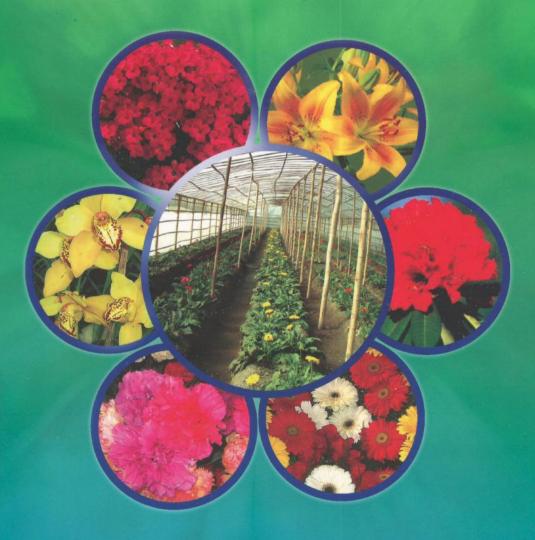
Floriculture Sowenin





Floriculture Association Nepal

Co-organized by:
Agro Enterprise Center (FNCCI)
Trade and Export Promotion Center (TEPC)
Department of Agriculture / Agribusiness Promotion Program

Floriculture Trade Fair 2007

Souvenir

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श्भ-कामना

नेपालको भौगोलिक विविधता एवं जलवायु पुष्प व्यवसायको लागि निकै उपयुक्त मानिएको तथा पृष्प व्यवसायले उद्योगको रुप लिई सकेको आजको अवस्थामा अन्तरिक बजारमा फूलको माग पूर्ति गर्नुको साथै अन्तराष्ट्रिय बजारको माग र चाहना अनुरुप फूलहरु उत्पादन गरी निर्यात गर्न पर्ने आवश्यंकता छ । यस कममा नेपाल उद्योग वाणिज्य महासंघको सिकय वस्त्गत सदस्य एवं महासंघको कृषि उद्यम केन्द्र मार्फत प्रवर्द्धन गरिएको फुलोरीकल्चर एशोसिएसन नेपाल (Floriculture Association Nepal) ले नेपालमा व्यवसायीक पष्प खेती र सोको बजार प्रवर्द्धनका लागि खेल्दै आएको भूमिका सराहनीय छ।

यस क्रममा एशोसिएसनले नेपालको पृष्प व्यवसाय र यससंग सम्बन्धित उद्योग व्यवसायको विकासका लागि विभिन्न स्वदेशी व्यवसायीहरुलाई सहभागी गराई पुष्प व्यापार मेला आयोजना गर्न लागेकोमा मलाई अत्यन्त खुशी लागेको छ । पृष्प व्यवसायको विकास तथा यस व्यवसायमा लाग्न उत्स्क व्यक्तिहरुका लागि यस्ता मेला प्रेरणाको स्रोत एवं मार्ग निर्देशक हुने र नेपाली पूष्प व्यवसायलाई प्रतिस्पर्धी, गुणस्तरीय बनाउन समेत मद्दत पुग्ने क्रामा दुईमत छैन ।

अन्त्यमा, उक्त मेलाका अवसरमा एशौसिएसनले विभिन्न पृष्प व्यवसाय सम्बन्धी उपयोगी सामग्रीहरु सहित प्रकाशित गर्न लागेको पुष्प विशेषांक (Floriculture Souvenir) पृष्प व्यवसायी र यस क्षेत्रमा रुची राख्नेहरुका लागि अत्यन्त उपयोगी हुने विश्वास व्यक्त गर्दै उक्त प्रकाशनको साथै पूष्प व्यापार मेलाको पूर्ण सफलता र एशोसिएसन तथा एशोसिएसनका सम्पूर्ण पदाधिकारी एवं सदस्यहरुको उत्तरोत्तर प्रगतिको लागि हार्दिक शभ-कामना व्यक्त गर्दछ ।

अध्यक्ष

२०६३/१९/२४





कृषि तथा सहकारी मन्त्रालय

फ्याक्स: KASARESA सिंहदरबार, काठमाडौं

नेपाल ।

पत्र संख्या :-च नं :-

श्रम-कामना



प्राकृतिक सम्पदाले भरीपूर्ण हाम्रो देश नेपालको हावापानी पुष्प खेतीका लागि धेरै नै उपयक्त मानिन्छ । हाम्रा वन जंगलमा फल्ने फलका प्रजाति, भौगोलिक र वातावरणीय विविधताले पृष्प व्यवसायको उज्जवल भविष्यलाई उजागर गरेको छ । प्रकृतिबाट उपहारस्वरुप प्राप्त यस्ता सम्पदाको उपयोग गरी प्रतिस्पर्धि र दिगो पुष्प व्यवसायको विकास गर्न सरकारी, गैरसरकारी र निजि क्षेत्रको ठुलो भूमिका हुन्छ । नेपालमा पुष्प व्यवसाय प्रबर्द्धन गर्नका लागि फलोरिकल्चर एशोसियसन नेपालले खेल्दै आएको भिमका धेरै नै प्रशंसनिय छ।

पुष्प व्यवसायमा हालसम्म भएका उपलब्धिहरु सर्वसाधारण समक्ष प्रदर्शन गरी कृषक, उद्यमी र व्यवसायीहरुलाई हौसला प्रदान गर्न एशोसियसनले विगतमा कै यस बर्ष पनि "पष्प व्यापार मेला" आयोजना गर्न लागेकोमा अत्यन्त खशी लांगैको छ । यस व्यवसायवाट देशमा आय तथा रोजगार प्रवर्द्धनका अतिरिक्त नेपाललाई उत्कुष्ट मनोरम पर्यटिकय थलोकोरुपमा बिकसित गर्न र पुष्प आयात प्रतिस्थापन एवं निर्यात प्रवर्द्धन गर्न ठुलो टेवा मिल्ने बिश्वास मैले लिएकोछ ।

मेला आयोजना संगै एशोसिएसनले पुष्प व्यवसाय सम्वन्धि उपयोगि सामग्रीहरु समेटेर प्रकाशन गर्न लागेको "पुष्प विशेषाङ्क" (Floriculture Souvenir) पष्प व्यवसाय र यस क्षेत्रमा रुचि राख्नेहरुका लागि अत्यन्त उपयोगी हने बिश्वास गर्दै प्रकाशन र पृष्प व्यापार मेलाको पूर्ण सफलताको लागि हार्दिक शभ-कामना व्यक्त गर्दछ ।

मितिः २०६३/११/२५

नेपाल सरकार



उद्योग, वाणिन्य तथा आपूर्ति मन्त्रालय

सिंहदर**बार,** काठमाडौँ, नेपास ।

मिति: २०६३।१९।२९

प.सं.: ।०६३।६४

चनं

शुभ-कामना

फ्लोरिकल्चर एशोसियसन नेपालले विगत वर्षमा जस्तै यस वर्ष पनि पुष्ट्रप प्रदर्शनी व्यापार मेलाको आयोजना तथा सो को अवसरमा पुष्प विशेषांक (Floriculture Souvenir) प्रकाशन गर्न लागेकोमा मलाई खुशी लागेको छ ।

यस प्रकारको आयोजनाबाट मेला पुष्प उत्पादनमा संलग्न उद्यमीहरुमा हौसला बढ्ने र यस व्यवसायको आधुनिकिकरण द्वारा नेपालको प्राकृतिक सौन्दर्यतालाई राष्ट्रिय एवम् अन्तर्राष्ट्रिय बजारमा परिचित गराउन समेत योगदान पुग्न जाने कुरामा म विश्वस्त छ ।

साथै मेला आयोजनाकै क्रममा वार्षिकरुपमा प्रकाशन हुँदै आएको यस पुष्प विशेषांकले नेपालका पुष्प व्यावसायीहरु र पुष्प बजारमा जिज्ञासा राख्ने सर्वसाधारणका लागि समेत आवश्यक सूचना प्रवाह गरी नेपाली पुष्प व्यावसाय र पुष्प बजारको प्रवर्द्धनमा योगदान दिनेछ, भन्ने मैले आशा लिएको छु । यस पुष्प व्यापार मेला प्रदर्शनीको आयोजक तथा यस विशेषांकको प्रकाशक फ्लोरिकल्चर एशोसियसन नेपाललाई धन्यवाद दिदै यस मेलाको पूर्ण सफलताको कामना गर्दछु ।

(भरतबहादुर थापा)

