



# National Research Priorities in Floriculture Sector 2017-2021

National Committee on Floriculture Research and Development

**NATIONAL RESEARCH PRIORITIES ON FLORICULTURE**

**2017 – 2021**

*NATIONAL COMMITTEE ON FLORICULTURE RESEARCH AND DEVELOPMENT*

**MINISTRY OF AGRICULTURE**  
**SRI LANKA COUNCIL FOR AGRICULTURAL RESEARCH POLICY**  
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## **Message from Chairman**

Floriculture Industry is considered as a high-income generating agribusiness and it can potentially be harnessed as a way of socioeconomic development in Sri Lanka. With the Generalized System of Preferences Plus (GSP+) tariff concession to Sri Lanka from the European Council, more floriculture products could be exported to the European market. This is a great opportunity for the floriculture sector to maximize the sector contribution to the export earnings and re-gain its position in the global floriculture market.

Floriculture Research and Development (R&D) activities are mainly undertaken by the Department of National Botanic Gardens, Department of Agriculture and Universities. The Sri Lanka Council for Agricultural Research Policy (SLCARP) has proved its commitment towards discharging the mandated responsibility assigned to it by the Act No. 47 of 1987. Accordingly, the development of National Research Priorities in Floriculture is a timely important document to improve the floriculture sector. I consider this as a great achievement on the part of the National Committee on Floriculture Research and Development. The document provides valuable guidance to researchers in this sector to conduct very important research and development activities.

I take this opportunity to appreciate the untiring effort of the Chairperson and the members of the National Committee on Natural Resources Management, Sustainable Agriculture and Climate Change and to congratulate on their achievement.

Dr. S D G Jayawardena

Chairman

Sri Lanka Council for Agricultural Research Policy

## **Message from Secretary**

I am sending my greetings to the Chairman and the members of the National Committee on Floriculture Research and Development for the development of Floriculture Research Priorities. The Sri Lanka Council for Agricultural Research Policy (SLCARP) was established to guide the agricultural research programmes in Sri Lanka with a mandate to focus/prioritize and manage research in the National Agricultural Research System (NARS). The National Committee on Floriculture Research and Development has developed the Document of Floriculture Research Priorities to guide floriculture research and development activities in the National Agricultural Research System (NARS) and several Universities.

All these institutes need to follow this research priorities document to create long term plan on floriculture research and avoid duplication of research. This document help to explore, create and adopt new innovations to keep the national priorities updated every year. This process will keep SLCARP at the forefront and the strength of our staff and the support we receive from the eminent scientists who work in our national Committees will be instrumental in delivering the results.

The “Document of Floriculture Research Priorities” is a valuable leadership for the researchers in the whole NARS and I take this opportunity to congratulate the Chairman and the members of the Committee on the occasion.

Dr. J. D. H. Wijewardena

Secretary

Sri Lanka Council for Agricultural Research Policy

## FOREWORD

Floriculture products generate high foreign exchange earnings to the country while contributing to employment generation in the rural and sub urban areas. Sri Lankan floriculture products are exported to wide range of countries in the world. Apart from the Europe, which is the main market for the Sri Lankan floriculture products, Japan, Middle East, the USA and Korea are among the other major buyers. Diverse climatic regions and biodiversity prevailing in Sri Lankan diverse climatic regions encourage the floriculture industry by supplying attractive plants and flowers to the market. The growers also use advanced technologies to supply large quantities of unique products. Accordingly, development of novel varieties are the most prioritized researchable area in this sector.

Sri Lanka Council for Agricultural Research Policy (SLCARP) is mandated to formulate policies and priorities for agricultural research. It also financially supports national research institutes and universities for conducting prioritized research themes. The Council formulate national policies on agricultural research to address the current issues with particular reference to development of human resources and technology generation to modernize the agricultural sector. The main objective of these policies and strategies is to develop agriculture, increase its contribution to the national economy and utilize available natural resources in an effective manner.

In recognizing the importance of research activities in floriculture sector, the National Committee on Floriculture Research and Development of SLCARP has developed a document on “research priorities in floriculture” to guide the research activities in the country.

With this background, the committee solicits the fullest cooperation of all stakeholders to study and adapt this document as a guideline before designing research programmes for their respective institutes.

