SOUVENIR

Third Floriculture Trade Fair 1997

FLORICULTURE ASSOCIATION NEPAL
(FAN)

His Majesty King
Birendra Bir Bikram Shah Dev

Her Majesty Queen
Aishwarya Rajya Laxmi Devi Shah

कृषि उद्यम केन्द्र
AGRO ENTERPRISE CENTRE
A Joint-Project of the Federation of Nepalese Chambers of Commerce & Industry and USAID/Nepal

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Ref

Date : 11 June, 1997

CONGRATULATIONS & BEST WISHES

Congratulation to the Floriculture Association Nepal (FAN) for organising the Third Annual Floriculture Trade Fair at the Bhrikutimandap Exhibition Hall, Kathmandu from 19 to 22 June, 1997.

FAN's endeavor in promoting the establishment of floriculture as an industry in Nepal is highly commended. Since its formation in November, 1992, FAN has successfully organized four flower exhibitions/trade fairs, which have not only strengthened FAN as an institution but also boosted sales of flower/ plants and created new markets. As a result the commercial production of quality flower/plants has been initiated in different parts of Nepal.

The AEC/FNCCI extends on this auspicious occasion best wishes to FAN and the participants of the Third Floriculture Trade Fair in attaining their mission of enhancing floriculture business in Nepal for local and export markets.

Dr. Dev Bhakta Shakya
Acting Managing Director

FLORICULTURE ASSOCIATION NEPAL (FAN)

FNCCI Building, Teku, Kathmandu
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MESSAGE

It is indeed very satisfying to note that FAN has completed 5 eventful year's of Floriculture Exhibition and Trade Fair activities. It is all the more encouraging to note that during these years of our activities, we have been able to develop & promote production of Floriculture product in the national and International markets and to create a suitable circumstance for the enhancement of Floriculture business in Nepal and to encourage entrepreneurs to undertake commercial floriculture production as well as the good social standing for FAN.

With a view to making our humble contribution to create awareness among the general public regarding flowers / plants and for the opportunity of disseminating pertinent information on floriculture Trade in Nepal. FAN has organized two floriculture Exhibitions and two Trade Fair at Bhrikuti Mandap Exhibition hall which completed with a grand success.

All these have proved that for the improvement and commercializing floriculture sector in Nepal it is necessary to organize a floriculture Exhibition / Trade fair twice a year which we have discussed in our last AGM too.

Currently impact of exhibition / Trade Fair is being directed towards the growth of this sub - sector for the development of the local market, but in due time this effort will have a tremendous impact on the export of floriculture product as well. With this objective Third Floriculture Trade Fair is being held on Ashad 5 - 8, 2054 at Bhrikuti Mandap Exhibition Hall.

I admire all the member of FAN in giving me full co - operation and assistance till now and I hope your contribution will continue, please participate with your family and friends to make the 3rd Trade Fair a grand success

I express my thanking to all Trade Fair Committee, Sub - Committee, Technical Committee, FAN Members, Sponsors, AEC for the financial & Technical support and to all who have contributed in any way for the success of this Trade Fair - 2054.

Thank you.

S. B. Shrestha

Suresh B. Shrestha
President
Floriculture Association Nepal

Foreword

With the success of previous two Floriculture Trade Fairs in 1995 and 1996, FAN's optimism in promoting business on the part of the member entrepreneurs is growing. The past trade fairs also demonstrated substantial impact on information dissemination, general awareness among public about flowers, plants and other related products. The consumers in Kathmandu have already started to embrace flowers and are making them an integrated part of his or her lifestyle. The entrepreneurs on their part have begun to show signs of maturity in professionalism and development in technical and managerial skills.

The third Floriculture Trade Fair is being organized under the joint auspices of Agro Enterprise Centre and Floriculture Association Nepal being held on 19-22 June 1997 at Bhrikuti Mandap Exhibition Hall, FAN strongly feels that this Trade Fair will further support the upliftment of domestic market as well as pave a framework for future paradigm of FAN's vision to step into international market on floricultural products.

Organizing a trade fair like this invariably requires a collective effort and this is no exception. There has been an active involvement of members of trade fair committee to turn this fair into a success. The enthusiasm shown by the participating member nurseries/companies and generous support and cooperation provided by Agro Enterprises Centre and other sponsors have further contributed to the success of the Third Floriculture Trade Fair.

On this occasion, FAN is glad to publish the second issue of Souvenir Magazine. The magazine will hopefully contribute in dissemination of pertinent information regarding floriculture.

I wish the Third Floriculture Trade Fair a grand success.

Anup Rai
Chairman
Trade Fair Committee

Editorial

Dear readers,

It is a great pleasure to present you our souvenir magazine published on the occasion of III Floriculture Trade Fair (19-22 June 1997) organized by FAN.

This souvenir magazine comprises articles on research and development activities to promote floriculture in Nepal. Articles on ornamental ferns, orchids, seasonal ornamentals etc. are included to fulfill the interest of layman and novice. Medicinal and traditional uses of flowers and flower product have also been included. Thus, it is an attempt to provide information on different aspects of floriculture and I hope that it may be useful to general people as well as entrepreneurs.

I would like to express my deep gratitude to contributors who helped with their valuable articles to make this magazine possible. I would also like to thank FAN members and others for helping to make this publication successful. Thanks are also due to the sponsors of this issue.

Lastly, I wish you all a happy and pleasant reading. I expect your comments and suggestions for future.

Chief Editor
S. D. Manandhar

Editors
V. Manandhar
N. Pradhan
A. Rai

Cover Photo by :
Jagdish Rai

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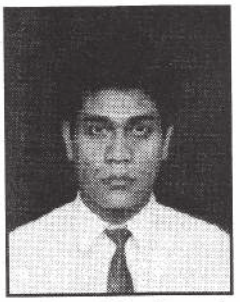
Executive Members of FAN



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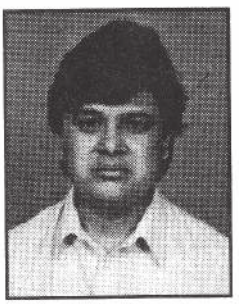

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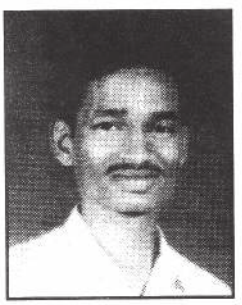

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Program Coordinator

फ्लोरिकल्चर एशोसिएसन नेपाल (FAN) को २०५३/०५४ को कार्य प्रगति विवरण

१) नेपाल पुष्प व्यवसायलाई व्यवस्थित ढंगबाट अगाडि बढाउन २०५३/०५४ मा के कस्ता कार्यक्रम गर्नु पर्ने हुन्छ सो बारे छलफल गर्न १८ जुलाई, १९९६ मा एक दिने गोष्ठीको आयोजना भएको थियो । उक्त गोष्ठीमा कृषि विभाग, वनस्पती विभाग, व्यपार प्रवर्द्धन केन्द्र, वाणिज्य विभाग, FAO, AEC र नर्सरी व्यवसायमा संलग्न सहभागीहरु गरी २० जनाको सहभागिता भएको थियो । गोष्ठीको FAN ले २०५४/५४ मा Cut-flower र pot-plants को नेपालमै उत्पादन गर्ने तर्फ कार्यक्रम अगाडि बढाउने, पुष्प व्यवसायलाई हित हुन सक्ने खालका नीति नियमहरुबारे श्री ५ को सरकारको सम्बन्धित निकायहरुसंग सम्पर्क राख्ने, नेपालमा पाइने दुर्लभ फूल/विरुवा बारे अन्वेषण गर्ने, फूल/विरुवाको बजार व्यवस्थापन सम्बन्धी कार्यक्रमहरु संचालन गर्ने, पुष्प व्यवसाय सम्बन्धी जनचेतना अभिवृद्धि हुने खालका कार्यत्रमहरु गर्ने र यस व्यवसायलाई चाहिएको विभिन्न किसिमका तालिमहरु पहिचान गरी तालिम दिने कार्यक्रमहरु तय गरिएको थियो । यसै अनुरुप यस वर्ष FAN ले विभिन्न कार्यक्रमहरु संचालन गर्दै आइरहेको जानकारी गराउदछौं ।

२) फूल /विरुवाका Disease र Pest सम्बन्धित नर्सहरुमा के कस्ता समस्याहरु देखा परेका छन् सो बारे अध्ययन गरी बनस्पती विभागको सहयोगमा एक प्रतिवदेन तयार पारिएको छ । उक्त प्रतिवदेन अनुरुप सदस्यहरुलाई Pest and Disases Management बारे निकट भविष्यमा तालिम दिइने जानकारी गराउदछौं ।

३) नेपालमा ग्लाडियोलस् कट् फ्लावरको व्यवस्थित बजार व्यवस्था मिलाउन उत्पादनकर्ता र रिटेलहरु बीच गत वर्ष देखि शुरु गरिएको कार्यक्रममा सम्बन्धित व्यवसायीहरुको चासो नदेखिएकोले उक्त कार्यक्रम हालसाललाई स्थगित गरिएको र यस प्रकारको कार्यक्रमले नेपालमा पुष्प व्यवसायलाई एक उद्योगको रुपमा शुरुवात गराउन मद्दत पुगने भएकोले FAN ले काठमाडौंमा श्री ५ को सरकारको स्वीकृती लिएर कुनै खाली जग्गामा फूल/विरुवाको होलसेल बजार शुरु गर्ने कार्यक्रम बनाइराखेको जानकारी गराउदछौं ।

४) फूलविरुवा सम्बन्धी जनचेता अभिवृद्धि गर्न FAN ले नेपाल टेलिभिजनको सहयोगमा कार्तिक-माघ, २०५३ सम्म करिब १२ वटा कार्यक्रमहरु नेपाल टेलिभिजन मार्फत हरेक सोमबार विहान प्रसारण गरिएको थियो । कार्यक्रम बनाउन नर्सरीहरुको तर्फबाट सक्रिय अग्रसरता नआएको हुँदा र हाल विहानको कार्यक्रम निजी क्षेत्रले संचालन गर्ने हुँदा फूलविरुवा सम्बन्धित कार्यक्रम प्रसारण भएको छैन ।

५) यस वर्षको कार्यक्रममा समावेश गरिए बमोजिम नेपालबाट भारतको नया दिल्लीमा नोभेम्वर ग्लाडियोस Cut-Flower को निर्यात गर्ने सम्बन्धमा त्यहाँको व्यापारीसंग पत्राचार फ्याक्स गरी कार्यक्रम तय गरिएको तर ग्लाडियोस् Cut-Flower समयमै उपलब्ध हुन नसकेकोले आगामी वर्ष नोभेम्वर, १९९७ मा निर्यात गर्नको लागि कार्यक्रम गरिरेहेको जानकारी गराउँदछौं ।

६) नेपालमा Rose Cut-Flower को प्रत्येक वर्ष करिब नौ लाख स्टिकस्को माग भएको र मागको पूर्ति भारटबाट करिब ८०% भइरहेको छ । Rose को व्यवसायिक खेती नेपालमै शुरुवात गर्ने उद्देश्यले फेब्रुअरी, १९९७ देखि पारिजात नर्सरीद्वारा गोदावरीमा, शवनम श्रेष्ठद्वारा हेटौंडामा, अम्बर नर्सरीद्वारा नैकापमा, ट्री सिड्स एण्ड फ्लावरद्वारा बैरेनीमा र आदर्श नर्सरीद्वारा जनकपुरमा करिब १० रोपनीमा यसको खेती प्रारम्भ गरिएको छ ।

कृषि उद्यम केन्द्रको सहयोगमा यस कार्यक्रममा संलग्न व्यवसायीहरुलाई भारतको पुना, नासिकमा Rose को व्यवसायिक खेतीमा संलगन नर्सरीहरुको अवलोकन गर्न २० देखि २७ जनवरी, १९९७ मा भ्रमणमा लगिएको थियो । उक्त भ्रमणमा Rose को व्यवसायक खेती कसरी गर्न सकिनछ भन्ने जानकारी व्यवसायीहरुलाई प्राप्त भएको थियो । उक्त भ्रमणको बेलामा Rose का विभिन्न Cut-Flower जातका करिब २५०० वटा विरुवा खरिद गरी प्रत्येक व्यवसायीहरुले ५०० Rose Cut-Fower आ-आफ्नो स्थानमा लगी यसको खेती शुरु गरिएको छ । उक्त विरुवाहरु खरिद गर्न कृषि उद्यम केन्द्रबाट जम्मा लागतको ५०% रकम उपलब्ध गराइएको (उक्त रकम मे, १९९७ सम्ममा केन्द्रलाई फिर्ता गर्ने शर्तमा) र व्यवसायीहरुले बांकी ५०% रकम उपलब्ध गराइएको जानकारी गराउदछौं । साथै यस कार्यक्रम अनुसार भारतबाट एक Rose सम्बन्धी प्राविभिकको सहयोग व्यवसायहीरुलाई उपलब्ध गराइनेछ । यस कार्यक्रमबाट निकट भविष्यमा नेपालको माग अनुरुप Rose को पूर्ति नेपालबाटै हुने आशा FAN ले राखेको छ ।

७) २०५२ चैत्र २२ देखि कमल पोखरीमा संचालित Women in Floriculture नाम फूल/विरुवाको विक्री कक्षलाई नेपालमा उत्पादित फूलविरुवाको व्यापार प्रवर्द्धन गर्न यस वर्ष पनि कृषि उद्यम केन्द्रको सहयोगमा विक्री कक्षको भाडा, सेल्स मेनेजर र एक मालीको लागि सहयोग उपलब्ध गराइएको छ । उक्त शो रुपमबाट २२ चैत्र २०५२ देखि फाल्गुण, २०५३ सम्म करिब रु. ३२,००००।०० को फूल/विरुवाको साथै फ्लोरिकल्चरसंग सम्बन्धित अन्य वस्तुहरु विक्री वितरण भएको रिपोर्ट यस एशोसिउसनमा प्राप्त भएको छ ।