सचिव



Agro Enterprise Centre

Federation of Nepalese Chambers of Commerce and Industry

कृषि उद्यम केन्द्र

नेपाल उद्योग वाणिज्य महासंघ

शुभकामना



नेपाल उद्योग वाणिज्य महासंघको सकृय सदस्य फ्लोरीकल्चर एशोसिएसन नेपालले यसको स्थापना कालदेखि नै पुष्प व्यवसायको संस्थागत विकास एवं प्रवर्द्धन लागि निरन्तर कार्य गर्दै आइरहेको छ । नेपालको पुष्प व्यवसाय र यस संग सम्बन्धीत अन्य उद्योगको विकासका लागि सदा भौ यस वर्ष पनि पुष्प व्यवसायीहरुको सकृय सहभागीतामा "पुष्प व्यापार मेला (Floriculture Trade Fair)" आयोजना गर्न लागेको पावन अवसरमा महासंघ तथा म व्यक्तीगत रुपमा अन्यन्तै गैरान्वीत भएको छु । "पुष्प व्यापार मेला" मा पुष्पजन्य वस्तुहरुको विकास, विस्तार तथा यस व्यवसायमा उत्सुक नयाँ आउने व्यक्तिहरुलाई प्रेरणा एवं सूचनाको श्रोत बन्न सक्ने मैले विश्वास लिएको छ ।

कृषिमा आधारीत अर्थतन्त्र मूल्य रुपमा रहेको हाम्रो देशमा प्रशस्त मात्रामा रहेको भौगोलीक विविधता एवं छोटा-छोटो दुरीमा पाउन सिकने जलवायुको फरकंपन पुष्प व्यवसायका लागि दिगो श्रोत बन्न सक्छन् । उद्योगको रुपमा अगाडी बहुने संस्थागत विकास संगै आन्तरीक बजारको आपूर्तीमा सुनीस्चता दिंदै बाहय बजारमा प्रवेश्नको लागि मूल्य र गुणस्तरमा प्रतिस्पर्धी बन्नु पर्ने आजको आवश्यकता रहेको छ । फ्लोरिकल्चर एशोसिएसन नेपालले पुष्प खेतीको व्यावसायीक उत्पादन तथा सोको बजार प्रबर्द्धन लागि खेल्दै आएको भुमीका सहानीय छ । र आउँदा दिनमा यसको व्यापकता र सुदृढिकरणको महत्व अभ बहुने आशा लिएको छ ।

अन्तमा यस मेलाको अवसरमा फ्लोरिकल्चर एशोसिएसन नेपालले पुष्प व्यवसाय संग सम्बन्धीत जानकारी मूलक लेख, रचना सहित प्रकासन गर्ने पुष्प विशेषांक (Floriculture Souvenir) पुष्प व्यवसायी, नीतिनिर्माण, अनुसन्धान कर्ता एंव यस क्षेत्रमा रुचि राख्नेहरुका लागि उपयोगी सिद्ध हुने विश्वास लिएको छु। यस विशेषांक प्रकाशनका साथै पुष्प व्यापार मेलाको पूर्ण सफलता एवं पुष्प व्यवसायको भविष्यको उत्तरोत्तर प्रगतिको कामना गर्दै हार्दिक शुभ-कामना व्यक्त गर्दछु।

कृष्ण प्रसाद ताम्राकार सभापति

कृषि उद्यम केन्द्र/नेउवामहासंघ



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Ref.

सन्देश



कृषि व्यवसायकै एक महत्वपूर्ण नगदे बालीको रूपमा स्थापित भईसकेको पुष्प व्यवसायले बढी रोजगारी र प्रतिफल दिन सकेकोले दिनानुदिन यस व्यवसाय आर्कषक केन्द्र बन्दै गइरहेको छ । व्यापार मेला एवं प्रर्दशनीको माध्यमबाट उत्पादकले आफ्ना गुणस्तर विकास, नयाँ प्रविधिको उपयोग तथा उपभोक्ताका रुचीलाई प्रत्यक्ष अँगाल्न संभव भएको छ भने फूलका पारखीह्ररुलाई प्रतिस्पर्धात्मक र गुणस्तरयुक्त पुष्प उत्पादनहरु एकै स्थानमा सहजै प्राप्त गर्नुका साथै महत्वपूर्ण उत्पादन सुचनाहरु प्राप्त गर्न संभव भएको छ । यस्ता जमघटबाट पुष्प व्यवसायको क्षेत्र निकै फरािकलो बन्दै गएको भन्ने एशोसिएसनको अवधारणा छ ।

नेपाल बहुजातिय बहुभाषिक रुपमा निकै अगाडि छ भन्ने वाक्यका साथ साथै बोट बिरुवा तथा वनस्पतिमा पिन निकै सम्पन्न छ । यस भित्रका कुनै पिन बोट तथा बिरुवाको मात्र सर्वर्द्धन गर्न सकेमा हामी आन्तरिक एवं अन्तराष्ट्रिय रुपमा ठूलो अवसर हाम्रो अगाडि छ भन्ने अवधारणालाई चिरतार्थ पार्न लागि परेका छौ । FAN को एक्लो अग्रसरताबाट बृहत रुपमा उपलब्धि गर्न गाह्रो पर्ने हुनाले संबद्ध सबैको ध्यान आकृष्ट गर्न हामी खोजीरहेको छौ ।

पुष्प व्यापार मेलाको अवसरमा अरु वर्षहरु भौं यस वर्षमा प्रकाशित हुन लागेको पुष्प विशेषाङ्कले पुष्प व्यवसायको प्रवृद्धन तथा विकासको लागि केहि हदसम्म महत्वपूर्ण भुमिका खेलेको छ । पुष्प खेतीसम्बन्धि प्राविधिक ज्ञान, नेपालमा पुष्प व्यवसायको अवस्था आदि बारे सम्बन्धित विज्ञहरुबाट लेखिएका लेखबाट समस्त पुष्प व्यवसायी, अनुसन्धानकर्ता, सम्बन्धित संघ संस्था एवं पुष्प पारखीलाई महत्वपूर्ण जानकारी तथा सूचना उपलब्ध हुनेछ र आउँदा दिनहरुमा अभ्र नयाँ विषयहरु समावेश गरी पुष्प विकासमा अभ्र बढी टेवा पुग्नेछ भन्ने आशा राख्दछु ।

श्रीधर कार्की

अध्यक्ष

फ्लोरिकल्चर रुशोसिएसन नेपाल

Editorial

FAN has been publishing floriculture souvenir on the auspicious occasion of Floriculture Trade Fair since a decade and we feel deep sense of pleasure to continue the task this year too.

Traditional floriculture in Nepal is gradually turning to a modern lucrative business since early nineties. Entrepreneurs' enthusiasm and investment in this sector has been growing spontaneously with the encouragement received from the domestic as well as foreign markets. However, challenges and obstacles are still standing as a big wall in front of us. Hence it's our small effort to publish souvenir every year to bridge up the growers, entrepreneurs with the information, knowledge and ideas that are relevant to tackle the problems and constraints and make success to run together in the line of global development path.

This issue has tried to cover the information regarding technical aspects, marketing situation of floriculture, burning issues of nepalese floriculture and also quality requirements for global market competitiveness etc. In fact, the articles are not only concentrated to the entrepreneurs but also to the related institutions, researchers, government and non governmental organizations and policy makers. This would help to tie up the floriculture with these sectors and ultimately flourish floriculture business throughout the country through combined and organized efforts.

We would like to thank all the contributors of the articles, advertisers and the organizations who gave us support to achieve this success. We hope to have same supports and can present more informative and helpful magazines in the days to come. At last, any constructive suggestions concerning the improvement of this magazine will be gratefully acknowledged.