Chairman and Members

National Committee on Floriculture Research and Development

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## **Introduction**

Floriculture is a component of horticulture, which is a sub-sector of the wider agriculture industry. It is proved to be a high-income generating agribusiness that can potentially be harnessed as a way of socioeconomic development, especially for women-growers and their networks in rural and sub-urban Sri Lanka. This potential has not been exploited properly to date. Sri Lankan floriculture industry is handled by a few exporters supported by middle-level and small-scale growers. With proper technical guidance and financial assistance, many unemployed women can be motivated to initiate their own small floriculture nurseries as a profitable self-employment.

In 2015, the net worth of global floriculture trade (exports) was US\$ 19.4 Billion, out of which, the Netherlands accounted for 47%, while Colombia (7%) and Germany (5%) ranked next. In the 1990s Sri Lanka held the 9<sup>th</sup> place of the world rank, however as of 2015, Sri Lanka has dropped 47<sup>th</sup> Place. Developing nations with favourable climatic and geographic conditions such as Kenya and Thailand have entered the floriculture industry and achieved a rapid progress and economic development.

Numerous economies have benefited from the expansion of floriculture industry, particularly with its positive influence on the livelihood of rural women, as small scale entrepreneurs as well as wage workers; e.g. Kenya and Thailand. The introduction of small-scale floriculture enterprises has undoubtedly 'energized and empowered' rural women by enhancing their livelihood and economy.

In 2010 National Policy Framework, the Sri Lankan government aimed to increase per capita income to US\$4,000 per annum, leading to a modernization of lifestyle and an increase in the quality of life. The policy framework also envisaged the establishment of 1,500 floriculture villages and generates 30,000 jobs in suburban and rural areas of the Western, North Western and Central Provinces of Sri Lanka. The Sri Lankan Millennium Development Goals had targeted minimization of economic inequality based on gender by empowering women in order to improve their socio – economic standards. Thus, many women empowerment programs were established by government and NGOs in the last decade to promote self-employment and women as entrepreneurs and to discover new business ventures. Small scale floriculture business was considered as one of the most applicable venture in achieving this goal.



Under the national policy, funds have been allocated in the budget to promote self-employment, particularly in the floriculture sector through the Department of National Botanic Gardens and the Ministry of Primary Industries.

### **Global Floriculture Industry**

The Netherlands is the largest floriculture producer globally and the industry there is highly mechanized and specialized. The global floriculture industry is mainly concentrated in developed countries and has an annual growth rate of 6.5%. More than 120 countries are involved in this industry and in 2015, the top 5 exporters were Netherlands, Colombia, Germany, Ecuador, and Italy. The top 5 importers in 2015 were Germany, Netherlands, USA, UK, and France.

Colombia is the second-largest producer of fresh cut flowers globally and the main supplier to the US and the fourth-largest supplier to Europe. Reasons for the success of floriculture industry in Ecuador are the ample land availability, better environment, low labor costs and low shipping costs to the European and the US markets. Kenya also exports fresh flowers to European markets, benefitting from ideal weather conditions and low shipping costs. However, in those countries, the most floriculture companies are owned by Europeans and employees are paid low wages for their labor.

Case studies in India showed that the floriculture industry helps to improve socio-economic development of tribal women in the harsh dry lands of West India, by developing social capital among them. Jasmine growers in coastal Karnataka in India showed how the use of social capital eradicated poverty in rural villages. In Pakistan, the floriculture business is concentrated among small growers and mainly in cities such as Karachi, Lahore and Islamabad. The increasing demand for flowers has led to an increased return on investment. The industry in The Philippines is highly profitable, with the improving standards of living, more hotels and restaurants responding to an influx of tourists, thereby enabling small-scale growers to increase their sales. To cater to domestic market demand for cut flowers, The Philippines has to import cut flowers to cater to increasing domestic market demand.

## **The Sri Lankan Floriculture Industry**

Use of flowers in Sri Lanka dates back to 400 AD as evident by the frescoes illustrating flowers at the Sigiriya Rock fort site. Sri Lankans use flowers in many life events such as weddings and funerals, and also in religious occasions. Department of National Botanic Gardens and the Department of Agriculture are the main institutes responsible for this plant category.

The development of the tourism industry and service sectors has increased the demand for floriculture products especially for indoor decorations. Floriculture creations are available in e-markets through websites. Moreover, many beauticians, therapists and health spas make use of flowers in therapeutic applications. Exporters also reveal that they earn more profits by selling their products in the local market rather than exporting them, in the case of some cut flowers.