८) The American Mission Association of Kathmandu Phora Durbar Recoration center को अनुरोधमा २२ र २३ मार्च, १९९७ मा फोहरा दरवार भित्र फूल/विरुवा प्रदर्शन तथा विक्री गरिएको थियो । उक्त प्रदर्शनीमा अम्बर नर्सरी, वोधिवृक्ष नर्सरी, चमेली नर्सरी, क्ले एण्ड क्राफ्ट, एभर ग्रीन नर्सरी, हान्की राई एण्ड सन्स् नर्सरी, ईश्वरीय आर्युविज्ञान उद्यान, पारिजान नर्सरी, सन फ्लावर नर्सरी, दि स्टाण्डर्ड इन्टरप्राइजेज्, र वीमन इन फ्लोरिकल्चर (WIF) गरी ११ वटा नर्सरीहरुको सहभागिता थियो । प्रदर्शनीमा विभिन्न किसिमका फूल/विरुवाहरु विक्री वितरण भएको र विशेष गरी आर्किडले राम्रो बजार प्राप्त गरेको देखियो । प्रदर्शनीमा करिब रु. ६०,०००।०० को फूल/विरुवा विक्री वितरण भएको थियो ।

९) २०५३ चैत्र ४ गते कृषि विभाग अन्तर्गतको प्लान्ट क्वारन्टीन शाखाले होटेल अर्किडमा एक दिन "प्लान्ट क्वारर्नटीन कार्याक्र सुधार सुझाव गोष्ठी" आयोजना गरेको थियो । गोष्ठीमा श्री ५ को सरकारको संबन्धित निकायहरु, दातृ संस्था र निजी श्रेत्रको सहभागिता थियो । गोष्ठीमा उक्त शाखाका कार्यक्रमहरुलाई समय सापेक्षित बनाउने उद्देश्यले विभिन्न कार्यपत्रहरुलाई प्रस्तुत गरिएका

थिए । नेपाल बीउ व्यवसायी संघ र FAN ले उक्त शाखाको अनुरोधमा गोष्ठी आयोजना गर्न सहयोग पुऱ्याउको जानकारी गराउदछौं ।

१०) ९ फेब्रुवरी, १९९७ मा कृषि उद्यम केन्द्रको सभा कक्षमा S & G Seed Company, Holland का Mr. A.M. Gillisen ले Flower Seed Technology संबन्धि करिव ३ घण्टा को Talk Program कार्यक्रम सम्पन्न भएको थियो । उक्त कार्यक्रममा यस एशोसिएसनका करिब १९ जना सदस्यहरुको सहभागिता थियो । कार्यक्रममा स्तरिय बीउ प्रशोधन गर्ने तरिका, बीउको बजार व्यवस्था, hybird बीउ सम्बन्धमा सूचना प्राप्त भएको थियो ।

११) Gladiolus Cut-Flower को बर्ष भरि नेपालमै उत्पादन गर्ने उद्देश्यले FAN ले १५ जनवरी १९९६ देखि ४ जना उद्यमीहरु दि स्टयाण्डर्ड नर्सरी वाँसवारी, शवनम श्रेष्ठ गोदावरी , ट्री सिडस् एण्ड फ्लावर्स, बैरेनी र जाजर नर्सरी हैटौडाको संलग्नतामा Gladiolus को उत्पादन शुरु गरेको थियो । कार्यक्रम अनुसार मार्च १९९६ देखि २७ फेब्रुवरी १९९७ सम्म दैनिक सयबटा Gladiolus Cut Flower सोल्टी होटेललाई उपलब्ध गराउने सम्झौतामा भएको थियो । कार्यक्रम अनुसार कृषि उद्यम केन्द्रको सहयोगमा FAN ले उद्यमीहरुलाई निम्न अनुसार Gladiolus बल्ब उपलब्ध गराएको थियो (कृषि उद्यम केन्द्रद्वारा प्राप्त सहयोग १५ मे, १९९७ सम्ममा सो केन्द्रमा फिर्ता गर्ने गरी)

	नर्सरीको नाम उत्पादन मिती	उपलक्ध गराइएको बल्ब
दि स्टाण्डर्ड नर्सरी वाँसवारी	६८०० बल्ब	९ फेब्रुवरी ११ अप्रिल १९९६
शवनम श्रेष्ठ, गोदावरी	१४९५० बलब	३ मे १३ जुन, १९९६
ट्रि, सिडस् एण्ड फ्लावरर्स, बैरेनी १९९६	१२७५० बल्ब	६ जुलाई २७ सेप्टेवर,
जाजर नर्सरी, हैटौडा फेब्रुवरी, १९९७	१३६०० बल्ब	१० अक्टोबर, ९६, २३
जम्मा	४८१०० बल्ब	

FAN मा प्राप्त रिपोर्ट अनुसार ३ मार्च देखि ३ डिसेम्बर, १९९७ सम्म सोल्टी होटेललाई निम्न अनुसार Gladiolus उपलब्ध गराइएको थियो ।

	नर्सरीको नाम उपलब्ध गरेको संख्या	उपलब्ध गरेको मिति
जाजर नर्सरी (कार्यक्रम वाहिरको बल्बबाट)	२९/३/९६ – १२/६ सम्म	६४०४ वटा
दि स्टाण्डर्ड नर्सरी	१३/६/९६ –२०/७/९६ सम्म	१७३० वटा
शवनम श्रेष्ठ	२४/७/९६ – २/९/९६ सम्म	२९३८ वटा
ट्रि सिड्स एण्ड फ्लावर्स	१५/९/९६ – ३/१२/९६ सम्म	२७९९ वटा
	जम्मा	७४६४ वटा

सोल्टी होटेललाई बाहेक आफ्नै नर्सरी, सो रुम मार्फत करिव ६०० वटा Gladiolus Cut-Flower बिन्री वितरण भएका थिए ।

सोल्टी होटेलसंग ४/१२/९६ देखि Gladiolus उपलब्ध उराउने सम्झौता स्थगित भएको हुँदा जाजर नर्सरीले ४ जनवरी देखि २४ मार्च १९९७ सम्ममा विभिन्न शो रुप, होटेलमा २८४८ बटा Gladiolus बिक्री वितरण गरेको थियो । जाजर नर्सरीको यस कार्यक्रम अन्तर्गतमा फूलहर बजारमा विक्री वितरण भइ रहेको जानकारी गराउदछु ।

FAN को यस प्रकारको उत्पादन सम्बन्धी परिक्षण कार्यक्र पहिलो भएको हुँदा कार्यक्रमको कार्यान्वयनमा केहि समस्याहरु व्योहर्न परेको जानकारी गराउदछु । यस कार्यक्रमको मुख्य उद्देश्य नेपालको विभिन्न भौगोलिक वातावरण अनुसार बर्ष भरि Gladiolus Cut-Flower को नेपाल भित्रै बाट उपलब्ध गराउने भएको जानकारी अवगत गराउन चाहन्छौं । जस अनुसार यस कार्यक्रममा उद्यमीहरुद्वारा गोदावरी, बाँसवारी, बैरेनी र हैटौडामा सरदर बर्ष भरि नै यस Cut - Flower को उत्पादन गरिएको छ । हाल यस Cut-flower को ब्यवसायीक खेती गर्न अरु व्यवसायीहरुले पनि चासो देखाएको र यसरी नै बर्ष भरि उत्पादन कार्यमा संलग्न भई Gladiolus उपलब्ध गाउन काठमाण्डौ, लेले, नौविसे, हैटौडा, चितवन, झापामा उत्पादन शुरु गरेको जानकारी FAN मा प्राप्त भएको छ। यसले भारतबाट हाल आयाल भइरहेको संख्या घटाई नेपालमै उत्पादन गरिएको स्तरिय Gladiolus बजारमा उपलब्ध हुने कुरामा FAN विश्वस्त भएको जानकारी गराउदछौं ।

१२) नेपालमा पुष्प व्यवसायलाई संगठित रुपमा अगाडी बढाउन र फूल/विरुवा सम्बन्धि जन चेतना विकास गराउन गत बर्षहरुमा आयोजना गरिए जस्तै यस बर्ष पनि तेस्रो पुष्प व्यापार मेला यहि आउँदो ५, ६, ७, ८ आषाढ, २०५४ मा भृकुटी मण्डपमा आयोजना हुने जानकारी गराउदछौं ।

१३) पुष्प व्यवसाय सम्बन्धि पुस्तक, समाचार तथा अन्य राष्ट्रिय एवं अन्तरर्राष्ट्रिय सूचनाहरु प्राप्त भै रहेका छन् र उक्त सामाग्री सम्बन्धी जानकारी कृष्टि उद्यम केन्द्रको सूचना शाखा मार्फत लिन सकिने छ ।

निष्कर्ष : आफ्नो स्थापना कालको छोटो अवधिमा पुष्प व्यवसायमा संलग्न व्यवसायीहरुको व्यवासायीक विकासका साथै आ–आफ्नो व्यवसायको माध्यमद्वारा राष्ट्रिय तथा अन्तरराष्ट्रिय क्षेत्रमा स्थायीत्व राख्न यस एशोसिएसन प्रयनशिल रहदै आएको व्यहोरा यहाँहरुलाई अवगत भएकै छ । यहाँहरुको सहयोग र संलग्नताबाट आगामी दिनहरुमा पनि यसको कृयाकलापहरु अझ व्यापक एवं सुदृढ हुदै जानेछन् भन्ने कुरामा विश्वस्त रहेका छौं । व्यवसायिक विकासका साथसाथै यस एशोसिशनको विकासमा यहाँहरुबाट महत्वपूर्ण योगदानको अपेक्षा राखेका छौं ।

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1. ESTABLISHMENT OF A WHOLESALE MARKET

The basic aim is to let the buyers and sellers meet daily or weekly and let them negotiate the price of products. This way systematic production system can be enhanced.

FAN will monitor the commercial activities, upto the extent of keeping data in the first phase and also intervening in the quality aspects in the later stages.

Ultimately, this should turn into an auction market.

2. INITIATION OF SYSTEMATIC PRODUCTION OF FOLIAGE PLANTS

Production of foliage plants which the export market demands will be identified and the propagation techniques found out. With the technical expertise and the market, the trial production will be carried out and ultimately the plants exported.

3. EXPORTS OF GLADIOLUS CUT-FLOWERS TO INDIA

This product to be exported to India in the winter season, when the price of the product is high in India.

4. TRADE FAIRS

This will be an on-going activity. Trade fairs with international participation, in the future, will be organized.

5. PARTICIPATION IN NATIONAL AND INTERNATIONAL TRADE FAIRS

With the products for exports ready, FAN will initiate various nurseries to participate in national and international trade fairs to gain the market. Work will also be done in trade visits to various countries with the pertinent products.

6. LINKAGES WITH NATIONAL AND INTERNATIONAL BODIES

The advertisement of FAN and the works of FAN becomes essential in the promotion of its activities and to gain support for the same. Hence, this becomes as important for FAN as the other activities in terms of moving ahead with its objectives.

7. INITIATION OF CULTIVATION PRACTICES IN INDIGENOUS PLANTS

Studies on the indigenous plants of Nepal will be carried out and the cultivation practices for the potential indigenous plants will be initiated.

FAN AND YOU

The Association is committed to carry out these activities. If your line of business, studies etc fall in line with the objectives of FAN, the organization is ready to work with you. Please contact our secretariat for possible help and support in enhancing these activities.

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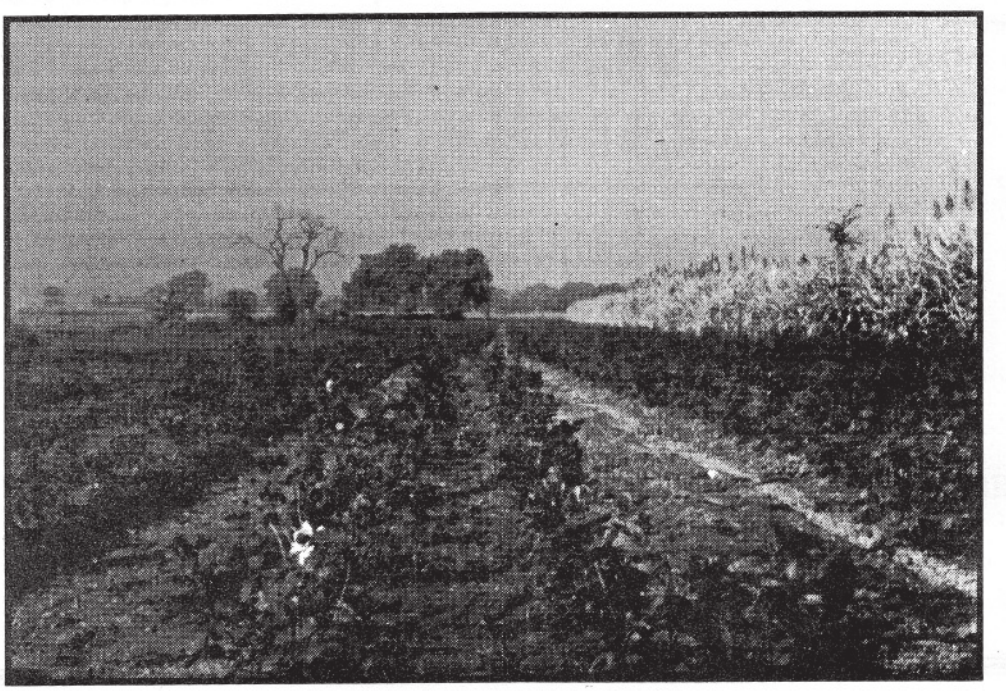
Gladiolus field trial program

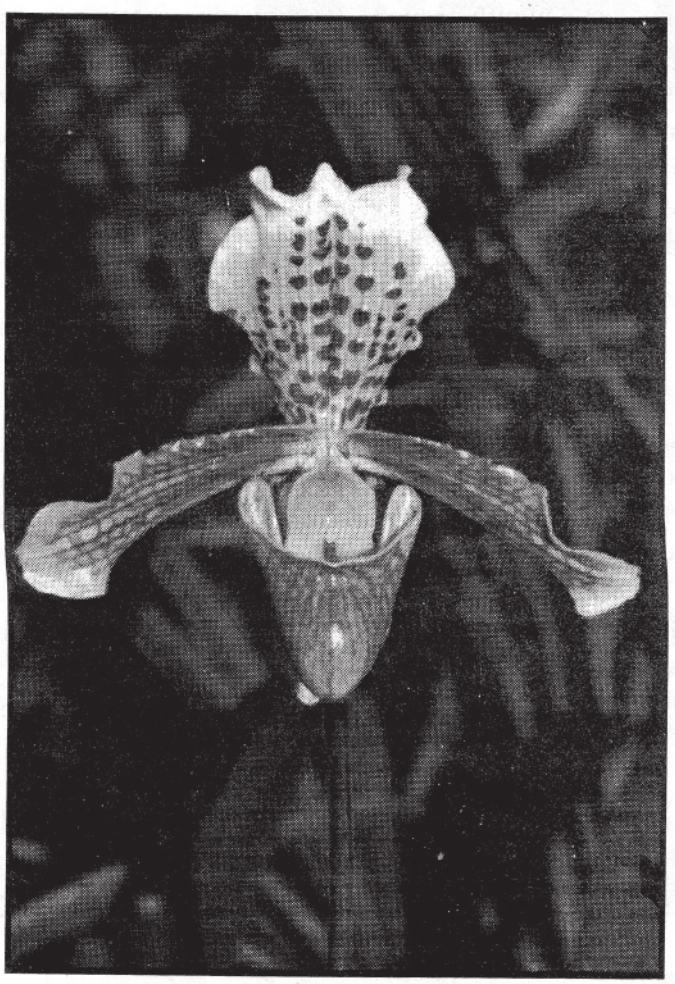


Rose field trial program

Potential Orchids for Cut Flowers

Jnan Hankay Rai
Orchid Grower
Hankay Rai & Sons, Inc.

The demands of cut flowers have been increasing every year. Its never ending demands are met from Rose, Lilies, Gladiolus, Carnations and last but not the least, the Orchids. Nepal with its diverse climatic conditions can take a place of pride in the production of potential orchids for the production and promotion of cut flowers for export to the developed countries. And keeping these in view the writer has rightly taken up cultivation of orchids of high order. They include some from the tribes of *Cymbidium, Paphiopedilum*, *Phajus, Renanthera*. Some good varieties from these genera undergo a constant attentions in the lab for creating things of beauty. Tissue culture and seed-flask culture for the production of choicest lot of orchids go side by side continuously. It aims at creating the true type of potential orchids for the production of cut flowers of high standard.



Paphiopedilum insigne

In the process of charging the undertaking of cultivation of horticultural varieties of *Cymbidium* received from

Australia the writer has been at it continuously, and soon the prospect of attractive flowers will see the market. The plants under cultivation receive the standard mode of treatment with the right type of media for culture. But unlike the conventional practice of pot culture, the selected varieties are being raised on the ground with the arrangement of shade, not minimizing its natural requirement. The new practice of culture partly under trials and errors finds its place against the great challenge of outside competitions and economy. Following are the few choicest orchids selected for cut flowers.

Paphiopedilum: This handsome genus of Asiatic origin has an almost lurid beauty. The heavy textured flowers excel in keeping quality, and may be enjoyed in the total effect of cut flower arrangement which may last a month or more. Its flowering season vary so that blooms may be had at different times during the year. They are the choice for beginners or amateurs who do not have green house. From the genus *Paphiopedilum insigne* two fantastic gifts of nature have emerged. They are: *P. insigne* cultivar Harefield Hall and *P. Insigne* cultivar Sanderae. Both have proved to be outstanding in effect and as parent hybrid. Cultivar Harefield Hall is larger than the type, and recent studies have shown it to be a natural triploid (3n).

P. insigne cultivar Sanderae: This variety falls under *Paphiopedilum insigne*, and is the best followed by *P. insigne* cultivar Sanderianum. It is fertile, and can be raised from seeds pollinated with its own pollen, which invariably comes true. Its plus point is that it is robust with thick and leathery large leaves unlike its normal progeny. It should make a potential orchid for production of cut flowers. Its fabulous bright yellow color and intriguing form contribute to give rich effect in the total arrangement of cut flowers. It flowers in October-December of the year.

Phajus grandifolius (*Bletia tankervilliae*): In the terrestrial group of orchids this is another potential plant for cut flowers. Very much allied to *P. wallichii*. It is chosen by the writer for cut flowers because of its late flowering during May-June when other orchids have finished flowering.

Renanthera imshootiana: This is another late flowering orchid of Himalayan origin. It comes from the area between Nagaland and Myanmar bearing crown of branching spikes of brilliant scarlet blooms. Individual flowers are like butterfly which collectively impart a pleasing effect.

Some other varieties of *Paphiopedilum* which deserve place of preference for production of cut flowers are *P. villosum* and *P. villosum* cultivar Boxallii, both

originating from North-East India and Myanmar. They also make parents of wealth for cut flowers. They do well on the ground culture, other things of growing media and shade arrangements being equally balanced. The writer finds in them the potentiality of cut flowers. They are hardy and wealthy with leathery dark green leaves about a foot long. Flowers are the largest in the genus, six inches across with glossy varnished surface, in an unusual form in strong stems imparting very pleasing effect.

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Micropropagation of Orchids

R. Niroula
Plant Research Division
Godawari.

Orchids are an important group of plants in floriculture for both as cut flowers and pot plants. One can not imagine the success of floriculture industry by excluding the orchids. Nepal, a Himalayan Kingdom is a habitat of more than 300 species of orchids. Our natural orchid population which is fast depleting needs to be protected. The bioclimatic conditions of our country offer wide opportunity for commercial floriculture. It has a vast potential for export of orchids, but the commercial cultivation of these in the country is still in its infancy. It is due to the lack of proper planting material and information on propagation, cultivation procedures, post harvest handling, marketing strategies as well as awareness about their importance. Therefore we should understand, popularise, conserve, improve, propagate and commercialise our orchid into a meaningful development resource. The tissue culture has played an important and highly significant role in the cultivation, propagation, breeding and preservation of orchid species and hybrids. Thus the present paper is aimed at providing some information about micropropagation.

Orchid propagation by conventional method is very slow process; the orchid seeds are very small and contain no reserve food. In 1922, Knudson first developed a non-symbiotic culture method for germination of orchid seeds. Now, it is easy to sterilise and culture seeds from a closed seed capsule than the shed seeds from maturing capsules. The practice of culturing the seeds from immature - still green capsule, germinate faster and shorten the breeding cycle. Many nutrient media are formulated for seed germination. The two most common media are the Knubson (1946) and Vcin and Went (1949).

Later on, in 1960 G.M. moral attempted to obtain virus free Cymbidium by meristem culture. This technology has revolutionised the orchid industry. Cloning of orchids by meristem culture became the first commercial application of vegetative propagation in vitro. Large quantities of quality plants, preservation of germplasm, establishment of new hybrids and multiplication are some benefits which have been derived from application of this technology.

Propagation through meristem culture :

The vegetative propagation of orchids by meristem culture can be divided into three stages-

1 establishment of the meristem in culture and transformation into a protocorm like body.
2 the propagation of protocorms by cutting them into pieces.
3 the development of these protocorms to rooted shoots.

Procedure :-

A young growing shoot without expanded leaves (4-6 inches) are used as the starting material for meristem culture of *Cymbiduim,* a symbodial orchid. For this infestation the soil or debris is washed off, the scale like leaves are removed from the shoot and rinsed in running water for 30 minutes. The shoot is dipped in 70% alcohol for few seconds and sterilized with 0.1% mercury chloride or 10% calcium hypochlorite solution for 10 -15 minutes, again washed with sterilized water for 5 times. Then the leaves are removed and apical tip (with 3 - 4 leaf premodia) is excised and inoculated in the medium. It takes 6 - 8 weeks to develop the first protocorm like bodies. After this the protocorms are cut up and sub-cultured in the same madium, then the adventitious protocorm formation and shoots develop. For multiplication the protocorm like bodies are sub-cultured and the shoots are transfered in basal medium for rooting .

Culture medium and culture condition :-

The propagation of orchids by meristem culture can take place in two ways -1, on solid medium, 2, in liquid medium which is kept in motion by a rotating wheel. In our laboratory we use solid Murashige and Skoog (1962) medium for *Cymbidium* meristem culture. The addition of growth regulators as 6 - Benzyl Aminopurine (BAP) and Napthyl Acetic Acid (NAA) and 10% coconut water stimulate protocorm formation. The pH of the medium is adjusted between 5.5 to 5.8. The optimum temperature lies between 22 and 28.c. Fluorescent light is used with a day length of 12 - 16 hours.

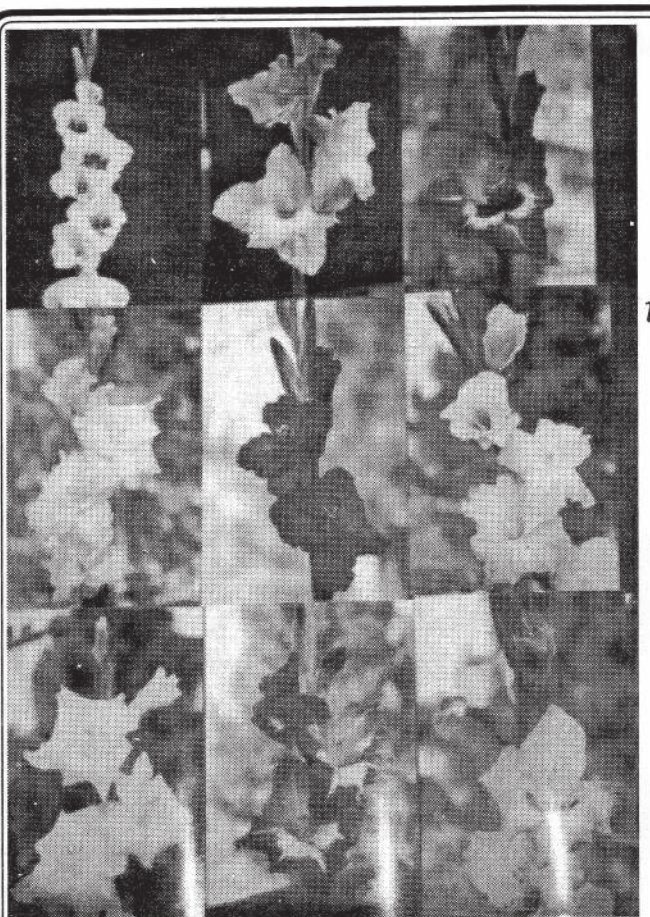
Transplanting :-

When the plantlets are big enough with three to four leaves. after 6.8 months of cultrue, they are transferred to community pots. The potting medium is dependent on the orchid species. Tree fern fibber is the best for Cymbidium plantlets. These plants are kept under diffused light. Watering is done everyday so as not to let the plantlets dry.

Besides the meristem culture other methods which we apply to clone orchids are by using young seedling and young leaves. By these methods growing part of the valuable plant is saved.

Mass propagation of some orchids in vitro is one of the best and most successful examples of the commercial application of teissue culture technology. Multimillion dollar industries have been set up around the world to meet the growing demand for quality plants. The technology has great potential for rapid, large scale and the true to type multiplication. In Asia, Thailand is the largest producer of tropical orchids. The annual production is estimated at 31.6 million plantlets. Today the technique developed by Moral is used worldwide. However a commiercially important genus such as Pophiopedidum remains fairly recalcitrant with no commercially feasible method for clonal *Paphiopedilum* until now. For us it is an urgent need to develop a propagation technology of *Dactyborhiza hatagirea* (Panch aunle), a commercially important species, but due to the lack of research material we cannot succeesedon it.

In our country, the culture of orchids started since 1976 in the department of Plant Resources. Uphill now, the technology on seed culture, meristem, young leaves and young seedling culture have been developed in more than forty species of orchids including our native, exotic and hybrid but not a single hybrid represent our country and there is no commercial propagation and cultivation. Most of the nursery men and persons involved in floriculture, either depend on the production of our neighboring country (India - especially Darjeeling Dist.) or on nature. So let us hope that Floriculture Association Nepal and recently established orchid Society of Nepal may lead a head to popularize the information about the importance and conservation of our valuable natural resources.



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एन.एफ.सी.सीड कम्पनी
मानभवन, ललितपुर

नेपाल एक भौगालिक विविधता भएको कृषि प्रधान देश हो जहाँ संसारको प्रायः जसो ठाउँहरुमा पाइने हावापानी पाईन्छ । त्यसैले यहाँ संसारको विभिन्न ठाउँमा लगाउन सकिने, खेति वालीहरु लगाउन सकिन्छ । नेपालको पौराणिक काल देखि हेर्ने हो भने पनि यहां धेरै थरीका खेतीपाती, फलफूल र फूलहरु प्राकृतिक रुपमै भएपनि फूलिरहेको पाइन्छ । फूल विभिन्न समय, काल र परिस्थिति अनुसार प्रयोग हुँदै आएको छ । प्राचीन कालमा मानिसहरु फूललाई देवी देवताको पूजा आजा, चाड पर्व र धार्मिक तथा सांस्कृतिक समारोहका साथै, रोग निवारणको लागि जडीवुटीको रुपमा पनि प्रयोग गर्ने गर्दथे । तर आधुनिक समाजमा यसको प्रयोग अर्कै रुपले हुन थालेको छ । आजकल गरीव देखि धनीसम्ममा फूलको प्रयोग आ–आफ्नै प्रकारले भएको छ । गरीवहरु यसलाई कुनै देव देवीको मन्दीर वरीपरी बसेर फूल तथा यसका मालाहरु बेचेर आयमूलक व्यवसाय वनाई रहेका छन भने, आफै पनि धार्मिक पूजाको लागि प्रयोग गर्दै आएका छन् । केही सम्पन्न वर्गले भने यसलाई आफ्नो इज्जत प्रतिष्ठाको रुपमा प्रयोग गर्ने गरेको पाइन्छ, जस्तै घर कम्पाउण्ड वरिपरी गमला, कौशी आदिमा फूल लगाउनको साथै समारोहहरुमा फूलको माला र फूलको गुच्छा उपहार दिने चलन पनि त्यतिकै बढेको छ । ठूला ठूला होटल, कार्यालय विदेशी कुटनीतिक नियोगको अफिसहरुमा पनि फूलको प्रयोग गर्ने चलन त्यतिकै बढेको छ । कुनै राजकीय भ्रमणहरु र स्वागत समारोहमा फूलको गुच्छाहरुले स्वागत गनै प्रचलन दिनानुदिन बढी रहेको छ । त्यसैले भन्न सकिन्छ आधुनिक युगमा फूलको माग बढी रहेको छ र यसको महत्व मानिसको आदर्श जीवनसंग गाँसिएको आभास हुन्छ ।

हाम्रो देशमा पनि फूल व्यवसायमा मानिसको आकर्षण दिनानुदिन बढ्दै गइरहेको छ। काठमाण्डौ उपत्यकालाई मात्र हर्ने हो भने पनि एकशय भन्दा बढी फूल नर्सरीहरुको स्थापना भैसकेको छ । तर आज हामी (नर्सरीहरु) आफ्नो परिचय दिन सकिरहेका छैनौ, हामी अर्काको विक्रि कक्ष भएका छौ, अर्कामा आश्रीत जीवन विताइ रहेका छौ । अव हामी अरुमा आश्रीत नहोऔ , आफ्नो परिचय लिएर अगाडी बढौं । हाम्रा कतिपय प्राकृतिक फूलहरु छन् जो विदेशी वजारमा पाइदैनन् । यी आदी कुराहरुलाई मध्य नजर राखि एन.एफ.सी.सीड कम्पनीले नेपालमा पनि फूलको वीउ उत्पादन परिक्षण स्वरुप विगत तीन बर्ष देखि नर्सरी स्थापना गरी परिक्षणको रुपमा केही फूलको वीउहरु उत्पादन गर्दै आएको छ, जसबाट यो कुरा प्रमाणीत भएको छ कि नेपालमा व्यवसायीक फूलको बीउ उत्पादन हुन सक्छ ।

हावापानी तथा भौगोलिक विविधताका फाइदा उठाइ हामी विदेशी ग्लास घरमा तयार गरीने बीउ खुल्ला जमीनमा उत्पादन गर्न सक्दछौ । हिमाली चिसो हावापानी र नदीहरु प्रसस्त भएकोले सिंचाइको कमी छैन । साथै विभिन्न अध्ययनबाट प्रमाणित भैसकेको छ कि नेपालमा प्रति बर्गमिटरमा २० ग्राम पेन्सी फूलको बीउ उत्पादन हुन सक्छ, त्यही बीउ विकशीत देशमा पनि २६ ग्राम प्रति बर्ग मिटर मात्र उत्पादन

हुन्छ । अझै भन्ने हो भने नेपालको दुर्गम र पहाडी जिल्लाहरु जो यातायातको दृष्टिले विकट छन् त्यस्ता ठाउँहरुमा फूलको बीउ उत्पादन गराउन सके राष्ट्रिय आय र रोजगारको दृष्टिले अति उत्तम हुनेछ किनभने फूलको बीउको प्रति इकाइ मूल्य बढी छ र यस व्यवसायबाट धेरै बेरोजगार किसानहरुले रोजगार पाउन सक्छन् ।

नेपालमा प्रति वर्ष (आ.व. १९८८/८९ को तथ्यांकमा) ३४ लाख रुपैया बराबरको फूलको बीउहरु तथा बेर्ना आयात गरेको देखिन्छ । यदि नेपालको आवश्यता मात्र पुरा गर्ने हो भने पनि प्रति बर्ष ३४ लाख विदेशीले राष्ट्रिय धनको बचल हुने देखिन्छ भने अझै विदेश निर्यात गर्न सकेमा आय श्रोतको बाटो खुल्ने कुरालाई नकार्न सकिदैन । रोजगारीको हिसावले हेर्ने हो भने पनि नेपालीहरुमा बेरोजगारी र अर्ध बेरोजगारीको अवस्था टड्कारो रुपमा देखिएको छ। फूलको बीउ उत्पादन व्यवसायलाई अगाडी बढाउन सकेको खण्डमा त्यस्ता बेरोजगारहरुले रोजगार पाउने छन् । हुनत प्रति इकाइ फूलको बीउको उत्पषदन परिमाण कम हुन्छनै तैपनि त्यसको मूल्य बढी भएको कारण कृषक वर्गहरुले सिमित जमीनबाट बढी आय आर्जन गर्न सक्दछन् भने ढुवानीको हिसावले पनि अन्य खेति भन्दा फूलको बीउ उत्पादन गर्नु अतिनै उपयोगी हुनेछ ।

अन्तमा के भन्न सकिन्छ भने नेपालमा प्राविधिक तथा आर्थिक दृष्टिले पनि फूलको बीउ उत्पादन गर्न सकिने सम्भावना छ तर यसमा केही व्यवधानहरु भने अवश्य छने तिनलाई निवारण गर्न सरकारी, गैर सरकारी, तथा निजी स्तरबाट ध्यान दिन आवश्यक छ ।

१. प्राविधिक ज्ञानको प्रचार प्रसार :

नेपालीहरुमा फूलको बीउ उत्पादनको आवश्यक प्राविधिक ज्ञान नभएकोले केहि व्यक्तिहरुलाई प्राविधिक ज्ञान दिई फूल व्यवसायमा उत्सुक गराउन आवश्यक छ ।

२. लगानीको कमी :

नेपालीहरु प्राय जसो गरिव भएकोले आर्थिक अभाव हुन सक्दछ । त्यसको लागि श्री ५ को सरकार र निजी क्षेत्रबाट समेत विदेशी लगानीकर्तासंग सामुहीक प्रयास गरी गुणस्तर बीउ उत्पादन गर्न गराउन आवश्यक देखिन्छ ।

३. बजार विस्तार :

नेपालीहरुमा प्राविधिक ज्ञानको अभाव र भौगोलिक विकटताको कारणले फूलको बीउहरुको उत्पादनले आवश्यक बजार प्राप्त गर्न सकेको छैन यदि फूलको व्यवसाय बढाउने हो भने बजार विस्तारको पनि उचित व्यवस्था गर्नु पर्ने देखिन्छ ।

यी आदि कुराहरुलाई ध्यानमा राखी अगाडी बढ्ने हो भने आगामी दिनहरुमा फूलका नर्सरी र गुच्छा फूलहरुको साथै फूलको बीउ उत्पादन कार्यलाई सामूहिक प्रयासबाट अगाडी बढाउन श्री ५ को सरकार, नेपाल फुल व्यवसायी संघ र हामी सबै उत्पादनका उद्यमीहरु सफल हुन सक्नेछौं ।

Prospect of Ornamental plants in Nepal

Asha Karki
Plant Research Division
Godawary

In Nepal, different varieties of ornamental plants are available. At present, Chrysanthemum, Rose, Gladiolus, Carnation, Marigold & Lilies are more popular as ornamental plants. The demand of ornamental plants are growing because of growing living standard of people. In metropolitan area like Kathmandu valley, where the land is very scares, these plants are grown in pots and keep for decoration. The traditional method for large-scale propagation of these plants are through either from seeds or cuttings. Cutflowers are very popular in the public places like hotels, restaurants and travel agencies etc. The demand of ornamental flowers are being fulfilled by private nurseries as well as by importing from abroad.

The traditional method of producing these plants are not enough to fulfill the demand. Thus producing plants in mass scale is only possible through tissue culture techniques. The plants produce through this technique are free from viruses, healthy and clean. By applying the proposed techniques, the production and productivity will enhance.

Tssue culture technique has various advantages over the traditional method. The advantages to mention here are as follows :-

1. Production of plants in large scale by using small pieces of plants.
2. It can be stored in a small space.
3. It is free from viruses & bacteria.
4. It produces plants all ground the year and it requires minimum care e.g. watering, spraying & weeding are not needed.

As the advantages mentioned above it has some disadvantages also which are as follows :-

1. Unavailability of export, sophisticated equipments and other facilities.
2. Chances of variation.

Some species of ornamental plants protocols have been developed in the tissue culture laboratory of Godawari. These ornamental plants are as follows :-

1. Chrysanthemum sp.
2. Dianthus caryophyllus
3. Gladiolus
4. Lilium nepalensis
5. L. longiflorum
6. Rose
7. Gerbera
8. Saintpaulia
9. Gomphrona

For tissue culture of above mentioned ornamental plants such as *Chrysanthemum Dianthus caryophyllus, Lilium longiflorum, Rose, Gerbera*, and *Gomphrona* shoot tips were used as explant source for multiplication of microshoots in Murashige & Skoog (MS) medium with different growth hormones. In gladiolus, an axillary corm buds were used as explant for microshoot development in MS medium. But in the case of Saintpoulia such as leaf, petiole and pedicels were used as explant souces. The microshoots were initialed in MS medium with different growth hormones. Twnty varieties of Chrysanthemum were tested which produced successfully.

Microshoots developed from tissue culture can be rooted in non steirile sand. For this mircroshoot in the flasks are acclimatised in the glass house for one week. The rooting technique can be done by nursherymen for the mass production of micropropogated plants.

Conclusion :-

The tissue culture technique is a means of propagating various kind of plants required by agriculure, horticulture and floriculture. The cost of producting plants are low through tissue culture. Because of its possibility of producing plants in large scale its availability will be very easy for those who wants to acquire this technique in the country. Besides, the plants can also be exported. Similarly, it will help in successful industrialization of plant production.

Pruning Plants

Suresh B. Shrestha
President
Floriculture Association Nepal

Pruning Practice in Nepal is not new thing. But difference is the way, how it is done. Our traditional way of pruning is done by chopping off the branches with axe or knife to use as firewoods or some other domestic purpose of the chopped off branches without any consideration to plants heathy and its structure. However there are some principle and science is involved in modern horticulture.

Pruning combines scientific principles of plant structure and growth with an artist's senses of form and texture. Pruning creates attractive, useful plants Pruning increase production of flowers or fruit and creates pleasing shapes.

The Purpose of Pruning

Main purpose of pruning is to remove dead branches cross over branches, weak branches, and maintain its natural shapes.

The art of pruning can enhance plants is our garden trees, shrubs and vines can be beautiful in a natural unpruned state. But if plant grows too large for the space, they shade and encrouch out other plants. The garden will begin to look cluttered and small. The landscape becomes unattractive and difficult to maintain. As an art form, prunning blends natural and artificial elements into pleasing compositions. It combines visual appeal and useful functions.

You can create an attractive, interesting garden by pruning trees, shrubs into different sizes and shapes or you can create a visually monotonous land seep by pruning all plants into same size and shape.

In addition to styling, pruning has practical application based on proven horticultural methods. Pruning is used to produce trees, shrubs and vine that serve the gardener's needs. It helps to provide privacy, shade, straighter timber or more fruit. Pruning Shrubs and hedges can screen unwanted view, reduce noise or create islands of shade or sun. Pruning also helps plants produce large, beautiful flowers. It also increases fruit production and allows the gardener easier access to the right fruit for harvesting.

Sometimes, trees and shrubs may need to be pruned to keep them in their allotted space for various reasons. Proper pruning keeps tree limbs away from electricity and other utility lines.

Root pruning prevents damage the sewer and other there underground utility services. Pruning can control invasive, clinging vines prevent damage to homes or walk. Removing low limbs allows easier access to lawn garden on flower bed care.

Pruning is also vital to plant health. When we buy young trees and shrubs from nursery those plants will have some roots damaged and lost during replanting. The top of these plants must be pruned to balance the top limbs with the roots lost during transplanting. Pruning reduces the effect of drought during periods of low rainfall or low subsoil moisture. Pruning a trees interior permits easy penetration of chemical sprays to control insects and diseases. Removal of dead or diseased parts prevents the spread of insects or diseases. Thinning excess branches prevent damage from a heavy load of fruit and reduce tree itself from getting damaged in windy locations and windy seasons. Pruning contributes significantly to overall health of a plant. It is an effective method of removing symptoms of diseases and damage to a tree. Pruning is also used to remove causes of the problem.

Types of Pruning Cuts.

All pruning cuts can be classified as either heading or thinning. Both are beneficial to plants but have opposite effects.

Heading : This procedure removes part of a shoot or branches, but not at a branch point. The branch point is the point of attachment of a branch to the trunk. Heading increase the number of new shoots formed from lateral buds. It stimulates branching and makes plants shorter denser. Other forms of heading are pinching, snipping and shearing.

Pinching : It involves removal of part of current season's growing shoot, usually with the fingertips.

Snipping : It removes the part of a short that grew the previous season.

Shearing : Refers to may loading cuts made along a single plane, either during the growing season or during dormancy.

Thinning : This procedure removes an entire shoot or limb back to a branch point. Thinning reduces the number of new shoots from lateral buds. Thinning inhibits branching and lets limbs grow longer.

Removing Large Branches :

Trained young tree and advance planing can help to prevent the need for removal of large limbs. However, removal of large, live limbs is sometimes required.

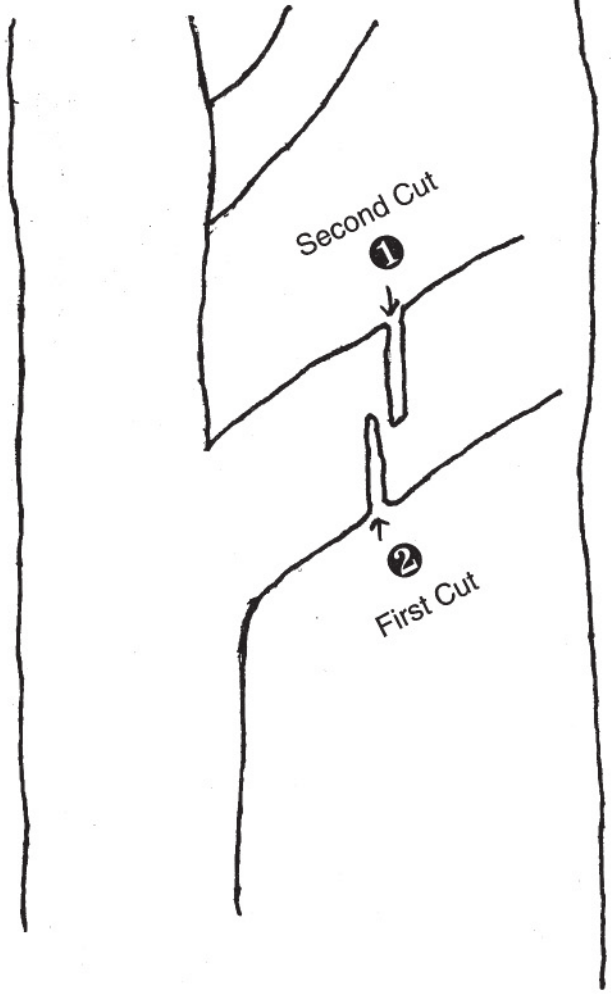
First, use a sharp saw and cut from underneath of the limb several inches away from the trunk. When the limb fall away, it won't tear bark from the trunk. If the limb is large and heavy, it is advisable to tie the limb with a strong rope to prevent the limb from crashing down on lower limbs and structures.

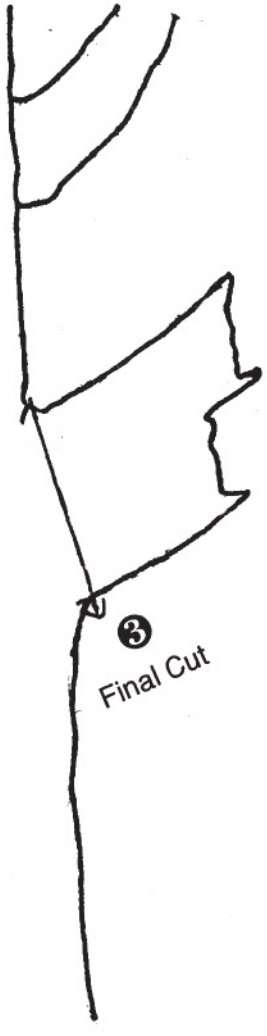
Make a second cut through the limb from the upper side and this cut should be made little future away from the trunk than first under cut. As this second cut is made, the limb will fall without tearing the bark.

Finally make a third cut through the remaining stub at the shouldering. make this cut close to the tree trunk but not that close which damages branch collor.

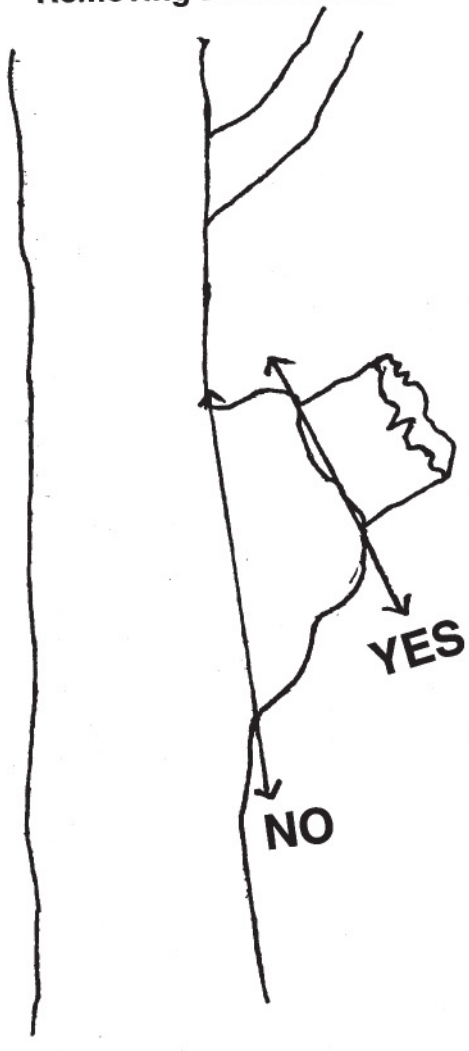
If we are to remove a dead limb, make the final cut with the bulge of live bark that surrounds the point of origin. Do not cut into live wood to make the cut flush with the trunk.

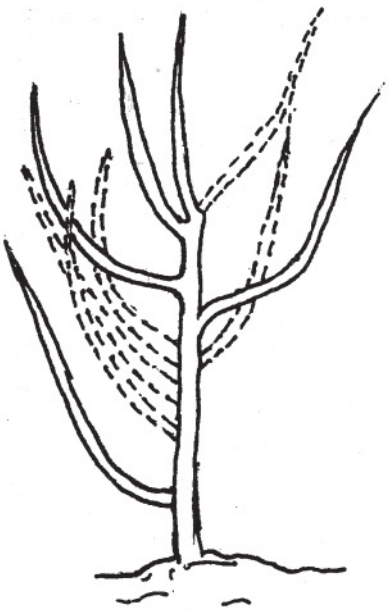
Removing Large Branch





Removing Dead Branch





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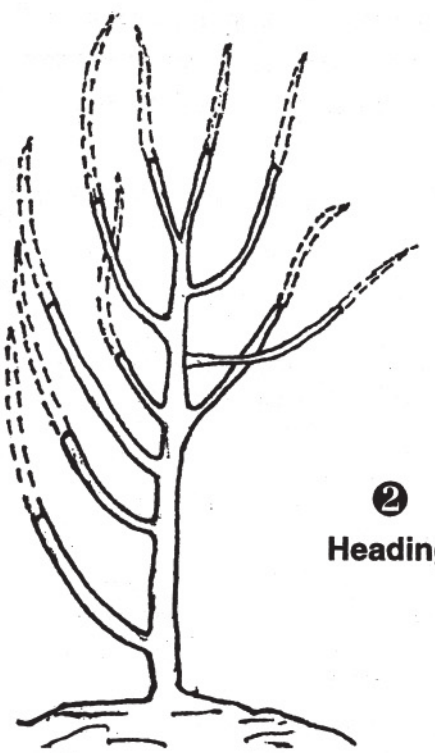
Thining



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Heading

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Bonsai

Bijay L.Shrestha

Man originated in nature, and to nature, does he return. There is an intimate relationship between man and nature. Mountains, rivers, forests, rocks etc. inspire a feeling of peace and beauty. Nature provides him with peace and hope, solace and consolation, thoughts and feelings. Man, in return, beautifies the nature with his techniques of improved cultivation and management skill. Man has always been enamored with unsurpassed beauty or nature -- the plants and stones, forests and mountains etc. Great men of past took to the forests and mountains for their philosophical discourses and solution of the problems encountered by their fellow beings.

As the urbanization started, it has not been gradually possible for the people to be amidst forests and mountains. But their urge for being in such an environment continued. Man, with his imagination, then gave rise to creation of parks and gardens with pools, rivers, and mountains, even artificially, also with provision for birds and animals and many others as are found in a real natural scenery. Thus they continued to enjoy the beauty of nature, and then to be freed from tensions and worries.

Progress and development do not stop; they keep on, which, in turn, sprawl the urbanization process with their many evils. Public parks and garden became far apart from the city dwellings. But man, being a part of nature, is kept ever aware of the mysterious beauty of nature. Man's search for this beauty continued unabated. They wanted the nature to be in their very homes and rooms. This resulted in the birth of BONSAI.

BONSAI consists of two Japanese words -- Bon and Sai. Bon means a tray and Sai, a plant. Literally, it refers to a plant grown in a tray, a shallow pot. Bonsai, originated in China and developed by Japanese, who adopted it during the period of their cultural borrowing from China. Originally, it was known as PEN-TSAI in Chinese, but later became popularly known as BONSAI in Japan and elsewhere in the world. Like any piece of art, it used to be the treasure of the nobility and priesthood. It gained popularity in all the Japanese society after the second great war. After all, who can remain unmoved by the inscrutable beauty of nature? Who will not be moved by the uniquely shaped tree and rock? So, the man brought these things to their homes and rooms. In a rock, they saw a mountain, and a forest in a tree. They blended them naturally and beautifully so as to produce a simulation of nature to get rid of their daily strains and tensions.

A bonsai is a piece of art -- a living art. Just as an artist in this work, has to create an illusion of plasticity and dimension in a flat surface with his idea of color mixing and its application for producing suitable tones and values in the picture plane, a bonsai artist also, with his imagination, creativity and superior cultivation techniques, creates an illusion of agedness with matching root and trunk bases and foliage. It is symmetrically balanced for a natural look. It is an unfinished art, unlike others, which we call art. These arts, once hanged on the walls, are finished. But bonsai is never finished. Because it is living, it keeps on giving shoots at different places at different times. Sometimes, with direction of shoots the original shape of the bonsai is also changed. The process keeps going on and on -- over generations and centuries.

A pipal tree or an oak, growing in a shallow pot, naturally cannot grow to its natural height and shape, as its growth is restricted by the size of the container. So, bonsai is a tree, dwarfed by pruning its branches and roots. But by merely dwarfing it thus and allowing it to grow wantonly without its natural and individual characteristics, it becomes a potted plant and not a bonsai. It will appear, like in painting, a patchwork of colors without due consideration to the relation of different passages, colors, shapes or object of the subject. In a bonsai, the natural look of its root, trunk and branch systems are all well balanced and maintained, artificially, of course, by cutting, pruning and wiring techniques. In other words, the trunks are thickened, the roots exposed, and the leaves miniaturized for simulation of the natural balance of the tree on a miniature scale. So, it is an art.

A bonsai enthusiast has to keep on working patiently to display in his product all its original and natural characteristics. It is like a "love affair" between the bonsai enthusiast and his tree which he is going to miniaturize. Just as the lovers need to know each other better, keep on responding well for a lasting affair, the bonsai cultivator has to know the characteristics of its plant, its requirements etc. As the man continues tending to its plant to its requirement, the plant responds well and thus, there develops a bond between he bonsai and its grower. The bond becomes even stronger, as the plant starts revealing its natural shape and original characteristics, (foliage, trunks, roots etc.) and becomes a representative of its counterpart in wilderness. With the passage of time, just as the lover starts revealing herself the plant also reveals itself in the form of jin and sheri. More revealations 'Sabamiki' make the bond even stronger.

Bonsai, it is seen, is gaining popularity in Nepal also. It is therefore desirable to assemble the bonsai enthusiast to form a club for exchange of knowledge and techniques for its development and to add weight to the efforts for greenery.

Ornamental Ferns of Nepal

Dil Tara Yami
National Herbarium & Plant Laboratories
Godavari

Ferns are found is all parts of the world except dry deserts and cold region. The area faces heavy rainfall and possesses dense vergin forests which provide suitable condition for luxurient growth of Pteridophytes. It attracts the general public for its ornamental values. It can be decorated both in the outdoor as well as the indoor gardening. It is well known as ornamental and decorative type of plants although the ferns do not bear flowers, but they do bear infinite varieties of evergreen foliage and used for aesthetic value since victorian age. These attractive ferns have been used in the decoration of garden, public park, big establishments and houses. It can be found in shady places, exposed areas.

Nepal is endowed with a rich source of fern flora occurring naturally in forests or in shades specially in humid areas. Many of them grow well in the open as well as in green houses Ornamental fern Communication deals with 93 species of the ferns under 51 genera belonging to 13 families (that based on the classification of copeland 1974).

List of ornamental ferns :-

Scientific Name

Actionopteris semiflabillata
Adiantum capillus - vemris
Adiantum philippense
Adiantum venustum
Aglaomorpha coronans
Angiopteris evecta
Arachniodes amabilis
Araiostegia delavayi
Arthromeris lehmannii
Arthromeris wallichiana
Asplenium bullatum
Asplenium indicum
Asplenium macrophyllum
Asplenium nidus
Asplinium normale
Asplenium varions
Athyrium nigipes
Athyrium pectinatum
Botrychium lunaria
Botrychium multifidum
Cheilanthes albomarginata
Cheilanthes dalhousiae
Cheilanthes rufa
Colysis latiloba
Coniogramme inter-media
Cryptogramma crispa
Cyathea spinulosa

Cyrtomium caryotideum
Dennstaedtia appendiculata
Dennstaedtia scabra
Dicranopteris linearis
Diplazium esculentum
Dpilazium polypodioides
Doryoptersis concolor
Drynaria mollis
Drynaria propinqua
Dryoathirium boryanum
Dryopteris atrata
Dryopteris chrysocoma
Dryopteris cochleata
Dryopteris khasiana
Dryopteris marginata
Dryopteris paleacea
Dryopteris pulvinulifera
Dryopteris sparsa
Elaphoglosum conforme
Gliechenia gigantea
Helminthostachys zeylanica
Hypodematium crenatum
Lepisorus loriformis
Leucostegia immersa
Lindsaea cultrata
Loxogramme involiata
Microlepia marginata
Microlepia platyphylla
Microlepia speluncae
Microlepia strigosa
Microsorium buergerianuus
Microsorium cuspidatum
Microsorium membranaceum
Microsorium phyllomanes
Nephrolepis cordifolia
Oleandra neriiformis
Onychium japonicum
Onychium siliculosum
Osmunda japonica
Peranema cyatheoides
Pityrogramma calomelanos
Plagiogyria picnophylla
Polypodium amoenum
Polypodium argutum
Polypodium lachnopus
Polystichum lentum
Polystichum nepalense
Polystichum obliquum
Polystichum squarrosum
Polystichum thomsorii
Pteris biaurita
Pteris cretica
Pteris vittata
Pteris wallichiana
Pyrrogia beddomeana
Sphenomeris chinensis
Tectaria macrodonta
Thelypteris auriculata
Woodwardia unigemmata

List of Ferns suitable for bottle gardening

Actiniopteris semiflabellata
Adiantum capillus-veneris
Adiantum philippense
Adiantum venustium
Asplenium bullatium
Asplenium indicum
Asplenium macrophyllùm
Asplenium nidus
Asplenium normale
Asplenium varians
Botrychium lunaria
Botrychium multifidum
Cheilanthes albumargiunata
Cheilanthes dalhousia
Cryptogramma crispa
Cyrtomium caryotideum
Doryopteris con color
Elaphoglossum conforme
Helminthostachys zeylanica
Hypodematium crenatum
Leucostegia immersd
Lindsaea cultrota
Microlepia marginata
Mircolepia platy-phylla
Microlepia speluncac
Microlepia strigosa
Onychium japonicum
Osmunda japonica
Polystichum lentum
Polystichum nepalense
Polystichum obliquum
Pteris cretica

Reference

R.H. Beddome 1973 - The Ferns of British India.
Vidya Laxmi Gurung 1991 - Ferns, The Beauty of Nepalese Flora.

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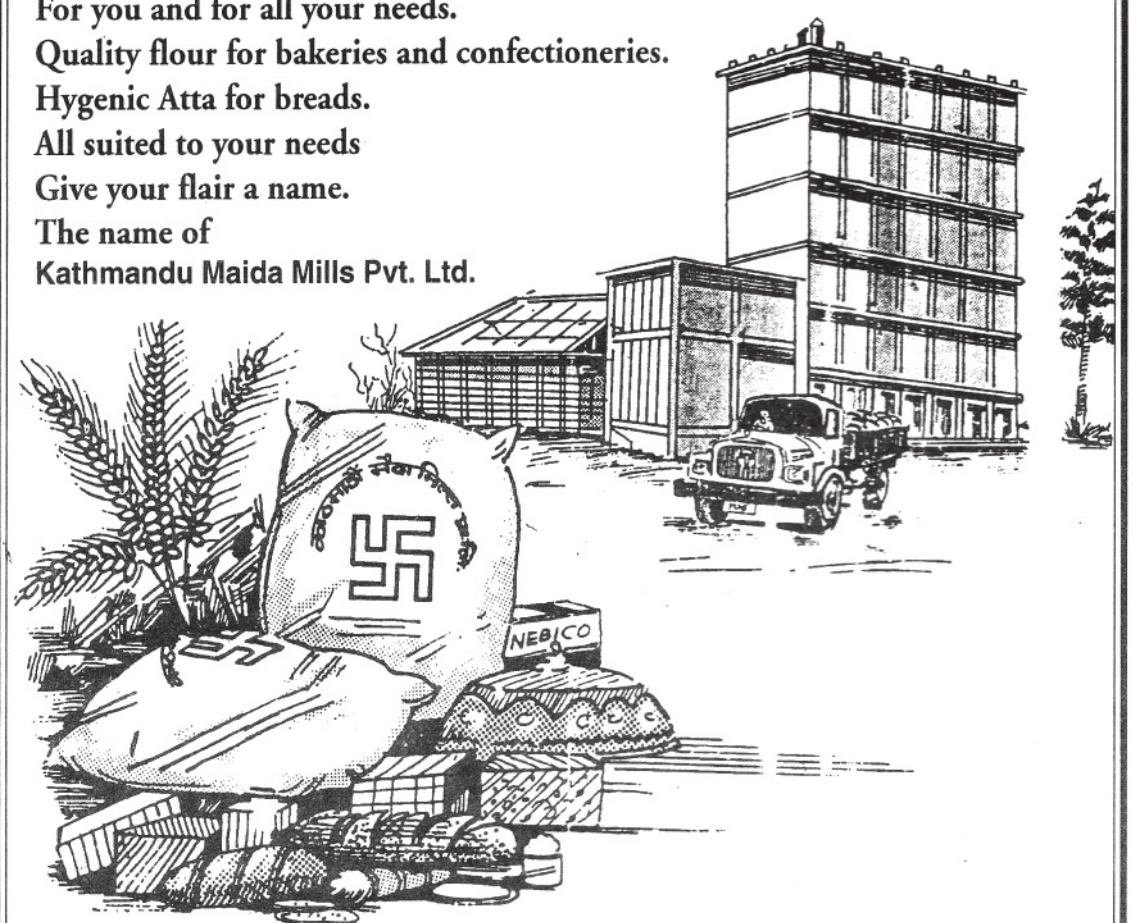

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The Paeony : Herbaceous and Sub-Shrubby Plant of Rare Beauty

Courtesy : Ambar Nursery

Paeony belongs to the Buttercup family, Ranunculaceae. It is a beautiful, hardly, herbacious or shrubby perennial plants of great beauty - which are in full bloom in May and June. The tree Paeonies are suitable only for planting in sheltered places.