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फ्लोरिकल्चर एशोसिएसन नेपाल : एक परिचय

अरुण क्षेत्री महासचिव, FAN

फलोरिकल्चर एसोसिएसन नेपालको स्थापना वि सं २०४९ साल कार्तिक ३० गते भएको हो । यसको स्थापना हाम्रे अग्रज व्यवसायीहरुमध्ये १० जना व्यवसायीहरुबाट स्थापना भएको हो । यो संस्था पुष्प व्यवसायको विकास, विस्तार, प्रवंद्धनको साथै व्यवसायिक हक, हित र अधिकारको संर क्षणको निम्ति स्थापना भएको मुनाफा रहित सामाजिक संस्था हो । यसले नेपाल सरकार लगायत विभिन्न स्थानिय, राष्ट्रिय र अन्तराष्ट्रिय सामाजिक संस्थाहरुसंग समन्वय गरी विगतका अनुभव, वर्तमान परिस्थिति, भविष्यको सम्भावनालाई अध्ययन गरी, वर्तमान र भविष्यलाई लक्षित गरी निति, नियमको तर्जुमा गरी कार्यन्वयन गर्ने गरेको छ । १० जना सदस्यबाट स्थापना भएको यो संस्था हाल आएर १४ औ वसन्तमा प्रवेश गरेको छ ।

यस संस्थाको १४ वर्षको लामो यात्रामा आज २४० सदस्यहरु रहेका छन् भने केहि जिल्लाहरुमा जिल्ला कमिटिको स्थापना गरेर जिल्लाहरुलाई पनि संगठित गरी जिल्लाको समस्यालाई जिल्ला स्तरमा नै समाधान गर्ने गरेका छौं । तर समस्त जिल्लाहरुलाई पूर्व रुपमा समेट्न भने अभ पनि असफल छौं। यसको मख्य कारण भनेको नै अर्थको अभाव हो भने अन्य सहायक कारणमा हामी कार्य समितिमा बस्ने व्यवसायीले पर्याप्त समय संस्थालाई दिन नसक्न् रहेको छ । त्यस्तै हामीले सिमित साधन र स्रोतमा सिमित रहेर काम गर्न परेकोले धेरै काम गर्न नसकेकाले हाम्रा जिल्लावासी व्यवसायी साथीहरुले FAN ले हामीलाई हेरेन, FAN भनेको उपत्यकामखी छ भन्ने जस्ता गुनासो बेला बेलामा नआउने गरेको भने होइन । त्यही ग्नासोलाई मनन गरेर यसपालि हामीले केहि जिल्लाहरुमा जिल्ला समितिको स्थापना गरी व्यवसायलाई सगंठित गऱ्यौं। तर जिल्लावासी व्यवसायलाई संगठित गर्नका लागि केन्द्रबाट एक या दुई जना कार्यसमितिका साथीहरु गई जिल्लामा केहि दिन नबसि जिल्लाका व्यवसायी साथीहरुलाई संगठित गर्न नसिकने

स्थिति छ। केन्द्रका कार्य समितिका साथीहरु पिन व्यवसाय छाडेर धेरै दिनसम्म साथै धेरै जिल्लामा गएर बस्न नसक्ने र यसरी धेरै दिनसम्म जिल्लामा एकै चोटी केन्द्रबाट साथीहरुलाई पठाउन सक्ने आर्थिक अवस्था पिन नर हेकोले सबै जिल्लालाई समेट्न सकेका छैनौ । कारण FAN को ढुकुटी भनेको तपाई हामी व्यवसायी साथीहरुले बार्षिक सदस्यताबाट प्राप्त रु. १००० बाट जम्मा भएको रकम मात्र हो । जसबाट केन्द्रिय सिच्वालय सचालन र वर्षभरीका कार्यक्रमहरु संचालन हुने गर्दछ । त्यस बाहेक सिच्वालयको लागि एउटा कोठा उपलब्ध गराउनका साथै बर्षमा एक, दुई वटा कार्यक्रमको लागि कृषि उद्यम केन्द्र र FNCCI बाट सहयोग पाउने गरेका छौं ।

जितस्कै जिटल परिस्थिति रहेतापनि यो संस्था अधिराज्यभरिको पृष्प व्यवसायीहरुको छाता संगठन भएकोले समस्त पष्प व्यवसायी साथीहरुलाई संगठित गरी सबैको व्यवसायिक हक हित र अधिकारको संरक्षण गर्न यस संस्थाको कर्तव्य हो भने अधिकारबाट बञ्चित व्यवसायीले केन्द्रलाई खबरदारी गर्न व्यवसायीहरुको अधिकार हो । भनिन्छ, अधिकार र कर्तव्य एउटै सिक्काको दुई पाटो हो । जहाँ अधिकार हन्छ, त्यहां कर्तव्य हन्छ, जहाँ कर्तव्य निभाइन्छ त्यहाँ अधिकारको उपभोग गर्न सिकन्छ । तसर्थ प्रत्येक व्यवसायी साथीहरुले आफनो संस्थामा कहाँ के भइरहेको छ, भावि कार्यक्रम के छ भनी साध्ने अधिकार छ भने कार्यसमितिमा बस्ने पदाधिकारीले व्यवसायीको हरेक प्रश्नको जवाफ दिने कर्तव्य हो । त्यस्तै आगामी कार्यक्रमहरुबारे हरेक व्यवसायीले सल्लाह र सुभाव दिन कर्तव्य हन आउँछ। कतै तपाँईको सुजनशील सभावले एतिहासिक परिवर्तन पो ल्याउछ कि ? इतिहासको अन्भवलाई हेरेर वर्तमानमा चल्न् पर्ने हुन्छ । तर हामीकहाँ लामो समयसम्म कार्यसमितिमा रहेर निकै महत्वपूर्ण अनुभव सम्हालेका अग्रजहरुबाट नयाँ पदाधिकारीहरुले सहयोग नपाउने परिपाटी विगतका दिनहरुमा अनभव

गरिएको छ जुन सुधार हुन अति आवश्यक छ। परिवर्तन प्राकृतिक नियम हो। आफनो व्यवसायको कारणले सधैं मानिस पदमा बसेर काम गरिरहन सम्भावना हुदैन। त्यसको साथै नया साथीहरु नया जोश, जागर, योजना लिएर आउछन भने उनीहरुलाई काम गर्ने अवसर दिनुपर्दछ। तर नयाँ आउने साथीहरुमध्ये कोही साथी अयोग्य छ भनेर व्यवसायी साथीहरुलाई लाग्छ भने निर्वाचन प्रकृयामा जान सिकन्छ। जसको स्पष्ट प्रावधान संस्थाको विधानले गरेको छ। तर एकपल्ट निर्वाचन गरेर पठाइसकेपछि ती प्रतिनिधिहरुलाई प्रत्येक व्यवसायीले हृदयबाटै आफूले सक्ने र भ्याउने जित सहयोग गर्नु व्यवसायहरुको कर्तव्य हो। हुनसक्छ कुनै बेला निर्वाचित भएर जाने व्यक्तिलाई आफुलाई व्यक्तिगत रुपमा मन नपरेको हुन सक्छ तर एउटा व्यक्ति मन नपर्देमा सस्था नराम्रो भन्नु चाहि औचित्यहिन कुरा हुन जान्छ।

निर्वाचित भएर जाने कार्यसमितिका पदाधिकारीहरुले जान्न र गर्न पर्ने कुरा राख्दा सार्न्दभिक हुन्छ जस्तो लाग्छ । सर्वप्रथम संस्थाको पदाधिकारी भइसकेपछि संस्थालाई पर्याप्त समय दिन सक्नुपर्छ । तर समय दिए वापत संस्थाले आर्थिक रुपमा केहि दिन सक्तैन । वास्तवमा संस्थालाई योगदान गरे बापत हामी समस्त व्यवसायीहरुले योगदानको मुल्यांकन भने गरिदिनु पर्ने हुन्छ । समय यस अर्थमा दिनु पर्ने हुन्छ कि कुनै पनि समय कुनै पनि महत्वपूर्ण निर्णय लिनु पर्ने हुन्छ जुन कर्मचारी साथीहरुको अधिकारक्षेत्रभन्दा बाहिरको हन्छ । समयपछि काम, कर्तव्य र अधिकारका पालो आउँछ । यस संस्थाको विधानले निर्वाचित पदाधिकारीहरुको काम, कर्तव्य र अधिकारको स्पष्ट व्यवस्था गरेको छ। निर्वाचित प्रतिनिधिहरुले पहिलो बैठकमा नै कसको के कित काम कर्तव्य र अधिकार छ सोबारे जानकारी लिने र कामको बाँड फाँड गरी अघि बढेमा संस्थाको कार्य छिटो छरितो हुनेछ । विधानको अधिनमा रहि संस्थाको लक्ष प्राप्तिको लागि जुन समुह पदमा पुगेको हुन्छ उनीहरुले विगतमा भएको उपलब्धि र कार्यको मुल्यांकन गरी भावी योजना तर्जुमा गरी एक वर्षमा कति कार्य गर्ने भन्ने विषयमा स्पष्ट योजना बनाई सामुहिक कार्य गर्नं पर्ने हुन्छ । सामुहिक कार्य भन्नाले जो पदाधिकारी जुन विषयमा दक्ष छ उसले त्यस विषयमा आउने समस्याहरुको समाधान साथै जानेको विषयमा आएका कार्यहरु आफैले जिम्मेवारी लिएर गरिदिएमा समुहलाई नै काम गर्दा सजिलो हुन्छ ।