While earning foreign exchange to the country, floriculture sector provides employment opportunities for local people in skilled and unskilled categories. The industry comprises of large, medium and small scale growers who are spread throughout the country.

The majority of large scale commercial growers in Sri Lanka produce plants in collaboration with foreign partners. Technology is shared by these partners and highly advanced methods of production are followed. However, most of these ventures are involved in the production of ornamental foliage plants and cut foliage. Very few are involved in the production of cut flowers. Middle level and village level growers usually go for low-cost cultivation with minimum advanced techniques, sticking to conventional methods. The majority of these growers are the ones who produce cut flowers. Therefore, most of the cut flowers produced are used to satisfy the local needs and only the surplus is exported occasionally in small amounts.

National Committee on Floriculture Research and Development (NCFRD) is responsible for facilitating interaction among scientists in the sector, exchange research information, identifying research priorities, increase job opportunities and income earning opportunities particularly for small scale growers. Further, NCFRD is responsible for collaborating with scientists to develop new technologies for post-harvest preservation and to improve plant quality, train and transfer new technologies to the growers, develop market opportunities, increase production to fulfill the

local and export demand and also advising the Council to initiate appropriate action to overcome sector-related constraints.

Accordingly, the National Committee on Floriculture Research and Development has identified following research priorities for the advancement of floriculture sector in Sri Lanka.

These programmes will cover areas such as agronomy, pathology, entomology, mutational and conventional breeding, postharvest management, mass propagation, socio economics and market related studies to support the industry.

**Stakeholder workshop on 20<sup>th</sup> October 2016 at SLCARP to identify research priorities for Floriculture Sector**



**Participants of the workshop**



**Group Discussions to identify the research priorities**

# **Research Priorities of the Floriculture Research and Development 2017-2021**

## **1. Development of Marketable Novel Products**

### **Research Priorities**

- Introduction and establishment of new varieties
- Collection from natural sites and domestication varieties
- Breeding (Conventional and Mutation) programmes
- Selection of cultivars from existing species
- Identification of novel products according to current market demand for local and export market
- Value added products (quality improved finished products for local and international market)
- Identification of specific species/varieties for specified locations; interior and outdoor decorations – extended self life (e.g. Board Rooms, Living Areas, outdoor and landscaping)
- Development of new techniques to produce floral products which can be kept for longer period (e.g. Dry Flower Arrangements, Ornaments etc.)
- Development of innovative marketing strategies (e.g. ‘Plants for healthy life’)

## **2. Mechanization of Production Process for better productivity**

### **Research Priorities**

- Innovation of tools, utensils, machinery and methods for better productivity
- Appropriate/ effective irrigation techniques (Large scale/ small scale) (drip, sprinkler)
- Area and crop specific irrigation scheduling research
- Introduce fertilizer application machines (e.g. Fertigation systems, for application of granular and liquid fertilizers)
- Development of steam sterilization technique instead fumigation for media
- Research on suitable poly houses and structures based on climatic conditions

- Introduce appropriate moving tables for growing areas (area saving by semi-moving or moving tables)
- Appropriate packaging techniques

### **3. Marketing and Networking Research to Identify Emerging Markets**

#### **Research Priorities**

- Research on Supply – demand issues
- Development of Database on growers, exporters, input suppliers etc.
- Socio economic study to identify the possibilities of whole sale and retail outlets for flower products
- Preparation of Flower calendar according to the seasonal demand
- Identification and creation of potential new markets: e.g. Supermarkets, etc
- Improving the product range by innovative techniques: e.g. Dry flowers, Bonsai
- Identification of methods for technology transfer: e.g. through EDB, Workshops with foreign collaborators and other stakeholders
- Exploring the potential for flower tourism

### **4. Smart Plant Nutrient Packages, Growing media and Plant Protection**

#### **Research Priorities**

- Identification of crop-specific and site-specific fertilizer packages and growing media
- Identification of micro-nutrient based recommendations
- Identification of crop-based Biological controlling agents, Bio-fertilizers, Pest and Disease-specific chemicals, Suitable integrated sanitary packages
- Identification and control of new pests and diseases
- Introduce traditional knowledge on cultural practices
- Degradable pots/containers

