and unit costs of production are lower in Uganda.

Table 3
Ugandan Rose Farm Production Costs
 (US\$/ha)

	Farm A (5 ha)	Farm B (6 ha)	Farm C (2 ha)	Farm D (3 ha)	Farm E (5 ha)
Managers	14,400	13,000	32,400	6,800	3,600
Labourers/Supervisors	19,200	25,900	17,000	21,666	26,400
Admin/Consultants	1,680	2,300	1,000	8,000	19,200
Total Labour	35,280	41,200	50,400	36,466	49,200
Fertilisers/Agrochemicals	30,000	12,833	30,000	45,000	11,000
Electricity/Diesel	4,800	7,000	4,200	13,333	9,600
Building/Machinery Repairs	6,050	4,000	3,800	8,000	4,400
Phone/Fax	1,200	1,600	6,000	2,400	3,000
Soil Analysis	200	165	500	666	240
Total Production Costs	77,530	66,798	94,900	105,865	77,440
Depreciation	42,000	42,250	40,580	47,560	52,210
Interest	19,900	19,150	20,961	23,270	23,838
Unit Costs per Stem Sold	7.187	6.93	9.20	11.53	11.29

Cost of Production

Table 3 provides estimates of production costs for Ugandan rose farms from a 1996 survey.

16 Profitability

Using sample data for a five-hectare Ugandan rose farm and adding in the packaging, freight, and marketing costs, an estimate of farm profitability (US\$/ha) can be made for various types of roses (see Table 4). Note that these three costs make up more than 50 percent of total costs.

17

Investment Requirements

Table 5 gives investment estimates compiled by ABN AMRO for a five-hectare Ugandan rose farm completed in two phases. The figures are illustrative only and will vary depending on project. Feasibility studies prepared for other potential Ugandan rose farms show investment costs for developing a two to three-hectare farm ranging from US\$1.3 million to US\$1.7 million. A recent study of Ugandan flower farms shows investment costs ranging from US\$26.55/m² to US\$39.25/m² for two to six-hectare farms.

The greenhouses in the example given in Table 5 are made from

wooden frames with plastic covers. If metal greenhouses were constructed, costs would be significantly higher. Other building investment would include: grading and packing area, pre-cooling area, cold store, materials storage, offices, pump room, workshop, store for fertilizers and pesticides, and staff housing. Farm equipment requirements include refrigeration, sulphur evaporators, irrigation equipment, spraying equipment, laboratory equipment, defoliating machines, generators, crop support system, rose scissors, buckets,

Table 4
Net Revenue for Sample Ugandan Rose Farm
 (US\$/ha)

	Large-Flowered Variety	Small-Flowered Variety
Stem Yield/m ²	140	300
Average stem size (cms)	55	40
Total Stems Sold	1,400,000	3,000,000
Average Auction Price	0.32	0.16
Revenue	449,400	492,000
Production Costs	77,530	77,530
Depreciation	42,000	42,000
Interest	19,900	19,900
Packaging /1	8,540	10,200
Freight /2	85,450	90,000
Marketing /3	47,809	49,081
Total Cost	281,229	288,711
Net Revenue	168,171	203,289

/1 carton cost estimated at US\$2.00, Kraft paper US\$1.60 (US\$0.04/bunch)

/2 Freight US\$1.85/kg (average 55cm=29/kg, 50cm=40/kg, 40cm=59/kg)

/3 marketing costs including clearance and all auction charges

Table 5
Investment Costs for a 5 ha Ugandan Rose Farm
 (two 2.5 ha phases, US\$)

	Useful Life (Years)	Phase I (2.5 ha)	Phase II (+2.5 ha)	Total Cost
Land	-	62,500		62,500
Greenhouses	10	87,500	87,500	175,000
Irrigation Pumps	10	50,900	26,300	77,200
Buildings	20	126,800	18,800	145,600
Other Tech. Materials	5	14,800	12,000	26,800
Tools, Office Equipment	3	6,200		6,200
Plastic	4	25,000	25,000	50,000
Generator	10	16,200		16,200
Communication Equipment	5	19,600		19,600
Plant Materials	5	287,200	287,200	574,400
Cool Area	10	60,000		60,000
2nd hand vehicles	3	48,900		48,900
Land Preparation	6	85,700	20,000	105,700
Total		891,300	476,800	1,368,100

trolleys, grading equipment, other hand tools, and vehicles (including refrigerated truck).

In addition to land costs, there may be additional costs for land clearing and grading, drainage, construction of access roads, and electrical and telephone installation. Costs for planting materials will vary widely depending on variety and whether payment of royalty to a breeder is required.

It is clear that capital investment requirements for a reasonable-sized rose farm is quite high. A well-managed farm, however, can attain substantial returns on this investment in only a short period of time.

NOTES:

