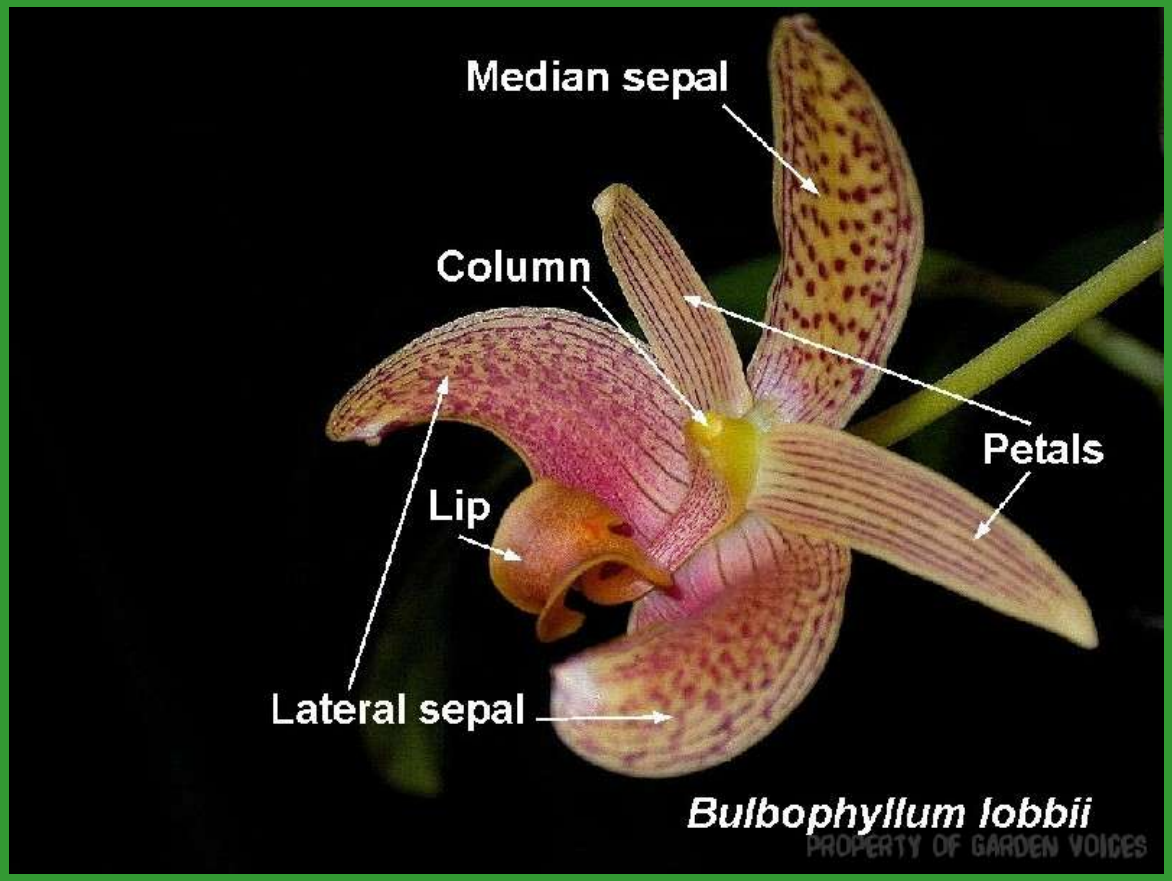
ORCHIDS: COMMERCIAL PROSPECTS

Courtesy: Dr. R. P. Medhi, Director
National Research Centre for Orchids
Pakyong, East Sikkim