**Findings of stakeholders' workshop for Research Priorities of the Floriculture Research and Development 2017-2021**

<b>Development of Marketable Novel Products</b>			
<b>Current status</b>	<b>Issues</b>	<b>Gaps / Constraints</b>	<b>Strategies</b>
<ul style="list-style-type: none"> <li>• Higher demand for novel products</li> <li>• Cannot compete with demand for traditional products</li> <li>• Quarantine issues</li> <li>• Lack of systemic research</li> <li>• Lack of procedures of importing or exporting new plants/plant parts</li> </ul>	Lack of novel varieties	<ul style="list-style-type: none"> <li>• Restriction of importation</li> <li>• No market oriented breeding programmes</li> </ul>	<ul style="list-style-type: none"> <li>• Introduction of New varieties</li> <li>• Collection from wild and Development</li> <li>• Breeding (Traditional, Mutation)</li> <li>• Introduction of existing species</li> <li>• Plant or plant part to Floriculture industry</li> <li>• Identification of novel product according to current market demand for local and export market</li> <li>• Value added products (Finished products for local and international market)</li> </ul> <p><b>Research Needs</b></p> <ul style="list-style-type: none"> <li>- Identification of varieties suitable to domestic and export market</li> <li>- Multiplication of identified varieties</li> <li>- Development of Agronomic and Crop Management Package</li> <li>- Exploration of traditional knowledge of plants multiplication</li> <li>- Changing of plant architecture according market need</li> <li>- Manipulation of growth and flowering according to market need</li> <li>- Development of clear cut procedures for importing and exporting plant materials</li> <li>- Development of rapid propagation procedures</li> </ul>

**Development of Marketable Novel Products**

<b>Current status</b>	<b>Issues</b>	<b>Gaps / Constraints</b>	<b>Strategies</b>
			<ul style="list-style-type: none"> <li>- Identification of specific markets for specific products</li> <li>- Development of packaging and postharvest procedures for novel products</li>   <li>- Development of technologies for                             <ul style="list-style-type: none"> <li>• Potted plants with flowers</li> <li>• Plants suitable for interior decorations</li> </ul> </li> <li>- Identification specific varieties for specified locations (e.g. Board Rooms, Living Areas)</li> </ul>

### Mechanization of Production Process

Current status	Issues	Gaps / Constraints	Strategies
<ul style="list-style-type: none"> <li>• Use of traditional equipment</li> <li>• Some use of Fertigation systems</li> <li>• Lack of awareness about the importance of right tool and equipment</li> <li>• Problems occur in internal transportation</li> <li>• Lack of knowledge                             <ul style="list-style-type: none"> <li>- utilization of proper irrigation systems (e.g. suitable pumps?)</li> <li>- area specific, crop specific irrigation scheduling</li> </ul> </li> </ul>	<p>Lack of locally developed machines for floriculture industry</p>	<p>Unavailability of suitable machines</p>	<ul style="list-style-type: none"> <li>• Considering about labour savings</li> <li>• Use of appropriate tools</li> <li>• Introduce new tools to suitable conditions</li> <li>• Introduce appropriate methods of mechanization</li> <li>• Making people aware about the appropriate irrigation techniques (Large scale/ small scale) (drip, sprinkler)</li> <li>• Area specific, crop specific irrigation scheduling research</li> <li>• Introduce fertilizer application machines (e.g. Fertigation system) (for application of granular and liquid fertilizers)</li> <li>• Introduce media preparation mixtures</li> <li>• Introduce steam technique instead of fumigation</li> <li>• Research on suitable poly houses and structures based on climate</li> <li>• Introducing appropriate moving tables (area saving by semi-moving or moving tables)</li> </ul>



<b>Marketing and Networking Research to Identify Emerging Markets</b>			
<b>Current status</b>	<b>Issues</b>	<b>Gaps / Constraints</b>	<b>Strategies</b>
<p><b>Local market</b></p> <p>Local market is expanding</p> <p>Flower-minded culture is improving</p> <p><b>Export market</b></p> <ul style="list-style-type: none"> <li>• Demand is increasing</li> <li>• Competitors – New emerging producers: Guatemala, Kenya, Ivory Coast, Ecuador, etc</li> <li>• E.g. <i>D. sanderiana</i> – production not enough to fulfill the demand from UK</li> </ul>	<ul style="list-style-type: none"> <li>• Supply – demand issues</li> <li>• Difficult to maintain the quality with out-grower system</li> <li>• Lack of link between large-scale and medium and small-scale producers</li> <li>• Lack of details in potential markets / niche markets</li> <li>• Lack of database</li> <li>• Postharvest issues: cool storage, transport, packaging, preservatives</li> <li>• Supply – demand issues</li> <li>• Difficult to maintain the quality with out-grower system</li> </ul>	<p>Unavailability of marketing and network information</p>	<ul style="list-style-type: none"> <li>• Improving the product standards in out grower system</li> <li>• Flower auctions / Trade exhibitions <ul style="list-style-type: none"> <li>- Both local and international participants</li> <li>- Annually / half yearly, networking opportunity</li> <li>- A weekly fair or flower market in selected areas, at least in selected districts</li> <li>- Forum to meet stakeholders</li> <li>- Initiation of a permanent flower centre with public-private partnership</li> </ul> </li> <li>• Continuous supply <ul style="list-style-type: none"> <li>- Agreements with suppliers, exporters, etc</li> <li>- Programming the production</li> <li>- Growth modifications</li> </ul> </li> <li>• Flower calendar <ul style="list-style-type: none"> <li>- Customized products</li> </ul> </li> <li>• Innovative products / Value added products / market presentation</li> <li>• Improved varieties – true-to-type</li> <li>• Potential new markets – eg. Supermarkets, etc <ul style="list-style-type: none"> <li>- Market and consumer research</li> </ul> </li> <li>• Improving the product range / by products <ul style="list-style-type: none"> <li>- Dry flowers,</li> </ul> </li> <li>• Increase Input availability <ul style="list-style-type: none"> <li>- Floral dye, agro-chemicals, growth regulators, ready-to-use preservative solutions</li> </ul> </li> <li>• Database development <ul style="list-style-type: none"> <li>- Online / printed material</li> </ul> </li> <li>• Price standardization</li> <li>• Efficient use of existing micro propagation facilities</li> <li>• Regional advisory services – to support growers</li> <li>• Identification of localities for off-season production</li> </ul>

<b>Marketing and Networking Research to Identify Emerging Markets</b>			
<b>Current status</b>	<b>Issues</b>	<b>Gaps / Constraints</b>	<b>Strategies</b>
			<ul style="list-style-type: none"> <li>• Improving postharvest handling operations               <ul style="list-style-type: none"> <li>- Assessment of postharvest losses</li> <li>- Technology development / postharvest treatments</li> <li>- Technology transfer</li> <li>- Cooling, packaging, transport</li> <li>- Preservation of cut flowers / foliage</li> <li>- Establish at least community processing centers</li> </ul> </li> <li>• Improved production technology (high tech)</li> <li>• Controlled environments (shade houses, poly tunnels)</li> <li>• Technology transfer               <ul style="list-style-type: none"> <li>- Through EDB</li> <li>- Workshops with foreign collaborators and other stakeholders</li> </ul> </li> <li>• Promote flower tourism</li> <li>• Attitude change</li> </ul>

### Smart Plant Nutrient Packages, Growing media and Plant Protection

Current status	Issues	Gaps / Constraints	Strategies
<ul style="list-style-type: none"> <li>• Lack of knowledge               <ul style="list-style-type: none"> <li>- Nutrient use (doses of nutrient, soil conditions)</li> <li>- Recommended fertilizers</li> <li>- Types of fertilizers</li> <li>- Micro-nutrient fertilizers</li> </ul> </li> <li>• Lack of use of liquid fertilizers</li> <li>• High demand for Inorganic fertilizers</li> <li>• Use high doses; high environmental pollution</li> <li>• Insufficient use of suitable growing media</li> <li>• Limitation of use of chemicals: residues concerns</li> <li>• Introduction of unsuitable growing media to growers</li> <li>• Lack of knowledge of identification of pest and diseases</li> <li>• Low level of introduction of biological agents</li> </ul>	<p>Lack of fertilizer standards</p>	<p>unavailability of information on fertilizer and other chemicals</p>	<ul style="list-style-type: none"> <li>• Introduce area specific, plant specific fertilizer packages</li> <li>• Introduce micro-nutrient-based recommendations</li> <li>• Introduction of correct growing media and plant protection packages (based on climatic factors, crop stage, soil type)</li> <li>• Introduce               <ul style="list-style-type: none"> <li>- Biological controlling agents</li> <li>- Bio-fertilizers</li> <li>- Pest and disease-specific chemicals</li> <li>- Suitable integrated sanitary packages</li> </ul> </li> <li>• Management of new pests and diseases</li> <li>• Introduce traditional knowledge</li> </ul>