The herbacious paeony is native chiefly of Europe and tree Paeony of China and Japan. Comparatively few species or wild types of Paeony are grown but innumerable varieties, having single or double flower in wide range of different coloring have been raised and additions to the number are increased annually. The chief species or wild types from which may flowering species have been raised by cross-breeding.

THE MAY - FLOWERING PEONIES : have long been favourite plants in Gardens in Great - Britains; they bear large double flower in crimson - rose, blush, red and allied shades of colors. The old double - crimson Paeony is prominent in may in caottage Garden and year after year, it provides a glorious display of blooms. Among the several named varieties of paeonies, Otto Eroabel is the most handsome and magnificent with rich crimson colour; others are rosen- rose-pink, Sabini, rismson, sunbeam and salmon rose.

Best soil and position for peaonies : Paeonies will thrive in a sunny or partly shaded place but they must be planted in deep, rich soil. They do not flourish in poor ground which dries quickly is summer season. Peaonies take some time to be established and it is necessary to plant them where they can remain undisturbed for years. The sites should be prepared by drgging the ground two spits about 20 in. deep and mixing well decayed manure in the lower soil. If the ground is light, some chopped turf should be added.

It is a mistake to plant them in a border facing east for in that position the flower buds are liable to be changed by the early morning sun if that happens to shine on them after a frosty night. It however the Peaonies are in a border facing south, southwest or west, they are unlikely to suffer harm,

How to succeed with Paeonis : Once established Peaonies are vigourous, leafy plants. It is not wise to place them in a prominent position in the herbaceous border for, they

finish blooming by late June, and take up good deal of room without adding to the beauty of the garden after that period. They may be planted in open spaces among shrubs on similar places on the edge of woodland or in informal parts of the garden where they have room to develop and are not likely to be disturbed. They must not, however, be set in deep shade or in places where the soil becomes impoverished by the roots of neighboring trees or shrubs.

During hot, dry weather in summer Paeonis need a copious watering occasionally; they will not flourish if allowed to become dry at the roots. It is beneficial to mulch the soil round about them with decayed manure or compost in April; this helps to keep the roots moist and feed them also.

The best Time To Plant Paeonis : The most appropriate time to plant paeiones is in September - October; they may however be planted win winter or in February March. The plant should be set at such a depth that the crowns or tops are covered with about 2 in of soil;. they should be spaced of 2.5 - 3 ft. from each other.

Propogation : If it is desired to increase the stock of any particular variety the work of lifting and separating the clumps should be done towards the end of September or in October, so that the pieces will have every chance to become established before winter.

Tree Paeony : The chief of the Tree Peaonies, *Paeonia suffruticosa* (Moutan) is a leaf losing shrub which reaches a height of 3-5 ft. and bears immense single or double flowers in May and June.

Tree Paeonis, are sometimes grown in large flower pots for the decoration of the conservatory.. They should be potted in autumn in loamy soil with which some leafmould and sand have been mixed; they may be left out of doors until towards the end of the years - or until the approach of severe weather, and then placed under glass.

The wild type of tree Paeony; *Paeonia suffruticosa* has large white flowers blotached with crimson; there are many named varieties in which the flower range from white to biush, rose and crimson.

Peaonia lutea is a particularly handsome Tree Paeony with greyish leaves and yellow flowers which are much smaller than those of the named varieties of Tree Paeiony, one named L' Esperance, yellow with Pink tinge, is very beautiful.

Paeony Species : Among the wild types of species of herbaceous Paeonis, there are several attractive flowering plants some of which ought to be included in every representative collection. One of the earliest to bloom is *Paeonia anomala*, which bears rose - coloured flowers. *P. humilis* is of comparatively low growth about 18 in high, with blooms of rose colouring. Its double form, *P. fimbriata*, is very attractive.

Some Beautiful varieties : There are innumerable varieties; both single and double, of June flowering Peaonies, many of them having fragrant blooms. The following section comprises some the most beautiful double varieties : Adolphe Rousseau, valvet red; Albert crousse, rose-pink Duchesse de Nemours, white; Festiva Maxima, white; Felix Crousse, deep red, fragrant; General Mac-Mohan, crimson; Lady Alexander, duff, pink, fragrant, Solange, cream, tinted, salmon; President Taft, light-rose-pink; Queen Sophie, blush; Arethusa, rose; Madame Furtado; rose pink; Philomede, pale rose; Prince Prosper, crimson; Victor Hug, rose - Chrimson; Madame Charpentier; crimson; James Kelway, white, tinted rose.

Of the single June - flowering Peaonies, these are very beautiful; coronation, rose; Darius, rose; Duches of portland, white with bluish tinge, Gertrude, rose-pink; and the Moor, blood crimson.

Diseases : Sports or blotches on Paeony leaves are caused by the fungus, *Septoria paeoniae,* the diesease being referred to as peaony blotch. The spots are between the veins and are yellowish brown in colour, with pale, some what sunken centres and purple edges. As the spots get old the centres often drop out. With a lens, it is possible to see the minute black bodies, that contain the spores, which spread the disease in sunny weather. The diesease is not usually very serious and it can be controlled by spraying the plants with Bordeaux mixture in spring.

Paeony Wilt : The wilt dieseasem, caused by one of the grey mould fungi, *Botrytis paeoniae* is the commenest and most troublesome disease of Paeonies.

The first thing to do is to cut out and burn diseased parts, and then the plants (including healthy ones) should be sprayed at forthnightly intervals with Bordeaux mixture or a copper dust, except when the Paeonies are flowering.

If these methods are not effective, transplanting to fresh soil should be carried out as well. Shaking away the old soil as much as possible and picking off any black resting bodies of the fungus that may be visible.

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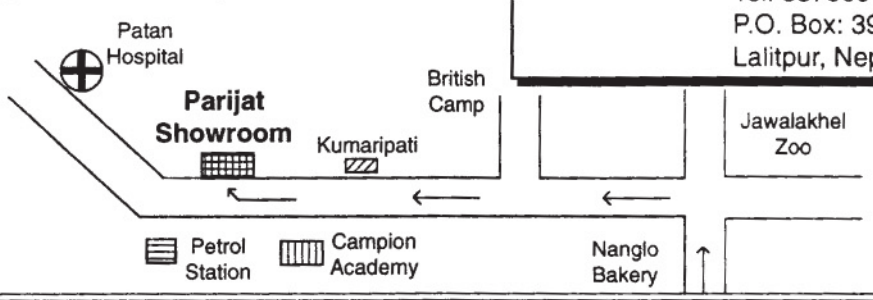

Trees for beauty and balance of ecology

Usha Kharel
Plant Research Division, Godawari

Trees are one of the associates of the garden. A group of colourful flower plants and a piece of lawn does not make a garden complete unless there are trees at some corner or around. Trees make the garden liveable. They burest in different color in spring some give color in leaves during autumn which break the monotony of greenery. Trees are valued not only for their flowers & leaves but they are also homes for birds, and butterflies. They provide shelter and shade. They are source a timber wood as well as fuel wood.

Flowers in trees welcome spring. The trees are the prize ornament of many gardens. Some add a notable fragrance to the visual delights of their bloosom. The cool white and purple color of the flower lends a cool note to a hot day.

Planting trees along the road side and in parks, helps earth to fight the pollution. Developing greenaries contribute to beauty of our town. There are trees which loose their leaves in winter and flower in spring, while some trees are evergreen in nature.

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S.No.	Botanical name	Common name	Family	Propagation	Flowering time	Color	Type
1.	*Plumeria rubra*	Temple tree (four)	Apocyana-ceae	Cutting	Baishak Jestha	White, yellow	deciduous
2.	*Erythrina sp.*	Coral tree (Khukuri Phul)	Leguminosae	Cutting, Seed	Jestha	Red	"
3.	*Callandra naematocaphala*		Leguminosae	Seed	Baishakh	Red	"
4.	*Bauhinia variegata*	Orchid tree (Koiralo)	Leguminosae	Seed	Chaitra, Baishakh	Purple	"
5.	*Albizia lebbeck*	Silk tree (Siris)	Leguminosae	Seed	Baishak		"
6.	*Lagerostoemia indica*	Crape myrtle (Ashare phul)	Lythraceae	Cutting	Asar	Pink, White Pimple	"
7.	*Pracus cerasoides*	Himalayan Cheri (Paiyu)	Rosacca	Cutting, Seed	Falgoon - Chaitra	Pink	"
8.	*Prunus persica*	Flowering peack (Aaru phul)	Rosaceae	Layering	Falgoon	Pink, rose Pink	"
9.	*Callistemon lanceolatus*	Bottle brush (Kalki phul)	Myrtaceae	Seed	Year round	Red	Evergreen
10.	*Jacoranda mimosifolia*	Blue mimosa	Mimosae	Seed	Baishak	Blue	deciduous
11.	*Grevillea robusta*	Silk oak (Kaiyo phul)	Proteaceae	Seed	Baishak	Yellow	Evergreen
12.	*Magnolia grandi-flora*	Bull bay (Rukh kamal)	Magnoliceae	Layering	Baishak	Yellowish white	Evergreen
13.	*Michelia fuscata*	(Kankan champa)	Magliaceae	Layering	Baishak	Yellowish Withe	Evergreen
14.	*Michelia champaca*	Sunachap	Magnolicae	Seed	Baishak	Yellow	Evergreen
15.	*Aesculus indica*	Buckeye (Lekh pangra)	Hippocasta naceae	Seed	Baishak	Punple	Decidcous
16.	*Fraxinus floribunda*	Ash (Lankuri)	Oleaceae	Seed	Jestha	Purple	Deciduous
17.	*Pyrus pashia*	(Mayal)	Rosaceae	Seed	Flagoon	White	Deciduous

Apart from the flowering trees, some caste their beautiful shade by colourful leaves such as Marple, *Ginko*, *Metasequa*, Blue gum tree etc. give colour variation in different seasons. Some aromatic trees such as *Magnolia* sp., *Michalia* sp., *Plumeria* sp., etc. are noteworthy for their sweet fragrance.

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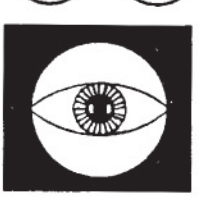

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Seasonal Ornamentals

Annuals

catalog name	alternate names	description	sow	move to bed or re-pot
Acroclimium		pink, white	Sept/Oct	bed, Nov
Alyssum		white, pink	Sep/Oct	bed, Oct
Antirrhinum	Snapdragon	various	Aug/Sep	bed/pot, Nov
Aster		many	Mar	bed/pot, Apr
Balsam	Impatiens balsamina	red, pink, white	Mar/Apr	bed, Apr/May
Borage		blue flower, tall	Sep	bed, Oct
Cabbage (ornamental)		multicolored foliage	Sep/Oct	bed/pot, Nov
Calendula	Pot or English Marigold	oranges	Aug/Sep	bed/pot, Oct
Celosia plumosa	prince of Wales Feathers	reds, yellows	Mar/Apr	bed/pot, Apr
Chrysanthemum Carinatum	Annual Chrysanthemum	bright	Sep/Oct	bed, Oct/Nov
Cineria Sep/Oct	Senecio	bright reds, blues	Jul/Aug	pot any time, bed
Clarkia unguiculata		various	Sep/Oct	bed, Nov
cleome spinosa	Spider Flower	pink, white	Feb/Mar	bed, Mar
Cockscomb	Celosia cristata	strong reds, yellows	Mar	pot, Apr
Coleus	Flame Nettle	mulitcolored foliage	Apr	bed/pot, Apr
Cornflower	Centurea cyanus	blue, pink, white	Sep/Oct	bed, Nov
Cosmea	Cosmos	tall pink, white; short orange	Mar/Apr	bed, Apr/May
Dahlia		various	Mar	bed or pot, Apr
Daisy, bellis perennis	Bellis perennis	whites, pink	Sep/Oct	bed. Oct/Nov
Delphinium	D. chinense	blues, mauves, white	Sep/Oct	bed Oct/Nov
Delphinium chinense	D. chinense	bright blue	Sep/Oct	bed Oct/Nov
Dianthus	Pinks	pinks, white	Sep/Oct	pots Nov
Dainthus chinensis	Indian Pink		Sep/Oct	
Digitalis	Foxglove	pink, mauve, white	Aug/Sep	bed Oct
Eschscholzia	Californian Poppy	oranges	Sep/Oct	direct in bed

californica				
Felicia	Kingfisher Daisy	blue	Sep/Oct	bed Nov
Gomphrena globosa	Globe Amaranth	purple, pink, white	Mar	bed, Apr/May
Gypsophila	Baby's Breath	white, pink	Sep/Oct	bed, Oct/Nov
Helichrysum	Straw Flower	yellow, white, red	Aug/Sep	bed, Oct
Impatiens	Busy Lizzie	red, pink, white	Mar/May	
Ipomoea "Cardinal"	Quamoclit (local type)	scarlet	Feb/Mar	direct in bed
Ipomoea	Morning Glory	blue, pink, white	Feb/Mar	direct in bed

flowers	cut	notes	source of seeds	catalog name
Apr/May		dry	import, save	Acroclinium
Dec/Apr		edging, ground cover	local, save	Alyssum
Mar	x	special import, dwarf good in pots	local, save	Antirrhinum
Jun/Jul	x	impot fancy types	local, save	Aster
Aug/Sep		will do in shade	local, save	Balsam
Mar		also culinary herb, "Pimm's"	import, save	Borage
		decorative foliage from Feb, successional sowing prolongs season	local, save	Cabbage (ornam
Dec/Jun	x	import better colors	local, save	Calendula
Aug/Sep	x		local, save	Celosia plumosa
Mar/Apr	x	feathery leaf	local, save	Chrysanthemum
carinatum				
Feb/Mar		shade	local, save	Cineria
Apr/May	x		local, save	Clarkia unguiculata
Jul/Sep	x	cut short stems only, self seeds	local, save	Cleome spinosa
Jul/Aug			local, save	Cockscomb
May/Oct		may last a second year, indoor plant	local, save	Coleus
Apr	x		local	Cornflower
Jun/Aug	x		local, save	Cosmea
May/Aug		grown as annual	local, save	Dahlia
Mar		border, can be kept 2nd year, import better mixed colors	local, divide	Daisy, bellis perennis

Apr/May		keep for 2nd year in pot	import	Delphinium
Apr/May	x		import	Delphinium chinense
May on		delicate, best in pots, cutting Aug/Sep	import	Dianthus
		edging to beds	import	Dianthus Chinense
Apr		half shade	local, save	Digitalis
Apr/May			local, save	Eschscholzia californica
Mar		semi-trailing	import	Felicia
Jun/July -				Geranium
Jul-IOct	x	dry	local, save	Gomphrena globosa
Apr/May	x	import pink veriety	local, save	Gyposphila
Feb/Mar	x	dry	local, save	Helichrysum
Jul/Sep		good in shade, cutting may/Jun	local cuttings	Impatiens
Jul/Oct		climbers	local, save	Ipomoea "Cardinal"
Jul/Sep		climber, self seeds	local, save	Ipomoea

Annuals

catalog name	alternate names	description	sow	move to bed or re-pot
Kochia trichophylla	Burning Bush, Summer Cypress	green then red	Feb/Mar	pot/bed Mar
Larkspur	Consolida ambigua	blue, mauve, white	Oct	bed, Nov
Linaria	Toadflax	various	Sep/Oct	bed Nov
Linum grandiflorum	Flax	tali, red	Sep/Oct	bed/pot Nov
Lobelia		blues, white, pink	Sep/Oct	Nov
Lupin		pink, blue	Aug/Sep	bed/pot, Oct
Marigold, African	Tagates erecta	orange, yellow	Jan/Feb	bed/pot, Mar
Marigold, French	Tagates patula	gold, brown	Jan/Feb	bed/pot, Nov
Mesembryanthemum	Livingstone Daisy	pinks, yellow, white	Oct	bed/pot, Nov
Nasturtium	Tropaelolum majus	orange, yellow	Sep/Oct	bed, Oct/Nov
Nemophila insignis	Baby Blue Eyes	blue	Sep/Oct	bed/pot, Nov
Nicotiana	Tobacco	pinks, white, green	Oct/Nov	bed, Nov
Nigella	Love-in-a-mist	blue, pink, white	Sep/Oct	bed, Nov
Pansy			Aug/Sep	bed/pot, Sep/Oct
Pansy, Universal		(winter flowering)	Aug/Sep	bed/pot, Oct
Petunia		pinks, white	Sep/Oct	bed, Oct/Nov

Phlox drummondili		pinks, white, annual, short type	Sep	bed/pot, Sep/Oct
Poppy	various types	red, pink	directly in beds, Oct/Nov	
Portulaca		mixed	Feb/Mar	pot/bed, Mar
Salvia splendens		red, wine	Feb/Mar	bed, Mar
Salvia horminum	Clary	pink, blue, white	Feb/Mar	bed, Mar/Apr
Schizanthus pinnatus	Butterfly flower, Poor Man's Orchid	mixed	Aug/Sep	Oct
Statice	Sea Lavender	purple, white	Sep/Oct	bed/pot, Nov
Stock	Ten Week Stocks	Mixed	Aug/Sep	Oct
Sweet Pea, tall		various	[note 3]	bed/pot Oct - on
Sweet Pea, medium		various	[note 3]	
Sweet Pea, dwarf		various	[note 3]	
Sunflower	Helianthus	yellow	Aug/Sep	bed, Sep/Oct
Sweet William	Dianthus barbatus	mixed, pink, red	Sep/Oct	Nov
Torenia fournieri	Wishbone Flower	mauve and yellow	Feb/Mar	if necessary, direct
Verbena		various	Sep/Oct	
Viola	Heartsease	various	Sep/Oct	bed/pot Nov
Zinnia		various bright	Feb/Mar	bed/pot Mar

Notes :

1. Nasturtium. Base of trees, path edges, requires poor soil to flower well, self seeds
2. Pansy, universal. Expensive but long lasting. Saved seeds become "mongrelly."
3. Sweet Pea. Successional sowing Aug to Oct; direct or for transplanting
4. Salvia. Will last to next season. Lightly prune old plants

flowers	cut	notes	source of seeds	catalog name
-------		foliage plant; green then red	local, save	Kochia trichophylla
Apr/May	x		local, save	Larkspur
Feb	x	self seeds	local, save	Linaria
Mar		needs staking	import, save	Linum grandiflorum
Mar/Apr		trailing variety for ground cover	import, save	Lobelia
Feb/Apr	x	some direct, some transplant	local, save	Lupin
Mar/Apr-O	x	Inca series, import	local, save	Marigold, African
Mar/Apr-O	x		lcoal, save	Marigold, Fench
Mar		only opeans in sun	local, save	Mesembryanthemu
April on		trailing ground cover, [note 1]	local, import, save	Nasturtium
Mar			import, save	Nemophila insignis
May/Aug			local, save	Nicotiana

Mar/Apr		seed heads good for dry arrangements	import, save	Nigella
Mar on		import if you want specials [note 2]	local, save	Pansy
Feb/Apr		saved seeds become 'mongrelly'	import	Pansy, Universal
Apr/May		very pretty mixed with larkspur in same color range	local, save	Petunia
			local	Phlox drummondii
Apr/May		self seeds readily	local, save	Poppy
May on		needs sun	local, save	Portulaca
Jun/Oct		import for change of color [see also note 4]	local, save	Salvia splendens
Jul/Aug	x	dry	import	Salvia horminum
Apr/May			import, save	Schizanthus pinnatu
Mar/Apr	x	dry	local, save	Statice
Feb/Mar	x	(import)	local	Stock
	x	keep cutting to keep flowering	local, save	Sweet Pea, tall
				Sweet Pea, medium
				Sweet Pea, dwarf
May/Jun			local, save	Sunflower
Mar/Apr	x			Sweet William
monsoon		semi-shade groundcover	self-seeds, save	Torenia fournieri
		keep old plants, take cutting in November, which will flower Jan/Feb	local, save	Verbena
Mar		ground cover, self seeds	local, save	Viola
May/Jun			local, save	Zinnia

Source : Granding in Kathmandu by Richenda George Edited by Geoffery Wolfe.

Some Garden Plants with Medicinal Values

Neera Pradhan
Plant Research Division
Godavari

Introduction :

The popularity of garden plants has been increasing day by day because they are the pleasure in which we can all cherish throughout the year. It is time to realize that the flowers are essential parts of the communities which please the eye and make a garden romantic and lively. It is worth to grow the flowering plants which provides exercise and relaxation to all of us in these days of stress and strain of modern mode of life. Nevertheless, it also helps to reduce the environmental pollution, which is becoming a big issue of the country.

Besides the use of plants for beautification and relaxation, garden plants possess medicinal value too. Some plants which have medicinal properties are briefly described below. Plants which have no common name is listed with English name.

Aloe barbadensis Mill. (Ghiu kumari)

The leaf pulp is eaten in the morning regularly as a coolant and also applied to forehead to cure headache. It is also applied to burned skin to relief burning sensation.

Althaea rosea Cav. (Hollyhock)

The beautiful flowers and leaves are being used to soothe inflammation of the mouth and throat.

Anemone hepatica

The plant is used for a herbal remedy for coughs and chest ailments.

Bauhinia variegata L. (Koiralo)

The floral buds and flowers are cooked and taken as vegetable which is considered effective against diarrhea and dysentery. The bark is used in skin diseases.

Begonia picta J. E. Smith (Magarkanche)

The petioles are used to prepare pickle and it is supposed to be an appetizer.

Berginia ciliata (Haw.) Sternb. (Pakhnbed)

Rhizome powder is a good tonic and also given to get relief from roundworm.

Calendula officinalis L. (Asharfi phool)

The flowers has been claimed to exhibit diaphoretic, diuretic and stimulant properties.

Catharanthus roseus (L.) G. Dori (Nayantara)

The plant contains alkaloids, which is used in the treatment of leukemia.

Centaurea cyanus L. (Panchrangi)

The inflorescence provides the active bitter drug which is used in reducing fever. The decoction of the flowers is used as an eyewash against conjunctivitis.

Chrysanthemum cinnerariafolium Vis. (Pyrethrum)

Pyrethrum is effective as an external application in pediculosis and scabies. The plant is a contact poison, highly toxic to insects. It is used as protection against a number of agricultural and horticultural pests.

Digitalis purpura L. (Fox glove)

The drug is obtained from the leaves, called digitalin, which has a powerful action on the heart. In heart failure, it is often the best, the only life saving drug.

Delphinium agacis L. (Larkspur)

A tincture of seed is employed externally for the destruction of lice in hair, it is advised to use very low dose because of high toxicity.

Dryopteris felis-mas (Male fern)

The plant contains a filicin which is effective against intestinal worms. The active agent is extracted from rhizomes, frond bases and vegrtative buds.

Equisetum debile Roxb. Ex Vaucher (Horsetail)

The green sterile shoots have a weak diuretic action. The paste of the shoots is applied for eradication of skin warts (Musa, a growth on the skin).

Hedera helix (Ivy)

A small quantity of shaded leaves is immersed in hot water to give an infusion which is believed to counteract rheumatism and gout.

Helianthus annus L. (Sunflower)

The oil extracted from seed is used medicinally to evacuate the gall bladder.

Hoya carnosa R. Br. (Wax-plant)

The juice of the plant is reported to possess diuretic properties. The pounded leaves are used as embrocation in rheumatism.

Lavandula officinalis L. (Lavender)

Lavender (fragnance)is used as a stimulant to prevent fainting.

Magnolia grandiflora L. (Rukh kamal)

The bark of the tree is considered as stimulant, aromatic and tonic. It is reported to be used for malaria and rheumatism. Extracts of the plant cause a rapid fall in blood pressure when administered.

Mentha spicata L. (Babari)

The leaves are considered an effective coolant as well as an appetizer. The fresh leaves make an excellent mouthwash leaving an agreeable taste.

Nerium oleander L. (Karbir)

The leaves, flowers and fruits are all potential source of mixture of four glycosides -- collectively called oleandrin which is poisonous.

Ocimum sanctum L. (Tulasi)

The leaf-juice is applied to cuts and wounds as an antiseptic. The decoction of leaves is used for cough treatment.

Papaver somniferum L. (Poppy)

The morphine is extracted from the unripe capsule which is extremely effective against severe pain.

Plumeria rubra L. (Chuwa)

The fruit has been used as an abrotifacient.

Primula vulgaris Huds. (Primrose)

The plant contains a saponin. The decoction of the plant (dried root and rhizome) is used in curing bronchitis.

Punia granatum (Pomegranate)

The bark contains an alkaloid, used for the expulsion of tapeworm.

Rosa sp. (Wild rose)

The petals of the flower is boiled in water and the decoction is gargled for soothing an inflamed throat.

Salvia splendens Sello (Scarlet sage)

The flower is boiled and the decoction is used in the treatment of diabetes.

Tagates erecta L. (Marigold)

The leaf juice is applied on blending blood vessels to promote coagulation.

Thevetia neriifolia Juss

The milky juice of the tree is highly poisonous. The bark is said to be powerful febrifuge, the antiperiodic properties.

Zantedeschia aethiopica Sprang. (Sankha phool)

Inflorescence contains a toxic compounds which produces effects in rabbit ranging from hypoaesthesia to paralysis.

Some of above mentioned plants are commonly used in domestic practice. For instance in burning case *Aloe barbadinsis* is used which is excellent for cooling purpose. In case of bleeding (fresh cut) *Tagates erecta* is very good, which helps in coagulation of blood. For the cold and cough treatment, *Ocimum sanctium* is used. *Mentha spicata* is used as fresh picke and is considered as a good appetizer. Decoction or raw flowers of *Salvia splendens* is taken orally to decrease and control blood the sugar lever. For pesticide and insecticide purpose, Pyrethrum can be used. So plants provide on one hand beautification and on the other, supplementing some medicinal purpose.

Rediscovering Trees

Anup Rai
Vice-president, FAN

Trees have always been and are becoming more and more important for human life. From time immemorial, it was on trees that human race depended so much on, for needs such as homes, rafts, canoes, fuel, fodder and even weapons. In addition to these, fruits and nuts of many kinds were of great food value for both humans and animals. In fact, the trees have so much to contribute that without trees the life as it is known would be impossible (Anonymous, 1981). Demand for trees in wood based industries such as newspaper, plywood, parquet etc., is ever increasing and the rate of production of edible and non-edible tree products such as cinnamon, coconut, chocolate, coffee, resin, turpentine and cork and hosts of others are growing faster than ever before. Further, the role of trees on wild-life recreation, medicinal and aesthetic values and in various other walks of life can not be undermined.

In Nepal, dependence on trees for household fuel, animal feed and timber is virtually absolute, for there are practically no alternative resources. Being predominantly an agricultural country, the economy of a large number of people is dependent on the maintenance of their livestock (Bajracharya et. al.,1985). Brewbaker (1983) in an extensive study of fodder, fuel-wood and nitrogen fixing trees of Nepal observed that the domesticated animals derive 35% of the feed from trees. He recommended planting of several species of trees capable of fulfilling rural needs at the grassroots level. Earlier, Pandey (1981) also emphasized on massive planting of fodder trees especially on erosion-prone hills.

Singh (1960) pointed out that many wild plants in Nepal are eaten in different ways depending upon the condition of locality and community. Shrestha (1978) also showed that wild edible fruits are very popular and fruit bearing trees contribute substantially in the nutrition of the rural people.