ORCHID FLOWER-UNIQUENESS



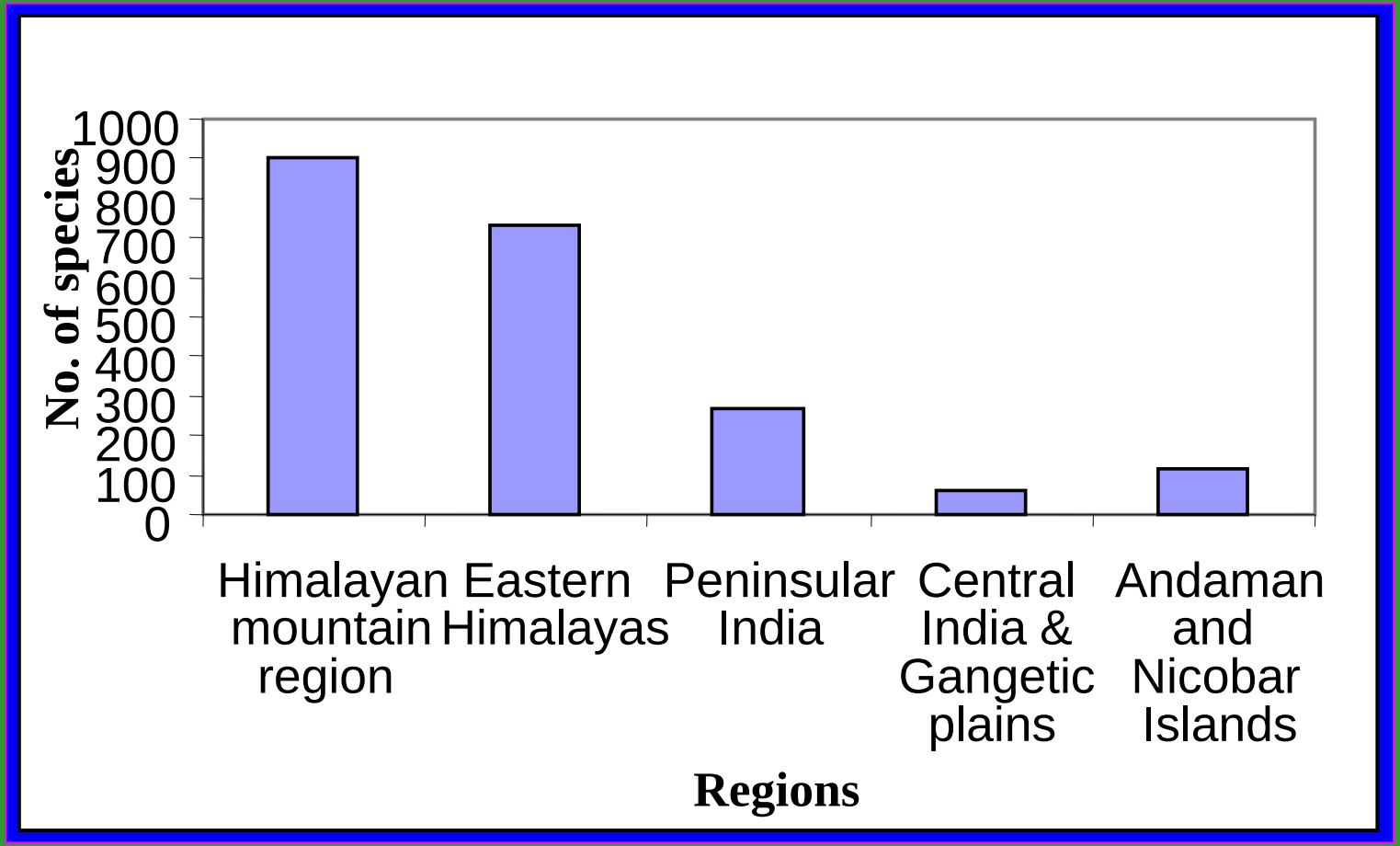
INDIA FAVORING ORCHIDS

- Total land area of India - 329 million hectare.
- India is situated between 6°45′-37 °6’N latitude 68°7’-97°25’E longitudes.

- The distribution pattern reveals five major plant geographical regions viz.,
  - **North Eastern Himalayas**
  - **Peninsular region**
  - **Western Himalayas**
  - **Westerns Ghats and**
  - **Andaman and Nicobar group of Islands**

ORCHID RESOURCES OF INDIA

(Number of Species-total)

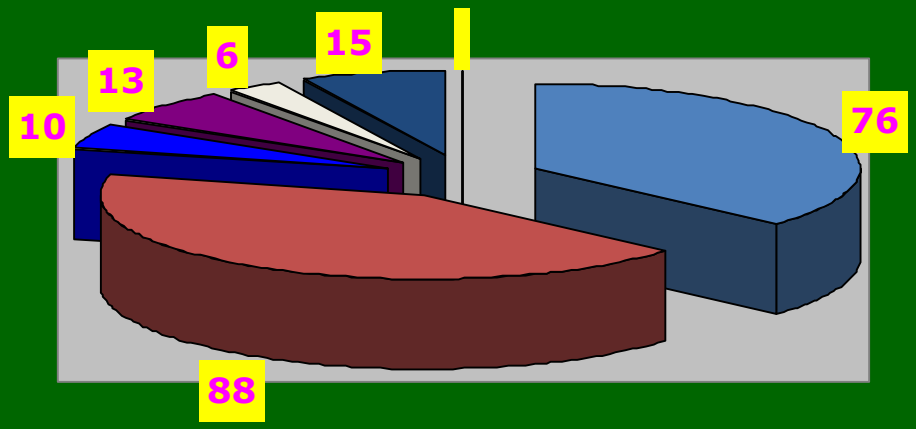


STATE WISE ORCHID DISTRIBUTION IN INDIA

Name of the State	Orchids (Number)		Name of the State	Orchids (Number)	
	Genus	Species		Genus	Species
Andaman & Nicobar Group of Islands	59	117	Maharashtra	34	110
Andhra Pradesh	33	67	Manipur	66	251
Arunachal Pradesh	133	600	Meghalaya	104	352
Assam	75	191	Mizoram	74	246
Bihar (incl. Jharkhand)	36	100	Nagaland	63	241
Chhatisgarh	27	68	Orissa	48	129
Goa, Daman & Diu	18	29	Punjab	12	21
Gujrat	10	25	Rajasthan	6	10
Haryana	3	3	Sikkim	122	515
Himachal Pradesh	24	62	Tamil Nadu	67	199
Jammu & Kashmir	27	51	Tripura	34	48
Karnataka	52	177	Uttaranchal	72	237
Kerela	77	230	Uttar Pradesh	19	30
Madhya Pradesh (inc. Chhattisgarh)	34	89			

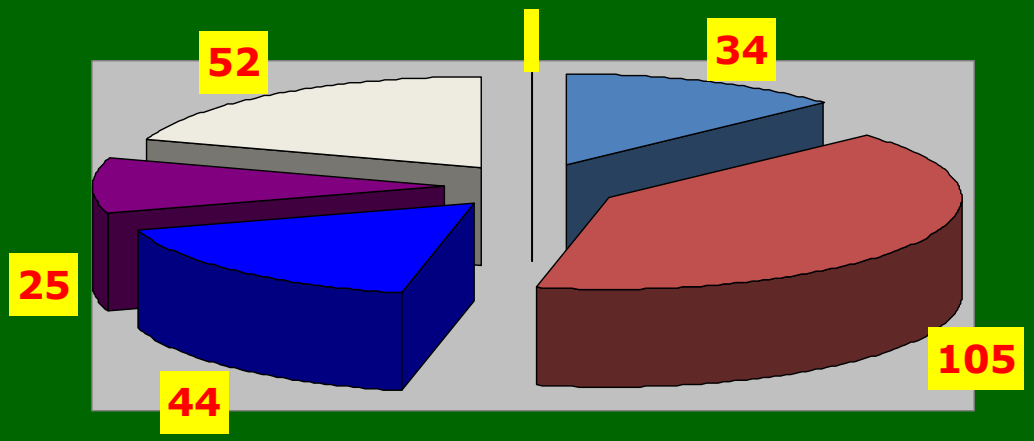
ORCHID RESOURCES OF INDIA

(Endemic)



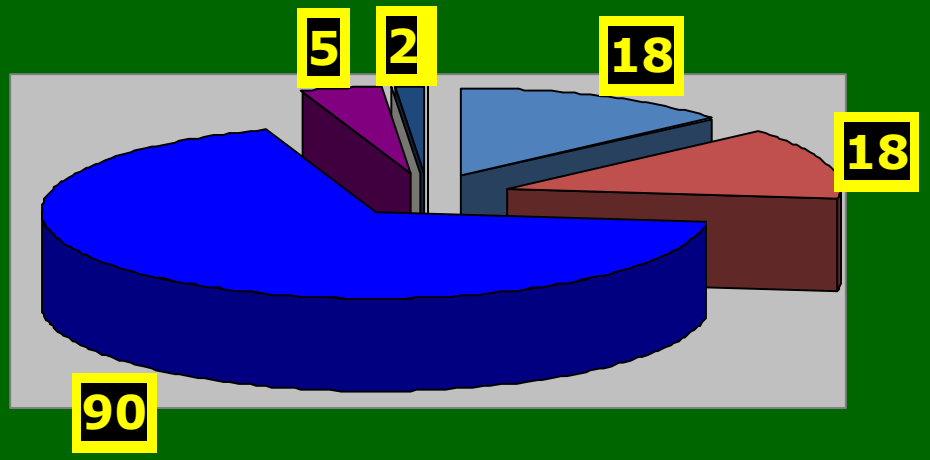
ORCHID RESOURCES OF INDIA

(Endangered)



ORCHID RESOURCES OF INDIA

(Extinct/Nearly Extinct)



ORCHIDS: COMMERCIAL BENEFITS

- Indian orchid diversity is more than 1300 species
- Orchids are most fascinating among plant species
- Orchid flowers have incomparably very long vase-life
- One among the top ten cut flowers
- Orchids occupy 8% share of world cut flower trade

ORCHID USES

- Cut flowers
- Potted plants
- Herbal medicine
- Spice & Beverages
- Food


'Brother and Sister'

ORCHIDS AS CUT FLOWER

Renanthera imschootiana

Paphiopedilum spicereanum

Vanda tesellata

Pahiopedilum insigne

Enzan Forest 'Majolica'.

Vanda coerulea Griff.ex.Lindl

ORCHID SPECIES SUITABLE AS POTTED ORNAMENTALS

Anoectochilus brevilabris	*Ascocentrum ampullaceum*	*Bulbophyllum putidum*
Calanthe chloroleuca	*Calanthe herbacea*	*Calanthe masuca*
Calanthe plantaginea	*Calanthe triplicata*	*Coelogyne corymbosa*
Coelogyne cristata	*Coelogyne nitida*	*Coelogyne ochracea*
Cymbidium aloifolium	*Cymbidium devonianum*	*Cymbidium eburneum*
Cymbidium lancifolium	*Cymbidium mastersii*	*Dendrobium chrysotoxum*
Dendrobium densiflorum	*Dendrobium fimbriatum*	*Dendrobium heterocarpum*
Dendrobium moschatum	*Dendrobium nobile*	*Dendrobium williamsonii*
Eria bambusifolia	*Eria coronaria*	*Goodyera hemsleyana*
Goodyera hispida	*Malaxis calophylla*	*Paphiopedilum fairrieanum*
Paphiopedilum hirsutissimum	*Paphiopedilum insigne*	*Paphiopedilum spicerianum*
Paphiopedilum venustum	*Paphiopedilum villosum*	*Phaius flavus*
Phaius tankervillae	*Phalaenopsis lobii*	*Phalaenopsis mannii*
Pleione hookeriana	*Pleione humilis*	*Pleione maculata*
Pleione praecox	*Renanthera imschootiana*	*Spathoglottis plicata*
Vanda coerulea	*Vanda coerulescens*	*Vanda cristata*
Vanda stangeana	*Vanda tessellata*	*Vandopsis undulata*

ORCHIDS AS POTTED PLANTS

ORCHID SPECIES SUITABLE FOR BREEDING

Arachnis cathcartii	*Bulbophyllum leopardinum*	*Bulbophyllum putidum*	*Calanthe plantaginea*
Calanthe chloroleuca	*Calanthe herbacea*	*Calanthe masuca*	*Coelogyne cristata*
Calanthe triplicata	*Coelogyne barbata*	*Coelogyne corymbosa*	*Cymbidium devonianum*
Coelogyne fuscescens	*Coelogyne nitida*	*Coelogyne ochracea*	*Cymbidium lancifolium*
Cymbidium eburneum	*Cymbidium hookerianum*	*Cymbidium iridiodes*	*Cymbidium tigrinum*
Cymbidium longifolium	*Cymbidium lowianum*	*Cymbidium munronianum*	*Dendrobium candidum*
Cymbidium tracyanum	*Cymbidium whiteae*	*Dendrobium bensonae*	*Dendrobium gibsonii*
Dendrobium densiflorum	*Dendrobium farmeri*	*Dendrobium formosum*	*Dendrobium pendulum*
Dendrobium infundibulum	*Dendrobium nobile*	*Dendrobium parishi*	*Paphiopedilum fairrieanum*
Dendrobium primulinum	*Dendrobium wardianum*	*Dendrobium williamsonii*	*Paphiopedilum venustum*
Paphiopedilum hirsutissimum	*Paphiopedilum insigne*	*Paphiopedilum spicerianum*	*Phaius flavus*
Paphiopedilum villosum	*Papilionanthe teres*	*Pecteilis gigantea*	*Phalaenopsis mannii*
Phaius tankervillae	*Phalaenopsis decumbens*	*Phalaenopsis lobii*	*Pleione praecox*
Pleione hookeriana	*Pleione humilis*	*Pleione maculata*	*Thunia marshalliana*
Renanthera imschootiana	*Spathoglottis plicata*	*Thunia alba*	*Vanda cristata*
Thunia venosa	*Vanda coerulea*	*Vanda coerulescens*	*Vanda undulata*
Vanda pumila	*Vanda stangeana*	*Vanda tessellata*	*Vandopsis undulata*

ORCHIDS FOR BREEDING

Orchid hybrids:

Cymbidium hybrids

Dendrobium hybrids

Phalaenopsis hybrids

MEDICINAL IMPORTANCE OF ORCHIDS

Name of orchid	Plant portion used	Against Disease
Acampe pappilosa	Root	Rheumatism
Cymbidium aloifolium	Root	Emetic & purgative
Cirrhopetalum maculosum	Root	Longevity
Eulophia campestris	Tuber	Aphrodisiac; for cough and heart trouble
Habenaria acuminata & H. intermedia	Root	Tonic
Liparis rostrata	Tuber	Stomach ache
Luisia tenuifolia	Root and rhizome	For boils and tumours.
Microstyllis wallichii	Pseudobulbs	Tonic
Orchis latifolia	Root	Tonic and expectorant
Vanda cristata	Leaves	Expectorant

FRAGRANT ORCHIDS

Other Uses

Hair adornment & other rituals

Value addition

Orchid pendant

ORCHIDS: MARKET ANALYSIS

Worldwide Area under flower and foliage crops of selected countries, in hectares

Country	Total area (Ha)	Under Protected cultivation (Ha)
Netherlands	8479	5832
Italy	8463	4630
Germany	7056	3037
United Kingdom	7670	7670
Spain	7617	3014
France	6628	2215
Belgium	1751	678
Australia	4267	Na
United States	25290	8625
Colombia	6000	6000
China	1,22,581	Na
India	1,06,477	600
Japan	21,218	8560
Thailand	8,320 (Orchids)	
Israel	2245	
Kenya	6000	6000

Source: AIPH-Union Fleurs, International Statistics Flowers & Plants-2004

European Union Imports of Cut flowers and shares of Developing countries (DC)

Product	Value 2005 Euro millions	% share of products	% share of DC	DC suppliers % shares to EU	DC supplies to Netherlands
Rose	919	28.05	36	Kenya 20%, Ecuador 6%, Uganda 2%, Zimbabwe 2%	
Dianthus	227	6.93	53	Columbia 36%, Kenya 10%	
Orchids	87	2.66	22	Thailand 20%	Thailand 86%, S. Africa 10%, Malaysia 3%
Gladiolus	8	0.24	1	Columbia 2%, Kenya 1%	
Chrysanthemum	268	8.18		nil	
Fresh Cut flowers	1509	46.06			
Other fresh cut flowers (anthuriums, proteas etc)	1589	48.50	8	Kenya 4%, Ecuador 2%	
Total fresh cut flowers	3098	94.57	19		India 0.4%

Source: Eurostat 2006: CBI Market Info Database, Market survey of flowers

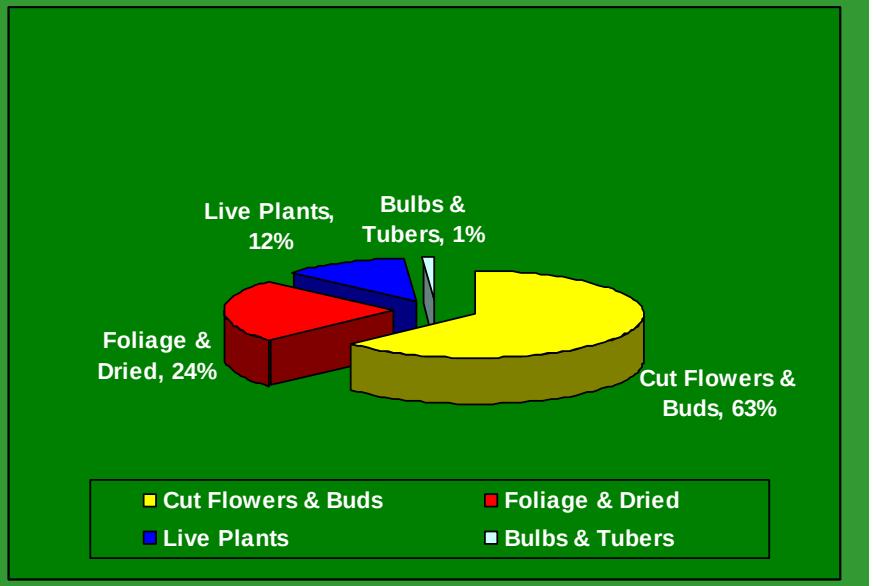
Status of Fresh cut flowers imports from India by leading importing countries

Country	Total Imports of Cut flowers and foliage in 2004 (Euro millions)	Imports from India in 2004	Share of India	Ranking of India in supplies to that country
UK	814.85	0.54	0.07%	17th
Germany	786.03	0.52	0.07%	17th
France	409.18	0.67	0.16%	13th
The Netherlands	418.85	1.5	0.36%	21st
Spain	48.08	0.26	0.54%	6th
Poland	28.20	0.21	0.74%	5th
Avg % share			0.32%	

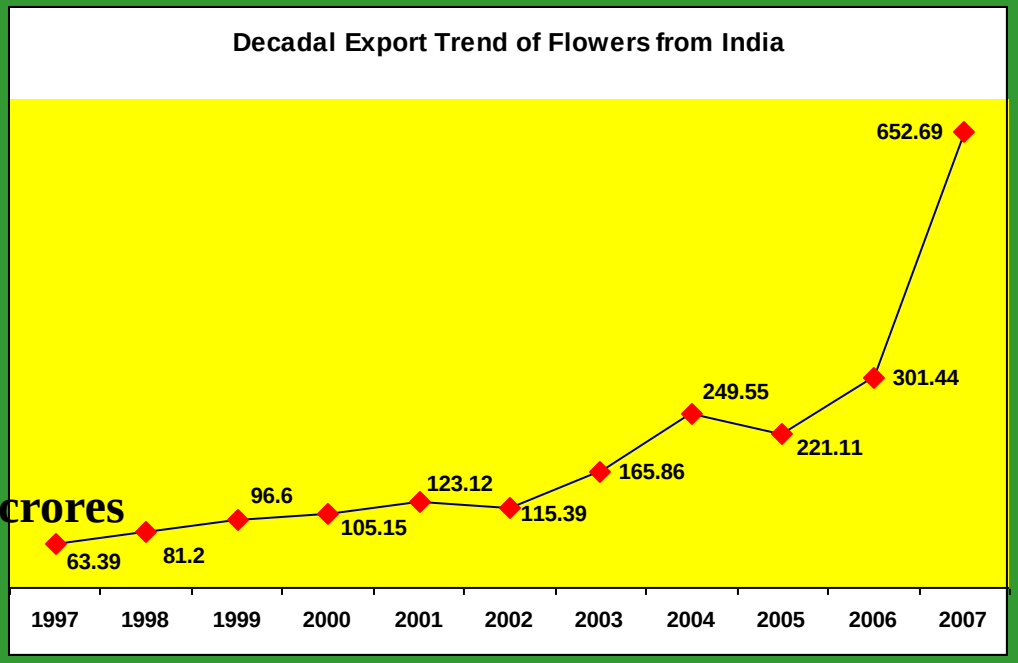
Source: VNB- 2005 & VNB-2006, CBI Market Info Database 2006

Country wise export of flowers from India

Country	Values in Rs. Lacs	
	2005-06	2006-07
Australia	456.08	663.7
Austria	399.4	323.73
Belgium	531.89	715.83
Canada	128.23	315.09
Ethopia	322.59	1127.16
France	617.33	590.76
Germany	2436.78	3101.68
Greece	303.27	497.37
Italy	918.49	1115.83
Japan	5644.04	32554.12
Netherland	2748.71	4478.37
New Zealand	191.67	377.16
Poland	389.45	309.43
South Africa	231.81	395.09
Spain	477.67	671.63
U Arab Emirates	639.13	926.88
UK	3099.55	3604.37
USA	7596.93	7520.98
Others	3002.59	5980.55
Total	30, 144.64	65, 269.73



Value in crores



Countries ranked by value of Exports of Floriculture products to EU in 2004

Country	% Share of countries in flowers	% Share of countries in total flori exp
Netherlands	68.31	54.01
Italy	2.09	6.22
Denmark	0.25	5.31
Belgium	1.67	5.85
Germany	1.09	3.84
USA	0.81	3.36
Kenya	7.00	3.16
Spain	1.87	2.42
France	0.55	2.07
Ecuador	4.71	1.88
Israel	2.57	1.68
Costa Rica	0.07	1.03
Colombia	2.50	1.00
Poland	0.13	0.77
UK	0.81	0.68
South Africa	0.51	0.52
China	0.05	0.51
Zimbabwe	1.21	0.49
Guatemala	0.01	0.47
India	0.30	0.42
Rest of the Countries	3.50	4.31

Source: International floriculture Trade Statistics- 2005

Top 10 Cut flowers sold at the Netherlands auctions during 2005

Fresh Cut flowers	2005 (Euro millions)	% contributions in total shares
Rose	729	30
Chrysanthemum (spray)	293	12.2
Tulip	192	8
Liliums	164	7
Gerbera	121	5
Orchids-Cymbidium varieties	70	3
Freesia	57	2.6
Anthurium	41	1.7
Alstromeria	39	1.6
Carnations	30	1.25
Other cut flowers (Zantedeschia, Gypsophila	618	26
Source: VNB- 2005 & VNB-2006, CBI Market Info Database 2006		

Average market price for Major cut flowers

Flowers	Unit	Price (US $1 = Rs 48) Rs./kg or doz or each stem
Marigold	kg.	3-60
Jasmine	kg.	15-150
Crossandra	kg.	20-120
Chrysanthemum	kg.	5-25
Tuberose	kg.	5-30
Rose	kg.	6-60
Gladiolus	doz.	20-75
Carnation	doz.	30-75
Gerbera	doz.	36-75
Orchids	each stem	10-45
Liliums	each stem	10-45
Anthuriums	each stem	15-45

MARKET: INDIAN SCENARIO

BIGGEST WHOLESALE FLOWER MARKETS OF INDIA

- Dadar in Mumbai
- Delhi Phool Mandi at Baba Kharag Singh Marg in New Delhi

MAJOR INDIAN NURSERIES DEALING IN ORCHIDS

- Mainaam Garden, Sikkim
- Kiwi Orchids-Sheel Biotech, Delhi
- Vanaam Orchids, Mumbai
- Lake Flowers, Uttaranchal
- Vivek Flora, Mumbai
- K. F. Bioplants Pvt. Ltd. Pune
- K. B. Orchid International Co. Ltd, New Delhi
- Siam Floritech (India), New Delhi
- Sikkim Orchids Pvt. Ltd. South Sikkim
- Sikkim Flora, Pakyong, Sikkim
- Munal Nursery, South Sikkim
- Chap Gurash Nursery, South Sikkim

ORCHID VARIETIES IN DEMAND

	Name of the genus		
Variety Name	Cymbidium		Dendrobium
	Margaret Thatcher Diplomat	Volya Craig sutherland	Big White
	Valley Regent Regge	Golden Elf	Bangkok Blue
	Mem Merv Dunn Awesome	Yankillila	Fatima
	Breakout Flame	San Francisco	Big White Jumboo
	Valley champion Gorgeous	Etabarlo	Madam Pink
	Golden Beauty	Neo Red	Channel
	White Siena	Vishesh	Dang ‘SA-ARD’
	Red Princess	Golden Green	Erika
	Valley Inga Pink Towers	Parrot jam	July
	Neo Red	Luna pink Champagne	Katingdand
	Feather touch	Hawtescense	Lervia
	Tracey Reddaway	Iron Knob	Madame Pompadour
	Showgirl	Fantasio Desiro Dulmar	Kalpana Chawla
	Nonina ‘Pale face’	Canon colour	Bangkok Fancy
	Soul hunt	Angela December gold	Burana Jade
	Rivalux Cooks Bridge	Arabian Nights Glacier	Gentind Rose
	Jwalavarna	Babylon Carpentiers	
	Fancy Free	Close Melody Freakout	

ORCHID VARIETIES IN DEMAND

	Name of the genus		
Variety Name	**Vanda**	**Cattleya**	**Oncidium**
	Charles Goodfellow	Blc. Miria	Golden showers
	Kultana Gold	Blc. Guanmiau City	Gower Ramsey
	Dr. Anek	Blc. Chinese Beauty “Orchid Queen”	Goldiana Starwar Flex
	Thongchai Gold	Blc. Pamela X Lc	Vision
	Robert Delight Pink	Raiwan Beauty	Robson
	Adisak	Blc. Chai Lin “ New city”	Variegatum
	Mimi Polcumer	Lc. Ahmod Sheikhi	Popki
	Phalaenopsis	Blc. Hsinging Catherine	Irine Gleason Red
	Brother & Sister	Lc. Purple Cascade “Fragrant Beauty”	Lawianum
	Raman Holiday	C. Queen Sirikhit	**Mokara**
	Taisuco Pixerrot		Calypso
	Rousserole		Pannee
	Taisuco Kochdian		Dear Heart
	Thaida Show		Robin
			Sayan
			Moonlight

SIKKIM: AN ORCHID PARADISE

Facts and Figures

- About 515 orchid species found in Sikkim
- Largest grower of Cymbidium orchids in India
- Total Area covered under Cymbidium cultivation approx 20 hactares
- Total annual turnover from Cymbidium sales: 10-15 lakh
- Total capacity of production approx 5-10 lakh plants
- Types of cymbidium cultivated: Intermediate, Standard & Miniature

Cymbidium Cut flower: Domestic and National rates

	Domestic			National		
Grade	A	B	C	A	B	C
Intermediate Cymbidiums	Rs 40	Rs 20	Rs 20	Rs 70	Rs 40	Rs 40
Standard Cymbidiums	Rs 150	Rs 90	Rs 60	Rs 200	Rs 115	Rs 80

(Source: HCCD Deptt. Govt. Of Sikkim)

INTERNATIONAL MARKETING STANDARDS OF CYMBIDIUM CUT FLOWERS

CYMBIDIUM CUT FLOWERS: QUALITY STANDARDS

- Minimum 8 standard blooms per stem
- Intact pollinia
- Unpollinated flowers
- Must have well developed labellum
- Flowers clean, unblemished
- Stems must have flowers evenly arranged along and around the stem
- 2/3rd of stem should be covered with flowers
- Flowers should have firm texture and luminescent sheen
- Should have long vase life
- Stems must be firm when held up and not bend

Positional Effects on Florets

POSITION NOT CHANGED

POSITION CHANGED

Threading of flower spikes

Air Drying

Packaging

Major constraints affecting orchid trade in NE India

- Non-availability of quality planting material with internationally accepted standards.
- Non availability of good hybrids/varieties.
- Very long gestation period in case of orchids.
- High initial investment and maintenance costs.
- Little information in prevention of pest and disease problems.
- Poor post harvest management strategies
- Little information on existing markets of orchids and other flower crops.
- Poor transportation and communication facilities
- In adequate Public Private Partnerships (PPP).
- Non-favorable environment for domestic and international investors.

National Research Centre for Orchids

Role and Strate

Strategies identified by NRCO

Issues	Strategies
Crop Improvement	•Collection characterization and evaluation of germplasm •In-vitro and ex-vitro conservation of orchids •Protocol for regeneration, multiplication and acclimatization of important cymbidium hybrid/species and other orchids •Large scale production of disease free planting material •Developing transgenic using flower pigment gene, resistance to diseases and delayed senescence
Crop production	•Production technology for quality flower production for domestic and export market •Standardization of potting media for cultivation •Integrated nutrient management •Low cost polyhouses •Economic analysis of production of cut flowers
Crop protection	•Survey and surveillance for diseases and pests of orchids •Integrated disease and pest management •Production of coat protein mediated resistance to orchid viruses using molecular, biological and genetic engineering technologies.
Pre & post harvest technologies	•Studies on optimum stage of harvest and storage temperature for cut flowers of orchids •Screening of cultivar/species/hybrid for increased shelf life and effect of preservative for extending the shelf life of cut flowers of orchids
Transfer of technologies	•Organizing training for extension personnel & grower organizing exhibition & distribution of literature on cultivation tips •Collection of database •Linkages/coordination of R & D programmes