पुष्पजन्य व्यवसायमा धेरै समस्या र चुनौतिहरु छन्। जसको निवारणको लागि पदमा बस्ने पदाधिकारीहरुले धेरै मेहनत गर्नु पर्ने छ भने सम्पूर्ण व्यवसायी साथीहरुले पदाधिकारीहरुलाई सहयोग गर्नु पर्ने हुन्छ । आज नेपालमा ५० करोड भन्दा बढी रुपियाँको पुष्प व्यवसायमा लगानी भइसकेको छ । ५५० व्यवसाय र २५०० घर परिवार यस व्यवसायमा आश्रित छन्। तर यस व्यवसायको भविष्य के हो र व्यवसाय कता गइरहेको छ कसैलाई थाहा छैन । आज पनि हाइब्रिड सिडको लागि हामी १०० प्रतिशत तेस्रो मुलुकमाथि निर्भर छौं। वर्षमा १० लाख भन्दा बढि आलंकारीक विरुवा माटोसंगै नेपाल भित्रिने गरेको छ भने कट फ्लावर आयातलाई १०० प्रतिशत विस्तापित गर्न सकेका छैनौ । पुष्प जन्य उत्पादन केही निर्यात भइरहेको छ भने केही उत्पादनको माग विश्व बजारमा बढदो छ। आजसम्म ९० प्रतिशत भाडाको जिमनमा हामीले उत्पादन गरिरहेका छौं । त्यस्तै कुनै बेला रोगको कारणले सम्पूर्ण उत्पादन नष्ट भइरहेको तर त्यो रोगको बारेमा जानकार व्यक्ति र त्यस रोगको निराकरणको लागी विषादीको बारेमा जानकारी दिने व्यक्तिसम्म हामी कहाँ छैन । यी सम्पूर्ण समस्याहरुका बावजुत पनि हामीले व्यवसाय गरि रहेका छौं । निश्चय नै माथिका सम्पूर्ण समस्या हामी आफै निवारण गर्न सक्तैनौ । त्यसमा सम्बन्धित निकाय अग्रसर हुन आवश्यक छ । जस्तो हाइब्रिड बिउ नेपालमै उत्पादन गर्नलाई कृषि मन्त्रालयले पहल गर्नु पर्छ। माटोसंगै विरुवा भित्रिने गरेकोले विभिन्न नयाँ रोगहरु भित्रिरहेका छून । त्यसलाई नियन्त्रण गर्नं क्वारेन्टाइन सम्बन्धि निकायको जिम्मेवारी हो । त्यसपछि निर्यात भइरहेको पुष्पजन्य उत्पादनको लागि एउटा छुट्टै निति आउन् आवश्यक छ भने वित्तिय संस्थाहरुले यस व्यवसायमा लगानी गर्नं पनि आवश्यक छ । कृषि नितिले धेरैजसो पुष्प जन्य उत्पादनलाई समेट्न सकेको छैन । कट फ्लावर , माटो विनाको विरुवा आदि तर्फ विचार गर्ने हो भने समयभन्दा १२ घण्टा ढिलो पुग्नु पर्ने ठाँउमा पुग्यो भने पिन सबै बिग्रेर जान्छ । त्यस्तै हामी कहाँ जित बेला तेस्रो

Souvenir

मुलुकबाट हाम्रो उत्पादनको माग आउने गरेको छ उहाँहरुको मागको मात्रा अत्याधिक हुने गरेकोले लगानी गर्न सिकराखेका छैनौ साथै व्यवसायीहरुसंग पर्याप्त भुमि पनि छैन। त्यस्तो स्थितिमा बित्तिय क्षेत्रबाट पुष्प व्यवसायमा लगानी हुन अपरिहार्य छ भने बिभिन्न सरकारी तथा गैर सरकारी संघ संस्थामा रहेका भुमि करारमा खेतिको लागी उपलब्ध गराइदिनु पनि सम्बन्धित निकायको जिम्मेवारी हो।

यसरी धेरैजसो जिम्मेवारी सम्बन्धित विभिन्न निकायको भएतापिन व्यवसाय भने नितान्त हाम्रो हो, लगानी हाम्रो परेको छ , डुव्यौं भने हामी डुब्ने छौं। तसर्थ हामी सबै एक जुट भएर सम्बन्धित निकायसंग पहल गर्यौं भने मात्र हाम्रो समस्याको समाधान हुन्छ र पुष्प व्यवसायीको भविष्य सुनिश्चित हुनको साथै राष्ट्रकै अर्थतन्त्रमा समेत टेवा पुरयाउन सिकन्छ। तसर्थ फुटेर होइन जुटेर सहकार्य गर्नु आजको आवश्यकता हो। त्यसैले समस्त पुष्प व्यवसाय एक हौ हाम्रो एकता नै हाम्रो भविष्य हो। ■



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कृष्णदत्त पुरी कृषि स्नातकोत्तर (वाली रोग विज्ञान)

संसारका अन्य विकशील देशहरुमा जस्तै नेपालमा पिन फूलको व्यवसायिक खेति शुरु भइसकेको छ । मुख्य रुपले मन्दिरमा मात्र सिमित फूलको प्रयोग, अहिले आएर विवाह, भोज, ब्रतबन्ध तथा अन्य औपचारिक र अनौपचारिक कार्यक्रममा प्रयोग गर्न थालिएपछि यस खेतिको महत्व र क्षेत्र तिब्ररुपमा विकास भईरहेको छ । हाल आएर यसको प्रयोग अन्तरीक तथा वाह्य बजारमा समेत हुने थालिसकेको छ । तर किसानहरुमा प्राविधिक ज्ञानको कमी र फूल खेतिमा मौसम अनुसार देखा पर्ने रोग तथा किराहरुको समस्याले गर्दा, यसको उत्पादन र बजार मूल्यमा ठुलो नोक्सान हुदै आइरहेको छ । नेपालमा मौसम अनुसार सयपत्री, सुनगाभा, ग्लाडियोलस, गुलाफ, ट्युवेरोज, वगनभेलीया, कार्नेसन, गोदावरी, आदी मुख्य फूलखेतिका रुपमा उत्पादन गर्ने गरिन्छ ।

छोटो जीवन चक्र र कलिलोपना हुने कारणले गर्दा पुष्प खेतीमा रोगन्तथा किराहरुको प्रकोप छिटो र तिव्र गतिमा हुने गर्दछ । मुख्य रुपमा ढुसी, जिवाणु, किटाणु, जुका र अन्य माइकोप्लाजमाहरु रोगका प्रमुख कारणहरु हुन् । तसर्थ यस लेखमा पुष्प खेतिका प्रमुख समस्याहरु, तिनिहरुको पहिचान तथा रोगथामका उपायहरुको छोटो चर्चा गरिएको छ ।

9. दुसीबाट लाग्ने रोगहरु (Fungal Diseases):-दुसी एक प्रकारको सुक्ष्म जीव हो । फूल खेतिमा सबैभन्दा बढी रोगहरु दुसीले गर्दा हुने गर्दछ । मुख्य रुपमा हावा, पानी, रोगी माटोको ओसार प्रसार, किराहरु तथा औजार को माध्यमवाट रोगको प्रसार हुने गर्दछ । साथै सन्तुलित बातावरण, तापक्रम, चिस्यान, आद्रता आदिले गर्दा रोग तिव्र रुपमा फैलने तथा व्यवस्थित हुने गर्दछ । फूल खेतिमा देखा पर्ने प्रमुख दुसीजन्य रोगहरु निम्न छन् ।

क) पातको धव्बा (Leaf Spot):-

दुसीबाट पातमा हुने धब्बाहरु विभिन्न आकार, प्रकार र रङ्गका हुने गर्दछन् । धब्बाको वरीपिर स्पष्ट पंहेलो किनारा हुने गर्दछ । कमश पंहेलो भएको भाग बढ्दै गएर सम्पुर्ण पात नै कालो र मर्ने गर्दछ । अन्तमा पात कृहिने, फर्ने वा मर्ने हुन्छ र सोहि फरेको पातमा दुसी बाँच्ने गर्दछ र उपयुक्त वातावरण पाएमा दुसी पुन देखापर्दछ । गुलाफको कालो थोप्लो (चित्र १ क.) हानिकारक र महत्वपुर्ण धब्बा थोप्लो रोग हो । यो Diplocarpon Rose भन्ने दुसीबाट हुँदा यसको प्रकोप मुख्य रुपले हिउँदमा (Spring) बढी देखिन्छ । थोप्लो चित्रमा देखिएअनुसारको गोलो, कालो रङ्गको र पहेलो किनाराले घेरीएको हुन्छ । यो रोगले गर्दा विरुवा नवढ्ने, पात फर्ने, कोपिला नलाग्ने वा कम लाग्ने र पहेलो फूल फूल्ने हुन्छ ।



चित्र १ क. गुलाफको कालो थोप्ले रोग

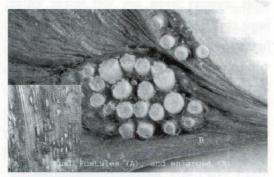
रोकथाम

विरुवालाई रोगलाग्नबाट वचाउने प्रमुख उपाय भनेको रोग निरोधक जातहरु जस्तै गुलाफहरुमा Pride & Joy, Prime Donna, Sexy Rexy को खेति गर्नु हो । साथै बगानको राम्रो सरसफाई गर्ने, खसेका सम्पुर्ण रोगी पातहरु जम्मा गरी जलाउने वा गिहरो गरी खाडलमा गाड्ने गर्नु पर्दछ । साथै रोगी हाँगाहरु काट्छाँट् गरि हटाउने या जलाउने गर्नु पर्दछ ।

सकभर फोहरा सिंचाई (Sprinkle Irrigation) गर्नु हुदैन । पातलाई ढुसीनासक विषाधि जस्तै क्याप्टन, क्लोरानिल, Copper hydroxide, mancozeb @ I-I.5 g/lit (१-१.४ ग्रा. प्रति लिटर) पानीमा मिलाइ छर्कनु पर्दछ । यदि रोग नियन्त्रण नभएमा २-३ पटकसम्म दोहोऱ्याएर प्रयोग गर्नु पर्दछ ।

ख. पातको खिया (Leaf Rust) :-

यो रोग पनि एक प्रकारको पातको धव्बानै हों तर यसमा पातको माथि तल वा दुवैतिर खैरो, सुन्तलाको रंग वा पहेंलो रङ्गका दुसीको विज (Spores) को समुह (Postules) देखा पर्दछ। यस्तो समुहलाई पातमा प्रष्टसँग देख्न र हातको औलाले छाम्दा केहि डढेको महसुस गर्न सिकिन्छ (चित्र १ ख)। यसको प्रकोप पातमा मात्र सिमित नभएर किलला मुना, हाँगा वा फूलमा समेत देखन



चित्र १.ख. पातमा ढुसीको समुह

सिकन्छ । यसका विजहरु हावाले सिजलै उडाएर जाने हुनाले रोगको प्रकोप छिटो र तिब्र गतिमा हुने गर्दछ । रोगको जिवनचक पुरा हुन दुई भिन्ना भिन्नै विरुवाको प्रजातिहरु आवश्यक पर्दछ। गुलाफमा यो रोग फ्रागेमिडियन (Phragmidion) नामक ढुसीवाट हुन्छ भने अन्यजस्तै गोदावरी *Puccinia chrysanthemi* भन्ने ढुसीबाट हुन्छ।

रोकथाम :-

- रोगको जीवन चक्र पुरा हुन दुई भिन्ना भिन्नै प्रजाति -Alternate host) को आवश्यक पर्ने हुनाले उक्त प्रजातिहरुको पहिचान गरि नष्ट गर्नु पर्दछ ।
- सम्पुर्ण रोगी पातहरुलाई जित सक्दो छिटो हटाउनु पर्दछ ।
- बगानमा हावाको परिवहनलाई नियमित बनाउनु पर्दछ जसले गर्दा सुख्खाहुने र रोगको प्रकोप कम हुने गर्दछ ।
- सिँचाई गर्दा पातहरु वा विरुवा चिसो नहुने गरी गर्नु पर्दछ ।
- रोग अवरोधक जातहरु जस्तै Achicrement, Copper Bowl, Escapade, Miss Atlanta, Orange bowl, Mandalary, Matade, आदि गोदावरी का रोग निरोधक जातहरु हुन्।
- रोगको प्रकोप बढी भएमा रसायनिक विषादी जस्तै Ferbam, डाइथेन एम-४५, Triadimefon, Mancozeb , Propiconazol, Lime sulphur, आदिको प्रयोग गर्नु पर्दछ ।

ग. सेतो धुले रोग (Powdery mildew)

यो दुसी पातको दुबैतिर वा एकातिर मात्र वा डाँठ, कोपिला वा फूलमा देखा पर्दछ । भन्न हेर्दा खरानी रंगको वा खैरो खालको धुलो पातमा प्रसस्त मात्रामा देखा पर्दछ (चित्र १ ग.) । नयाँ पात, मुना, वा कोपिला यस रोगले गर्दा बाङ्गिने वा च्यातिने पिन हुन्छ र अन्त्यमा पातहरु भन्छन् । रोगको प्रकोप ७०-९० डिग्री फरेनहाइट तापकम, रातमा उच्च सापेक्षिक आद्रता (RH) र दिनमा कम वा छायाँ पर्ने क्षेत्रमा तथा नाइट्रोजन मलको बढी प्रयोगले गर्दा रोगको प्रकोप बढी देखिन्छ । यो रोगको प्रकोप मुख्य रुपले गुलाफ, वेगोनिया, लिएक, केपमार्टल, र गेनियासमा देखिन्छ । गुलाफमा यो रोग Sphaerotheca pannosa var rosae नामक दसीबाट हन्छ ।



चित्र १. ग. गुलाफमा सेतो धुले रोग

रोकथाम

- रोग निरोधक जातहरुको खेति गर्नु नियन्त्रणको प्रमुख उपाय हो ।
- पानीको सानो भिल्लीले ढुसीको बृद्धि र विकासमा रुकावट गर्ने हुनाले फोहरा सिँचाई (Sprinkle Irrigation) गर्नु पर्दछ ।
- रोग लागेका पात र हाँगाहरु संकलन गरी जलाई
 दिन् पर्दछ ।
- नाइट्रोजन मलको उचित प्रयोग र विरुवा बीचको दुरी बढाउनु पर्दछ ।
- पातका धब्बा (Leaf spot) का निम्ति सिफरिस गरिएका विषदि जस्तै Copper hydroxide, Propicanazole, Triadimeton, Sulphor, Karathane, Lime Sulphur वा neem oil को प्रयोग गर्नु अर्दछ ।

घ. डाँठको छिद्रा र दुप्पो मर्ने रोग (Stem Canker and Die Back)

यो रोग मुख्य रुपले गुलाफमा बढी देखिन्छ। Botryosphaeria, Leptosphaeria, Oniothyrium आदि

दुसीले गर्दा हुन्छ (चित्र १ घ.)
। यो रोगले गर्दा डाँठमा मर
को या खैरो वा पहेलो खालका
धब्बाहरु देखा
पर्दछन्। यस्ता छिद्राहरु बढ्दै
गएर सम्पूर्ण बो कालाई
आक्रमण गर्दछ जसले गर्दा
सम्पूर्ण रोगी हाँगा नै मर्दछ।
यो रोगको प्रकोप घाउ लागेका
विरुवा, कम मलखाद र



चित्र १. घ. डाँठको छिद्रा रोग

चिसोको प्रकोप र कालो थोप्लो रोगको आक्रमण भएको बेलामा बढी हुने गर्दछ ।

रोक्तशाम :-

- विरुवा रोप्दा, गोडमेल गर्दा, काँटछाट गर्दा वा फूल काट्दा विरुवालाई घाउ लाग्नवाट बचाउनु पर्दछ, किनकी घाउबाट नै ढ्सीको प्रवेश हुने गर्दछ।
- विरुवामा कालो थोप्ले, सेतो ढुसी र किराहरुको प्रकोपलाई न्यून गर्नु पर्दछ ।
- फूल काट्दा बाहिरितरका कोपिलाहरुलाई पहिले काँटछाट गर्नु पर्दछ। जसले गर्दा हाँगा बढेर घस्रणवाट हने घाउलाई कम गर्दछ।
- सम्पूर्ण रोग लागेका हाँगाविगाहरुको काँटछाँट गर्ने र संकलन गरी जलाइदिने गर्नु पर्दछ । काँटछाँट पछि विरुवामा बोर्डेक्स पेस्ट (Bordeaux paste) लगाई दिन पर्छ ।

ङ पातको गिर्खा (Leaf Galls)

पुष्पखेतीमा पातको गिर्खा पनि एक मुख्य समस्या हो । यसको प्रकोप मुख्य रुपले गुलाफ, एजालिया, क्यामेलिया आदीमा देखा पर्दछ । रोगको प्रकोप मुख्य रुपमा साउन भदौ महिनामा बढी देखा पर्दछ जसमा पात पहेलिने र गुलाफी वा सेतो गिर्खा देखिने हुन्छ र पछि बढी आद्रता भएको अवस्थामा सम्पूर्ण भाग सेतो खालको दुसीका विजले छोपने गर्दछ र पातहरु भर्दछन् (चित्र १ ड.) । रोग

नियन्त्रणको निम्ति पातमा यस्ता गिर्खाहरु देखा पर्दा नियमित रुपमा त्यस्ता पातहरु हटाउनु पर्दछ । हावाको प्रवाहलाई नियन्त्रित गराउनु पर्दछ । कालो थोप्लोलाई सिफारिस गरिएका बिषादिको प्रयोगले यसको राम्रो नियन्त्रण गर्दछ ।



चित्र १ ड. पातको गिर्खाले गुलाफको पात भरेको अवस्था

च. गानो कुहिने रोग (Bulb and Basal Rot)

यो ग्लाडियोलसको प्रमुख समस्या हो । यो Fusarium Oxysporum sp. gladioli नामक द्सीले गर्दा लाग्दछ । यो रोगको आक्रमणले पुराना र विरुवाका बाहिर तिरका पातहरु क्रमश पहेंलो हुने र मर्ने गर्दछ । त्यस्तै विरुवाको बृद्धि र विकास रोकिने, फूलहरु रङ्गहिन हुदै जाने हुन्छ । पहिले बाहिरका पातहरु मर्ने भएतापनि पछि पातहरु पहें लो भएर मर्ने



गर्दछन् । पुरलको जिमनमा रहने गानोमा रोगको प्रकोप देखिन्छ । गानो कालो भई कहिन्छ साथै जराहरु पनि कृहिने र मर्ने गर्दछन् । गानो (Corms) हरुलाई काटेर

चित्र १ च. गानोमा दुसीले गर्दा देखिएको कालो घेरा

हेर्दा खैरो रङ्गको देखिन्छ ।

रोकथाम :-

रोगले आक्रमण नगरेको गानो लगाउन, माटोको पि.एच.मान ६.६-७.० कायम गर्नु र नाइट्रेट मललाई नाइट्रोजनको श्रोतको रुपमा प्रयोग गर्न् पर्दछ । वाली चक्र, खेतमा प्रशस्त मात्रामा पानी जम्मा गर्ने र निकाश व्यवस्था गर्ने गर्न पर्दछ र सकेसम्म रोग निरोधक जातहरु प्रयोग गर्न पर्दछ । गानो रोप्नभन्दा पहिला गानोको उपचार, माटोको ३ प्रतिशत फरमालिनले उपचार गर्नाले पनि रोगको प्रकोपलाई कम गर्न सिकन्छ । साथै क्ख्राको मल र च्याउको कम्पोष्ट मलको प्रयोगले पनि रोग नियन्त्रण भएको पाइन्छ । माटोको सौरीकरण र सिंचाईसँगै Benzimidazole, Prochioral-Mn जस्ता विषादि मिलाएर प्रयोग गर्नाले पनि रोगको नियन्त्रण हुन्छ ।

ख. वट्राइटीस डड्वा (Botrytis Blight)

ग्लाडियोलस, ग्लाफ र अन्य पृष्प खेतिमा यो एक प्रमुख समस्या को रूपमा रहेको पाइन्छ। यो Botrytis sp बाट हुने गर्दछ । रोगको लक्षण रातो किराना भएका थोप्लाहरुको रुपमा पात वा पुष्पदलमा देखापर्दछ । साथै रोगको लक्षण फूलको गर्दन (Neck) र जिमनसँग



चित्र १ छ. ग्लाडियोलसमा वटाइटीसको आक्रमण

जोडिएको भागमा देखा पर्दछ । साना मसीना गिर्खा (Scleoha) हरु पनि विकाश भएको पाइन्छ ।

रोगनियन्त्रणको निम्ति स्वस्थ गानोको प्रयोग गर्न् पर्दछ साथै गानो क्इने रोग नियन्त्रणमा गरिएका किया कलापले पनि रोगको नियन्त्रण हुन्छ । साथै Mancozeb, Chlorothalinol, Vinclozolin आदी विषादीको प्रयोगले पनि रोग नियन्त्रण भएको पाईन्छ ।

ज. जरा र काण्डको सडन (Rot and Stem Rot)

विभिन्न प्रकारका ढ्सीवाट हुने गर्दछ । मुख्य रुपमा माटोमा बस्ने ढ्सीहरु जस्तै Rhizotonia Sclerotonia, Fusarium आदिले



चित्र १ ज. ढुसीले जरा कुहिएको

गर्दा हुने गर्दछ । माटोमा वढि चिस्यान हुनाले रोगको प्रकोप वढि हुने गर्दछ । रोगको लक्षणमा विरुवाको वृद्धि विकास रोकिन्, विरुवा पहेलो हुदै ओइलाउन्, माटोसँग जोडिएको कान्डको भाग क्हिन् र अन्त्यमा विरुवा ओइलाएर मर्नु यसको प्रमुख लक्षणहरु हुन । रोग नियन्त्रणको निम्ति पानी निकासको राम्रो प्रवन्ध मिलाउन् पर्दछ । साथै वाली चक स्वस्थ्य विरुवाको छनोट माटोको सैरिकरण र संभव भएमा माटोमा कागज आदिको पराल आदिको टुकाहरु जम्मा गरी जलाउनाले रोगको नियन्त्रण भएको पाइन्छ ।

2. विषाणु (Bacteria) ले गर्दा हुने रोगहरू

व्याक्टेरीया एक कोषिय शुक्ष्म विषाण्हरु हुन्। यिनीहरु बिरुवाको कोषमा सोभ्फै नछिरी घाउ आदिबाट पस्ने गर्दछन । हावा, पानी, किरा र औजारहरु रोग सार्ने मुख्य तत्वहरु हुन् र पुरानो रोग लागेको भाग, विउ र माटो रोगलाई बचाउने आधारहरु हुन ढुसीभन्दा व्याक्टेरीयाद्वारा लाग्ने रोगहरु व्यवस्थापन गर्न गाह्रो हुन्छ । स्ट्रेपटोमाइसिन, ट्रेटासाइक्लिन, पेनिसिलीन जस्ता विषादिहरुले विजको जपचार, माटोको जपचार वा विरुवामा नै सोभौ छुर्नाले रोग नियन्त्रण गर्न सिकन्छ । स्वस्थ्य विउको प्रयोग गर्न् विउलाई मनतातो बानी (५० डिग्री सेन्टिग्रेडमा ३० मिनेट) जित ड्बाएर छर्नाले रोगको नियन्त्रण गर्न सिकन्छ । साथै कलमी वा वडिङ्ग गर्दा स्वस्थ्य र मूल जराको प्रयोग गर्नु पर्दछ । कलमी गर्दा निर्मलीकरण गरेर मात्र प्रयोग गर्नु पर्दछ । अब व्याक्ट्रेरियाद्वारा लाग्ने प्रमुख रोग र तिनका लक्षण बारे चर्चा गरौं।

ம. **தா3எ गल** (Crown Gall) :

बिरुवाको जरा र काण्ड सुरुमा अलि मोटो र सुन्निएको देखिन्छ र पछि उक्त भाग बहुदै र सुनिदै गएर बाहिर पृष्टि खस्रो र गाढा कालो हुदै जान्छ



चित्र २. क्राउन गल

(चित्र २.)। यसको बृद्धि र विकासले पानी र खाद्ययतत्वको संरचनामा असर गर्दछ ।

स्त. व्याक्टेरीयाबाट हुने पातको घब्बा (Bacterial Leaf Spot)

व्याक्टेरीयाबाट हुने धब्बाहरु चिन्ह सजिलो हुन्छ । यो दुसीको भन्दा भिन्न प्रकृतिको हुन्छ । शुरुमा सानो हल्का निलो पानीले भिजेको जस्तो धब्बा देखा पर्दछ र पछि खैरो अनि कालो हुँदै जान्छ । यी धब्बा अनिश्चित आकार का हुने गर्दछन् र धब्बा भएको तन्तु खसेर पछि प्वाल समेत पर्दछ । अन्त्यमा पात भर्ने, विरुवाको फूलका पुष्प दलहरु मनि भर्ने गर्दछन् ।

3. शाकाणु (Virus) बाट लाग्ने रोगहरू :

भाइरस अत्यन्त शुष्म जिवहरु हुन् र यो बिरुवाको जीवित कोषहरुमा पाइन्छ । भाइरसले मुख्य रुपमा पात पहेलो बाक्लो हुने, रङ्गी विरङ्गी हुने, अनियन्त्रित बृद्धि र विकास हुने आदि गर्दछ । यो रोग विशेषत किराहरुको माध्यम, घाउ, रोगी विरुवाको प्रसार आदिले गर्दा सर्ने गर्दछ । यी रोगहरु नियन्त्रण गर्ने कुनै विषादी पाइँदैन । तसर्थ रोग नियन्त्रणको लागि बगानको सरसफाई, स्वस्थ बिरुवाको प्रयोग, मनतातो पानीमा विउको उपचार उत्तम मानिन्छ ।

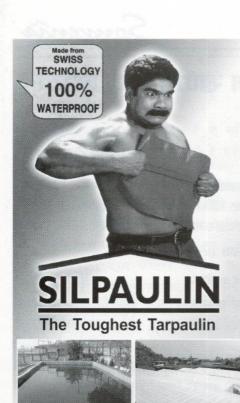


चित्र ३.गोदावरीको पातमा देखिएको भाइरस रोगको लक्षण

८ जुका (Nematodes) बाट लाग्ने रोगहरु :

जुकाहरु ठुला र आँखाले पनि देख्न नसिकने प्रकारका हुन्छन् । मुख्य रुपले माटोमां बस्ने र जराबाट रस चुस्ने गर्दछन् । रोगी बिरुवाको जरा उप्काएर हेरेमा गिर्खाहरु देखापर्दछन् । जरा सुन्निएको जस्तो देखिन्छ । बिरुवा बाट रस चुसेर नोक्सान पुऱ्याउँदछन् भने अर्कोतिर पानी र खाद्यतत्वको संचारमा प्रभाव पार्ने गर्दछन । साथै जराहरुको टुप्पा कृहिने, जिमनमाथिको भाग ओइलिने, पातहरु पहेलो हुने, बिरुवा नबढ्ने र क्रमश मर्ने पिन हुन सक्छ ।

जुका नियन्त्रण निम्ति वाली चक्र अपनाउने, पानी जम्मा हुने ठाउँमा गर्मी याममा माटोलाई सुर्यको प्रकाशमा सुख्खा पार्ने आदि गर्नु पर्दछ । साथै केहि विषादी जस्तो Methyl Bromide, Metam Sodium Phorete, Chloropicrin, Pentachiornitrobensese (PCNS) आदिले माटो उपचार गरेमा रोगलाई नियन्त्रण गर्न सिकन्छ । ■



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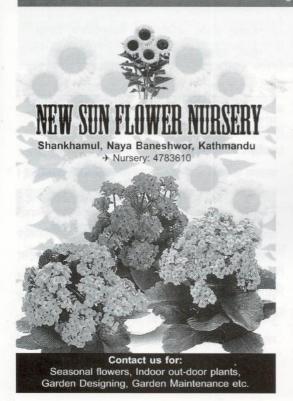
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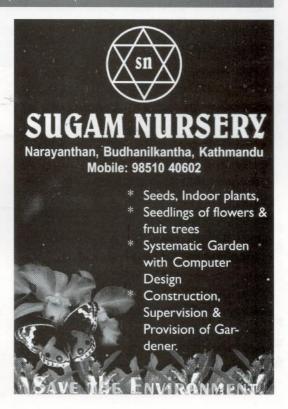


* Agronet (Green/White/Black)

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आलंकारिक बोटबिरुवामा सुक्ष्म खाद्यतत्वको महत्व

सरिना मानन्धर कृषि स्नातकोत्तर (बागवानी विज्ञान) Program Officer, FAN

परिचयः

कृषिको मूल आधार भनेको माटो हो जसमा विरुवालाई आवश्यक पूर्ने प्राय सबै खाद्यतत्व सिञ्चित भएको हुन्छ। विरुवालाई आवश्यक पूर्ने खाद्यतत्व जम्मा १६ वटा मानिएका छन्। यी खाद्यतत्वमध्ये अक्सिजन, हाइड्रोजन र कार्बन विरुवाले प्राकृतिक श्रोतको रूपमा प्राप्त गर्छ भने बाँकी खाद्यतत्व विरुवाले माटोबाट प्राप्त गर्छ। तीमध्ये कुनै एउटा तत्व माटोमा भएन भने विरुवाले आफ्नो जीवनचक पूरा गर्न सक्तैन। माटोमा पाइने यी खाद्यतत्वलाई विरुवाको आवश्यकतानुसार तीन भागमा बाडिएका छन्।

सबैभन्दा बिंढ चाहिने खाद्यतत्व अर्थात मुख्य तत्व मध्यम मात्रामा चाहिने खाद्यतत्व अर्थात सहायक तत्व अति कम मात्रामा चाहिने खाद्यतत्व अर्थात सुक्ष्म तत्व

यी खाद्यतत्वमध्ये सुक्ष्म खाद्यतत्व यस्तो तत्व हो जुन विरुवालाई नभै नहुने तर धेरै पिन आवश्यक पर्देन । प्रत्येक विरुवाको लागि विभिन्न सुक्ष्म खाद्यतत्वहरुको आवश्यक पर्ने मात्रा फरक फरक हुन्छ । तर सामान्यतया विरुवाको साधारण विकासको लागि चाहिने सुक्ष्म खाद्यतत्वको मात्रा यस प्रकार रहेको छ:-

फलाम	0.4-4	पि.पि.एम.
म्याङ्गानिज	v.9-0.x	पि.पि.एम.
जिङ्क	0,02-0,2	पि.पि.एम.
तामा	0.9-0.4	पि.पि.एम.
बोरन	0.9-9.0	पि.पि.एम.
मोलिब्डेनम	0.09-0.04	पि.पि.एम.

(स्रोत जैसी, २०५८)

सुक्ष्म खाद्यतत्व कमी हुनुका कारणहरू र यसको कमीबाट विभिन्न किसिमका आलंकारिक बोटविरुवाहरूमा देखिने लक्षणहरूः

q. फलाम (Iron)

कमी हुने कारणहरू

क्षारीय प्रतिकृया भएको माटो अर्थात पि. एच. बढी भएको माटो, बलौटे माटो, सुख्खा माटो, फलामलाई स्थिरकृत गर्ने माटोमा फलाम कमीको लक्षण देखापर्छ । त्यस्तै माटोमा फलाम भएतापिन कम घुलनशीलताको कारणले तथा चिसो ठाउको चिम्ट्याइलो माटोमा फलाम तत्वको

- नाईट्रोजन, फोस्फोरस, पोटासियम
- क्याल्सियम, म्याग्नेसियम, सल्फर
- फलाम, बोरन, मोलिब्डेनम, म्याङ्गानिज, जिन्क, तामा, क्लोरिन

कमीका लक्षण देखापर्छ। तामा तथा म्यान्गानिज आदिको मात्रा वढी भएमा पनि फलामको मात्रा घट्छ।

कमीबाट देखिने लक्षणहरू :

फलाम कमीका लक्षणहरु प्रायजसो गुलाफमा देखापर्छन्। गुलाफमा हरितहिनता भई पात पहेंलिन्छ । धेरै काँटछाँट गरिएको अवस्थामा पनि हरितहिनता हुने गर्दछ । त्यस्तै नयाँ पालुवामा यसको प्रभाव अभ बढी भई पात पहेंलिएर अन्त्यमा सम्पूर्ण भाग पारदर्शी हुन्छ । गादावरीको वोटमा यसको कमीवाट पातको अन्तरनशीय भाग पहेंलिने, पात सानो हुने, ढिलो फूल फूल्ने, फूलको पात पहेंलो हुने गर्दछ । फलाम कमी भएका विरुवाहरुमा प्राय ढुसी रोग लाग्ने सम्भावना बढी हुन्छ । दुवोमा फलामको कमीवाट पूरै फिल्ड पहेंलिने र यो लक्षण साधारणतया April को अन्त्यतिर र July को वीचितिर दुईपटक देखापर्छ ।

2. सुहाग/बोरन (Boron)

कमी हुने कारणहरू

सुहाग तत्व पानीमा घुलनशील छ र यो सजिलै खेर जान्छ । प्राङ्गारिक कम भएको माटो र बढी क्षारीय भएको अवस्थामा वोरनको कमी हुन्छ ।

कमीबाट देखिने लक्षणहरू

ग्लाडियोलसमा बोरनको कमीबाट पात तेस्रोबाट चिरा पर्ने, जसमा चिरा पातको छेउबाट शुरु भएर पातको बीच भाग (mid rib) सम्म फैलिएर जान्छ । Pansy मा बोरन कमीको लक्षण प्राय जरामा देख्न सिकन्छ जसमा सहायक जराहरुको बृद्धि रोक्ने र बिस्तारै ओइलाएर जान्छ । Tulip मा यसको कमीबाट प्रारम्भिक चरणमा पात चिरा पर्ने र चिरा परेको ठाउबाट ब्याक्टेरिया पसी विरुवामा असर गर्दछ। Carnation मा बोरनको कमीबाट क्यालिक्स टुकिने (Calyx splitting), कोपिला हुदै भनें, फूलको संख्या र साइज (Flower diameter) कम हुने आदि लक्षणहरु देखा पर्दछन्।