Some trees even find their place in worship. *Saraca indica* and *Ficus bengalensis* are held sacred by Buddhists and Hindus respectively. However, *Ficus religiosa* is worshipped both

by Buddhists and Hindus. These trees are usually planted around temples, roadsides and at rest places along trails like *chautari, bhanjyang and deorali.*

Trees, thus have an extensive role in Nepalese life. Most of the trees which grow around the agro-fields and villages are planted to serve some purpose. Many of them produce something edible, such as *Myrica esculanta, Bassia butyracea, Juglans regia* (Stainton, 1972). Such trees grown deliberately for more than one purpose are commonly termed as multipurpose trees. They usually provide either fodder, edible fruits, timber, fuel-wood or raw materials for different types of industries.

Wide variation in climate, soil and altitude have become successful in bestowing Nepal with luxuriant vegetation from tropical to alpine regions offering a remarkable bio-diversity which is unique in itself. But it was unfortunate that continued deforestation in the past and relatively massive one especially during the late seventies and early eighties led to depletion of much of the natural forests (Mahat et. al.,1986). These clearings on the fragile mountain ecosystem led to multilateral ecological implications, the chief of which being severe soil destabilization and subsequent erosion. All these facts highlight the ecological and economical importance of trees which is increasingly being felt.

In that context of country's situation, afforestation was the most logical step. Department of Forestry, HMG, in co-ordination with several donor agencies launched many effective and successful afforestation programs in various parts of the country. Seed germination and stem cuttings were by far the most widely practiced methods of tree propagation in implementing such programs which invariably needed technologies for seed research and seedling establishment. And to this end, there has been a considerable development in basic infrastructure especially in the government sector.

The fruits of success of afforestation programs further disseminated to the land owners and farmers especially in the Terai, inner Terai and lower valleys. *Delbergia sissoo* has been by far the most preferred species for plantations in such areas, reports suggest that 90% of the government and private or community land holdings have seen *D. Sissoo* saplings. The other species being *Acacia catechu, Albizia stipulata, Bauhinia sp., Mengifera indica, Tectona grandis etc.* The accelerated adoption of trees on farms is mainly due to the decreased supply of products from the natural forests of the Terai. This has led to increased

prices of wood products and consequently an incentive for farmers to cultivate trees on Terai farms (Kanel , 1996).

Tree planting along the farmlands of Mahabharat range is not as frantic as in the lower valleys and Terai. The farmers in the hills prefer fodder and fuelwood trees or even multipurpose trees that can fulfill their immediate demand and make them more independent of their dependence on shrinking natural forests. The tree species popular among such plantations are *Ficus auriculata, Artocarpus lakoocha, Betula sp., Alnus nepalensis, Schima wallichii, Prunus cerasoides, Choerospondias axillaris etc.* These, and other trees play an important role in the sustainable village economy. And in fact, in recent years, the tree component has emerged as a primary focus of rural developmental efforts in Nepal (Gilmour and Nurse, 1991).

Planting of trees in towns and cities and especially in suburbs of Kathmandu Valley, however, have a totally different objective. While some city dwellers seem to prefer fruit trees, basically people plant trees in their homes and gardens for beautification and greenery. As a matter of fact, tree planting with an aesthetic sense is not a new concept in Kathmandu, the avenues and old Rana palaces in Kathmandu still have huge conifers and other deciduous species which have witnessed many events that go in history volumes.

Trees like *Grevillea robusta, Callistemon lanceolatus, Jacaranda mimosifolia, Cedrus deodara, Araucaria sp., Salix babylonica, etc.*, are common sight in Kathmandu Valley. Lately, Kathmanduites have been more concerned about the importance of trees in suburbs and the demand of saplings is ever increasing. Actually, some elite families in a spree to escape from pollution choose newer and exotic places away from the city and want their new homes to have already established trees transplanted in their gardens. There have been many successful transplantations and some of the FAN member entrepreneurs are actively engaged in such newer ventures. Whatever the reason for planting, planting a tree and watch it burgeon and grow, is a serendipitous experience and simply a sheer joy.

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Floriculture Association Nepal (FAN)
Third Trade Fair Ashad 5-8, 2054
Participants' Name List

S.N.	Name of Participants	Name of Nurseries / Company	Stall No.
1.	Kedar Nath Parajuli	Tree Seeds & Flowers	E1
2.	Prithivi Gyawali	Garden Service	E2
3.	Sabnam Shrestha	Women in Floriculture	E3
4.	Hari Ram Shrestha	Ever Green Nursery	E4,E5
5.	Bharat Prasad Nepal	ATC	E6
6.	J. Hankay Rai	Hankay Rai & Sons	E7
7.	Bhat Bhateni Sweet & Chat	Restaurant	E9,E10
8.	Dr. Govinda Tondon	Basanta Nursery	E12,E13,E14
9.	Rajendra Rai	Parijat Nursery	E15,E16
10.	Yogesh Pradhan	Bodhi Brichya Nursery	W28,W29
11.	Shiva Prasad Pokharel	Ritu Nursery	W30
12.	Shreedhar	Bagmati Nursery	W31
13.	Punya Pd. Timilsina	Malika Nursery	W32
14.	Gyan Maharjan	Jai Kisan Nursery	W34,W35,W36
15.	Jagannath Thapa	J. N. Nursery	W37
16.	Mrs. Nilam Pandey	Flora Farm	W39,W40
17.	Khushi Ram Gurung	Ganga Nursery	W41
18.	Subash Subba	Jazar Nursery	W42,W43
19.	Kumar Bdr. K.C.	Amber Nursery	E19,E23
20.	Kishor Pradhan	Chameli Nursery	E21,E22
21.	Mahendra R. Joshi	Nursery Enterprises	W44
22.	Sabita Dhungana	Akarsan Furniture	W48
23.	Prasant Gazmair	Fragrance (flower & Plants)	E24
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28.	Gopal Das Shrestha	Gokem art	E8
29.	Vanaspati bibhag.		W33

30.	FAN Office		E17
31.	AEC Stall		M5
32.	Saurab International	Polyhouse System	
33.	Amatures Bonsai	Display	W38
34.	Kathmandu Flower Clubs		E11
35.	Shatrughan Shah	Ishwarya Ayurivigyan	W27

LIST OF FLORICULTURE BOOKS & REPORTS AVAILABLE AT AEC LIBRARY

Cut Flowers and Orchids for Export - Availability Study

Handbook for Cut Flower Growners

Lalbandi Co-operative Commercial Nursery, Progress Report

Role of (Plant Physiology and) Biotechnology in Agriculture (on crop productivity)

Protea (compliation of # 739 to 746) (See also #1408, 1409, 1517, 1730, 1810)

Fresh Cut flowers : A Study of Market in Japan

Fresh Cut Flowers : A Study of the Market in Hong Kong

Floriculture Sales Express - The Dutch Flower Auctions

GASA Odense: Marketing Denmark's Flowers

Danziger's Dan Flower Frams - An Israeli Success Story

Application of Growlight in Greenhouse

Floriculture in India - Challenges and Opportunities

Growing Opportunities for Micropropagation Based Industries of India

Developing an Orchid Industry of India - Some Points of Ponder

Cold Protection of Leatherleaf Fern using Crop Covers and Overhead Irrigation in Shadehouses

Floriculture Products - A Survey of the Netherlands and Other Major Markets in the European Community
Garden Articles - A Survey of the Netherlands and Other Major Markets in European Community

Garden Article _ Supplement to #311

Guidelines for exporters of Cut Flowers to the UK market

Cut flower (Top varieties of cut flowers of Holland)

The Production and Marketing of Roses

What do we mean by Non-Traditional Agriculture ? (Information & advice)

Proteas in Hawaii (Catalogue containing colourful photographs of Proteas)

The Royal Family of Proteas (with price list) see #737

Proteas - Development Research for a New Cut Flower Crop

Protea

Phytophthora Root Rot of Banksia (Protea) Host Range & Chemical Control

The Art & Science of Growing Proteas - Current Recommendations; New Protea Hybrids Developed by breeding; Systems of weed/nematod/ant control in Protea

Mechanization of Protea Post Harvest Processing

Indo American Hybrid Seeds

US Cut Flower Market

Production & Trade of Fresh Cut Flowers in Selected Countries (US, Columbia, Costa Rica, Germany)

The Commercial Storage of Fruits, Vegetables, and Florist & Nursery Stocks
Field-Grown Cut & Dried Flower Production & Marketing-Information Package includes Key to the selection guide chart

Bibliography series of National Agriculture Library (on Controlled Atmosphere Storage of Horticultural Crops 1980-87, Post-harvest handling of flower 1970-1987)

Floral Industry Trends - What Will Be Affecting Your Customers ?

Planning Field Production of Cut Flower (see also #1399)

Fern & Greens Growers

The Status of PROEXAG's Cut Flower Development Program

Rising Demand for Horticultural Products

Market News Service - Market Intelligence for Export Decisions

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Regulations of Import India - Plants, Fruits & Seeds

Proteas - An Australian Cut Flower Growners' Guide

The Art & Science of Growing Proteas - Current Recommendations

Database (Address List) of UK Importers

UK Market Notes - Fresh Cut Flowers
Proteas

Export Packaging - Manual on the Packaging of Cut Flowers & Plants

Pre-Investment Study on Agro-Industrial Enterprises - Flower Seed

Pre-Investment Study on Agro-Industrial Enterprises - Floriculture

Pre-Investment Study on Agro-Industrial Enterprises - Orchids

Field Trial Instructions - Protea Standard Cultural Practices Manual (see also #1730)

Protea Production Manual for Nepal (see also #1870)

Easter Lilies - Preparation for the Market, Marketing

Cost of Producing Easter Lilies in North Carolina

Floriculture Crops - 1992 Summary (Production, Market, Sales Trend in USA)

Marketing and Feasibility of Cut Flower Project in Egypt

Optimizing Greenhouse Production Management Decision Using Linear Programming

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Fine Herbs - Ornamental Plants for the Garden

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Production, Packing, Marketing Business Plan on Cut Flowers - Carnation. Chrysanthemum, Gladioli and Tuberose (Summary only see #2459 for full doc.)

A Position Paper on Policy Constraints/Facilitation for Private Sector involvement on FLORICULTURE sub-sector of Nepal

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Business Plan for Cut Flower - Gladiolus

Business Plan for Cut Flower - Rose

Business Plan for Cut Flower - Tuberose

Gladiolus

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Commercial Tissue Culture - Techno Market Study and Project Economics

Compendium of Papers of Five One-Day International Seminars on Hi-Tech Agriculture Pune, Dec 1995

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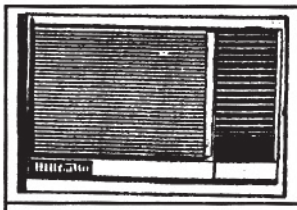

Window Air Conditioners	Split Air Conditioners
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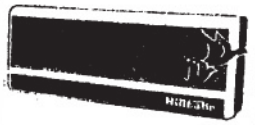
.75 Ton	1 Ton



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AGRO ENTERPRISE CENTRE

कृषि उद्यम केन्द्र

The Agro Enterprise Centre (AEC) established as an operating division of the **Federation of Nepalese Chambers of Commerce and Industry,** assists Nepalese entrepreneurs create agro-enterprise, improve their competitive market position, and increase their exports of high value agriculture products. The AEC provides services to clients on a cost sharing basis, routinely or on request. For agricultural prosperity through agro enterprise development.

Contact :

The Agro Enterprise Centre, FNCCI Building, Sahid Sukra Milan Marga, Teku, Kathmandu
P.O. Box No. 7651, Tel: 232260, 242971, Fax: 977-1-227322 E-Mail: agroaec@mos.com.np

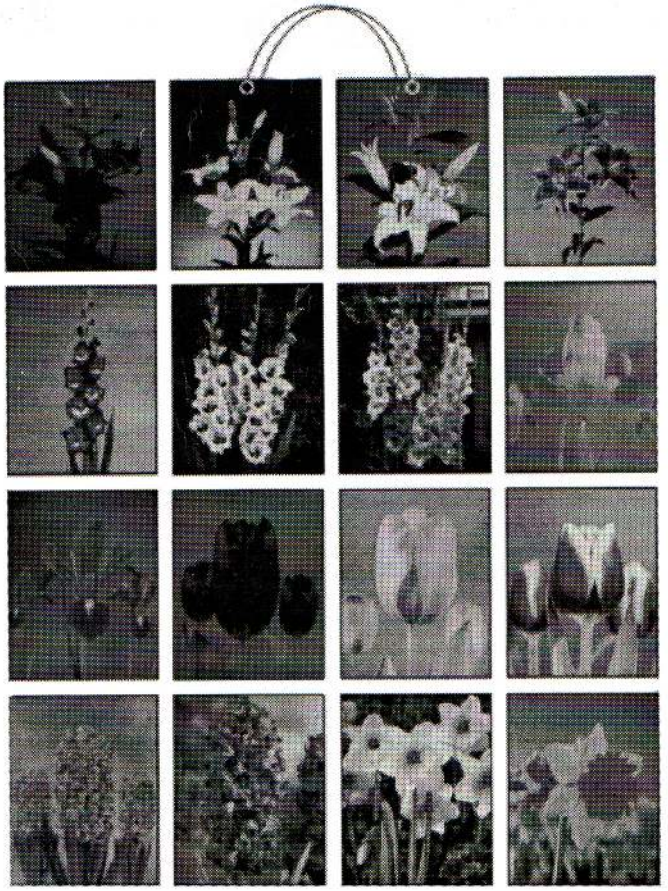
The AEC:

- Maintains a data bank with domestic and international market and price information, an inventory of agricultural processors, producer groups and associations, and relevant laws and regulations.
- Prepares and circulates periodically the AEC newsletter focusing on agro enterprise development.
- Offers business, marketing and technical skill training in, e.g. post-harvest operations, quality assurance and marketing of agriculture products.
- Advocates and educates, on behalf of private agro entrepreneurs and commodity associations, on such concerns as changing the rules and regulations which affect the growth of private agro business, preventing unnecessary market regulations, etc.
- Identifies and encourages innovative venture proposals that serve multiple sector, small farmers and firms.
- Assists the formation of the agro based Commodity Associations and their promotion.

On request the AEC:

- Initiates research and directs environmental appraisals.
- Carries feasibility studies on specific commodities, markets and processes.
- Advises clients on their agro business plans.
- Undertakes contract research to improve product quality and competitiveness.
- Assists with high value agricultural products' export promotion.

Holland Beauty...



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