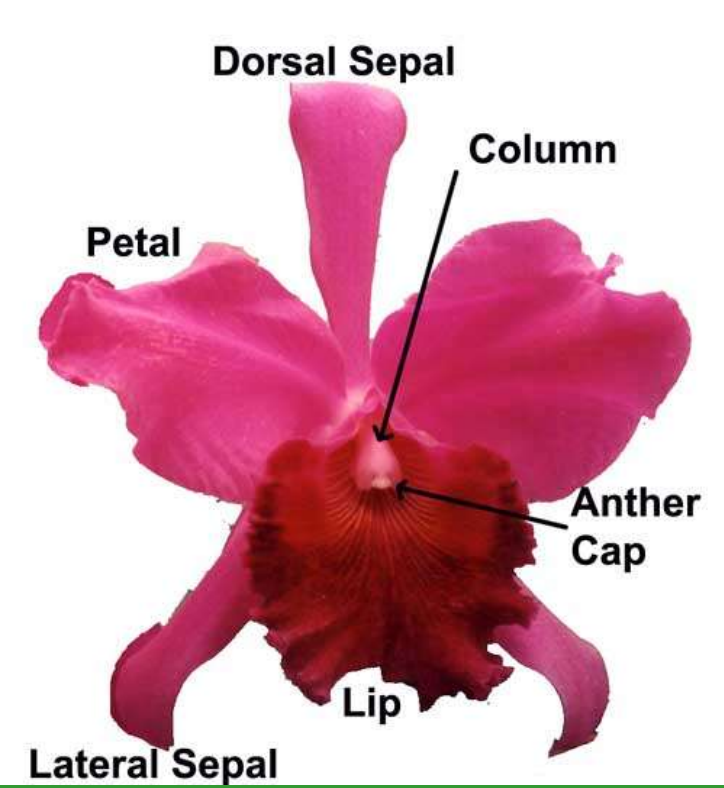
Future Strategies of NRCO

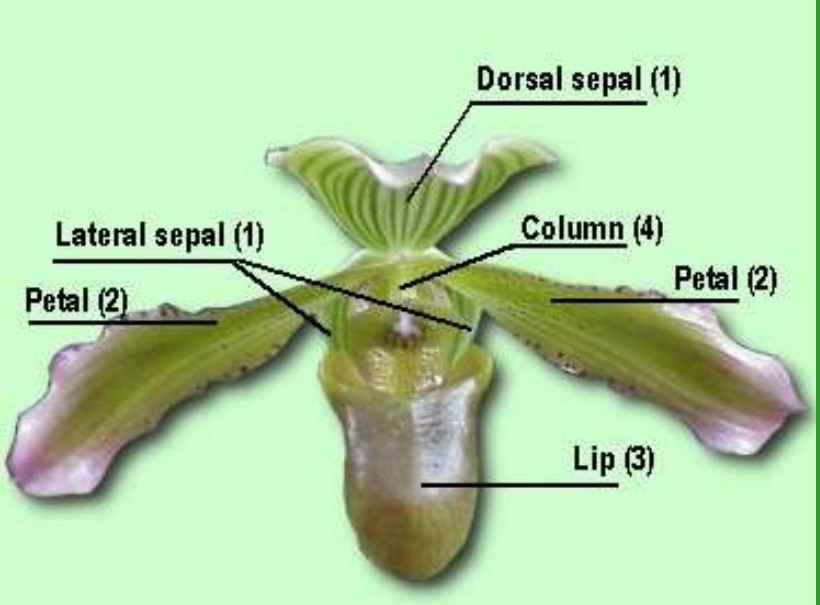
- Make India a major producer to enable it to emerge as the largest exporter of cut flowers and potted plants.
- Securing technical and other assistance for the industry from within or outside.
- Increasing income-earning opportunities from orchids.
- Enhancing skill levels and professional standards in the industry.
- Development of cost effective media by substituting it by already available materials
- Standardize and publish best protocols available for different species
- More research on post-harvest technology
- Identify some uncommon orchid species native to India for international export
- Popularize orchids in metro towns
- Expansion of floriculture to non-traditional and tribal areas

OPPORTUNITIES: Added advantage

- Highly favorable climatic conditions for growing orchids especially in NE Region of the country
- Growing demand for cut flowers both in domestic and international markets
- Production time
- Easy and cheap labour
- Availability of raw materials for production

THANK YOU


Dorsal Sepal
Column
Petal
Anther
Cap
Lip
Lateral Sepal


Dorsal sepal (1)
Lateral sepal (1)
Column (4)
Petal (2)
Petal (2)
Lip (3)

- **Based on the recommendations of the Planning Commission the NRC for Orchids was establised on the 5th October 1996 at Pakyong, Sikkim with a sub centre at Darjeeling.**

Mandate of the centre:

- Collection, characterization, evaluation, documentation, conservation and improvement of orchids, and other bulbous flowering plants.
- Molecular characterization of orchids to check biopiracy and to protect the Intellectual Property Rights.
- Undertake systematic breeding to develop commercial varieties and hybrids of superior quality of orchids and other bulbous ornamentals for national and international trade.
- Standardization of agro-techniques for commercial cultivation and package of practices for post-harvest management for domestic and export markets of orchids and other bulbous flowering plants.
- Production of quality planting materials of orchids and other selected bulbous flowering plants in large scale.
- Collaboration with relevant National and International agencies for achieving the above mandate.
- Act as a repository of information and as a centre for giving training on orchids and other floricultural crops.

Competitiveness Development: through eyes of the Industry

- Flower market transparency
- Availability of reefer trucks
- Air conditioned warehousing/Auction centers developed at regional levels: Delhi, Noida, Kolkata, Pune, Bangalore, Guwahati for domestic and international clients
- Infrastructure like power and quality water be provided on priority basis at subsidised rates
- Freight assistance should match with that in other exporting countries
- Representative office of APEDA needs to be opened in the world's consuming centers like Holland and Dubai to increase export of flowers
- Post harvest facilities be established on chain basis to ensure uniformity of prices and to avoid post harvest losses.
- Flower breeding council be established