**List participants for the stakeholder workshop on 20<sup>th</sup> October 2016**

	<b>Name</b>	<b>Institute</b>
1.	Kumari Fonseka	University of Ruhuna
2	Nilanthi Dahanyake	University of Ruhuna
3	Erandi Wijesinghe	University of Wayamba
4	A.L.M Zuhari	Forest Department
5	J.P Eeswara	University of Peradeniya
6	Mangala Rubasinghe	Suwahas Mal Society
7	Gayani Wijethilake	Export Development Board
8	T.Weerakoon	Ramya Horticulture
9	S.A.G.S Kumari	Ministry of Sustainable Development
10	Kanthi Hiripitiya	Suwahas Mal Society
11	K.M.R.D Abhayapala	University of Rajarata
12	M.C. Wickramasinghe	Department of National Botanic Gardens
13	I. Wijayasuriya	Suwahas Mal Society
14	R.M.Sujantha B Rathnayaka	Ceylon Orchid Gardens
15	Kamani Rathnayake	University of Wayamba
16	A.M.D.N Adikari	North Western Province, DOA
17	Edwin	Suwahas Mal Society
18	G.D.K.Kumara	University of Sabaragamuwa
19	A.A.Y. Amarasinghe	University of Sabaragamuwa

	<b>Name</b>	<b>Institute</b>
20	E.M.H.B Ekanayake	Central Province, DOA
21	C. Benaragama	University of Peradeniya
22	P. Wadwawera	Suwahas Mal Society
23	K.S. Hemachandra	University of Peradeniya
24	Nanda Galimadawatte	Suwahas Mal Society
25	S.K Mendis	Suwahas Mal Society
26	H.D. Rathnayake	Ministry of Sustainable Development
27	Nalani Siriwardane	Suwahas Mal Society
28	D.P. Karunananda	Horticultural Crop Research and Development Institute
29	Ayodhya Nugaliyadda	Ministry of Agriculture
30	U.G.A.T Premathilake	University of Uva
31	Sanath Ramanayake	Mike Flora Pvt. Ltd.
32	I. Anandathissa	Omega Green Pvt. Ltd.
33	H.M.D.A.K Herath	University of Rajarata
34	R. S. W. Gomes	Department of National Botanic Gardens
35	S. A. Krishnarajah	Department of National Botanic Gardens
36	K.N Yapa	Department of National Botanic Gardens
37	D.A Shirani	Horticultural Crop Research and Development Institute

**Responsible Institutes:**

1. Department of Notational Botanic Gardens (DNBG)
2. Department of Agriculture
  - a. Horticultural Crop Research and Development Institute (HORDI) and RARDCs
  - b. National Plant Quarantine Services (NPQS)
3. Universities (Faculties of Agriculture, Science and Engineering)
4. Private Sector Organizations
5. Export Development Board
6. Ministry of Sustainable Development and Wild life
7. Department of Forest
8. Ministry of Primary Industries

**MEMBERS OF THE NATIONAL COMMITTEE ON FLORICULTURE RESEARCH  
AND DEVELOPMENT**

1	Mr. K Nanayakkara Yapa(Chairman)	Director General / Department of National Botanic Gardens
2	Dr. Chalinda Beneragama	Faculty of Agriculture, University of Peradeniya
3	Dr. Rohan Wijekoon	Director General, Department of Agriculture
4	Mr. I Anandatissa	MD, Omega Green Pvt Ltd
5	Mrs. Malani Baddegamage	Director, Export Development Board
6	Mr. A. L. M. Zuhry	Deputy Conservator, Department of Forest
7	Mrs. Ramya Weerakoon	President of Floriculture Export Association,
8	Mr. Ruwan Rajapakse	Secretary of Floriculture Export Association,
9	Dr. Hemal Fonseka	Director, Horticultural Crop Research and Development Institute
10	Mrs. L. U. N. Sumanasekera	Director, Ministry of Agriculture
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13	Mrs. Dayani Karunananda	Assistant Director, Horticultural Crop Research and Development Institute
14	Prof. R. A. S. P. Senanayake	Department of Botany, Faculty of Science, University of Kelaniya
15	Dr. Kumari Fonseka	Department of Crop Science, Faculty of Agriculture, University of Ruhuna
16	Mrs. M. Rupasinghe	Suwahas Mal Society
17	Dr. Shelomi Krishnaraja	Director (Research) / Department of National Botanic Gardens
18	Mr. M. A. Kularatne	Former Senior Research Officer, Department of Agriculture

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