गुलाफमा बोरनको कमीले गर्दा नयाँ पात पहेंलिने अर्थात हिरितिहिनता हुने, पात साह्रो हुने गर्दछ । कोपिला फूल नहुदै भर्ने र विरलै मात्रामा फूलेतापिन पुष्पदलको राम्रो वृद्धि नहुने, फूलमा चिरा पनँका साथै फूलको पातको टुप्पा खैरो भएर जान्छ । फूल राम्ररी फक्टदैन । त्यस्तै गुलाबमा टुप्पाको कोपिला मर्ने र त्यसबाट अध्याधिक Branching हुने लक्षण पिन देख्न सिकन्छ । पातहरुको राम्रो विकास नभई एकै ठाउँमा भुम्म परेर Tufted appearance देखापर्छ ।

३. म्याङ्गानिज (Manganese)

कमी हुने कारणहरू

बलौटे माटो, कमरे माटो, प्राङ्गारिक तत्व कम पाइने ठाउँमा यो तत्वको कमी भएको पाइन्छ । धेरै चुनको प्रयोगले पिन म्याङ्गानिज कमीका लक्षण देखापर्छ। किनकी यस्तो माटोमा अम्लियपन घट्न गई म्याङगानिजको प्राप्तिय घटेर जान्छ।

कमीबाट देखिने लक्षणहरू

म्याङ्गानिजको कमीले गुलाबको प्राय नयाँ पातको अन्तर नशीय भाग पहेंलिने गर्दछ जुन फलाम कमीको भन्दा केही अस्पष्ट देखिन्छ । पातको मुख्य नशा तथा शाखा नशामा केही चौडा हरियो रंग भने रहिरहन्छ। कोपिलाको बिकास नराम्रो हने र फूल नलाग्ने पनि हन्छ।

8. तामा (Copper)

कमी हुने कारणहरू

तामा विरुवामा कम परिवहन हुने सुक्ष्म खाद्य तत्व हो। यो तत्वको कमी पूर्णतया आशिंक रुपमा पचेको प्राडगारि क माटोमा देखिन्छ। प्रशस्त मात्रामा N, P, K मलहरुको प्रयोग यदि अम्लिय प्रकारको बलौटे माटोमा गरिन्छ भने तामा कमीको समस्या देखिन्छ। त्यस्तै माटोको पि. एच. मान ७ भन्दा बढि भएमा तामा विरुवाले पाउन कठीन हन्छ।

कमीबाट देखिने लक्षणहरू

गुलाबमा तामाको कमीबाट बिरुवा होचो हुने र द्यगकजथ देखिन्छ। पातहरु साना (Narrow) हुनुका साथै घुम्रिने र पातको टुप्पा सेतो हुने लक्षण देखापर्छ। ग्लाडियोलसमा यसको कमीबाट स्पाइक्स (Spikes) नरम र कमजोर हुने, पात पिन कमजोर हुने गर्दछ। गोदावरीमा यसको कमीले गर्दा सहायक डाँठहरु अत्यधिक बढ्ने र फूल फूल्न समेत ढिलो हुन सक्तछ। बिरुवामा यसको कमी ज्यादा भएमाँ पातको नशाबीचको भाग पहेंलिएर जाने, फूल कोपिलामा नै भर्ने आदि लक्षण देखा पर्छ।

५. मोलिस्डेनम (Molybdenum)

कमी हुने कारणहरू

माटोको बनोट खस्रो भएमा यो तत्व चुहेर खेर जान्छ । फलामयुक्त अम्लिय प्रकारको माटोमा यो तत्व कमीको लक्षण देखा पर्छ ।

कमीबाट देखिने लक्षणहरू

Poinsettia मा मोलिब्डेनम कमीको लक्षण सजिलैसंग देखापर्ने हुँदा यसलाई मोलिब्डेनम कमीको सूचक विरुवा (Indicator Plant) को रुपमा लिइने गरिन्छ । यसको कमीबाट सामान्यतया नाइट्रोजन कमीबाट हुने लक्षण जस्तै देखिन्छ । पात पहेंलिने, पातमा पहेंला थोप्लाहरु देखापर्ने, पातको छेउ र टुप्पा पहेंलिने, पात बाक्लो भएर Cupped हुने, पातको डाँठ र हाँगा रातो खैरो भएर जाने आदि लक्षणहरु देख्न सिकन्छ । गुलाफमा यसको कमीबाट बोट बृद्धि नहुने, पात पहेंलिने र अन्त्यमा ओइलाएर जान्छ ।

६. जिङ्क/जस्ता (Zinc)

कमी हुने कारणहरू

क्षारीय माटोमा जस्ता माटोमा भएतापनि विरुवाले पाउन कठीन पर्दछ । माटोमा पि. एच. मान ६ भन्दा बढ्यो भने जस्ता कमीका लक्षणहरु देखा पर्दछ । प्रशस्त मात्रामा फोस्फोरस मलको प्रयोग गर्दा जस्ता अघुलनशील भएर जान्छ ।

कमीबाट देखिने लक्षणहरू

खेतीपाती गर्ने माटोको अवस्थामा खास अवस्थामा बाहेक जिड्क कमीका लक्षण मुस्किलले नै देखा पर्छ । ग्लाडियोलसमा जिड्ले Corm र Cormel को विकास गर्नमा महत्वपूर्ण भूमिका खेलेको हुन्छ । तसर्थ यसको कमीबाट ग्लाडियोलसमो Corm र Cormel को संख्या तथा साइज प्रान घट्न सक्ने सम्भावना बढी हुन्छ । जिड्क कमीबाट देखिने साधारण लक्षण भनेको पातको नशा र किनारा हिरयो भई अन्तरनशीय भाग पहेंलो हुन्छ जसलाई बाघे धर्सा (Tiger Stripes) अर्थात करङ्गे लक्षण (Rib symptoms) भिनन्छ ।

७. क्लोरिन (Chlorine)

क्लोरिन (Chlorine) बिरुवाले Cl को रुपमा माटोबाट लिन्छ । यो तत्व कमीबाट बिरुवामा पातको किनारा ओइलाउने बाहेक अरु किसिमका लक्षणहरु खासै देखा पर्देन । बर्षाको पानीबाट क्लोरिन सजिलै पाउन सिकने हुँदा यसको समस्या धेरै कम रुपमा मात्र देख्न सिकन्छ ।

रोकथामका उपायहरू

खाद्यतत्वको	सुक्ष्म खाद्यतत्वको कमीबाट
नाम	बच्ने उपायहरु
फलाम	०.१%-०.२% फलाम सल्फेट
	(Ferrous sulphate) अथवा फलाम
	क्लोराइड (Ferric chloride) को भोल
	२ दिनको फरकमा ५-६ पटकसम्म
- 149	बिरुवामा राम्रोसंग छर्कनु पर्छ ।
बोरन	५-१० केजी बोराक्स प्रति हेक्टर माटोमा
	हाल्ने अथवा ०.१%-०.२५% बोराक्सको
	भोल पातमा छर्कनु पर्छ ।
म्याङ्गानिज	म्याङ्गानिज अक्साइड (Manganese
1-1-1-	oxide) २०-५० केजी प्रति हेक्टर
	अथवा म्याङ्गानिज सल्फेट
	(Manganese sulphate) २०० केजी
	प्रति हेक्टर माटोमा हाल्ने
तामा	५-१० केजी प्रति हेक्टर निलो तुथो
	(Copper sulphate) माटोमा हाल्ने
मोलिब्डेनम	सोडियम मोलिब्डेट (Sodium
	molybdate) अथवा एमोनियम
	मोलिब्डेट (Ammonium
	molybdate) ०.५-१.० केजी प्रति
	हेक्टर (धेरै कम मात्रामा) माटोमा हाल्ने
जस्ता	जिड्क सल्फेट (Zinc sulphate) २० केजी
	प्रति हेक्टर माटोमा हाल्ने अथवा ०.१%
	०.५% जिङ्क सल्फेट पातमा छर्कने

(स्रोत: वातानावे, २००४)

अन्तमाः

विरुवामा विशेषत रोग किरा र खाद्यतत्व कमीका कारण विभिन्न किसिमका लक्षणहरु देखापर्छन्। कितपय अवस्थामा यसको सही पहिचान हुन नसकी जथाभावी उपचार गर्नाले यसले फाइदा हुनुभन्दा बढी नोक्सानी हुने गर्दछ। तसर्थ खाद्यतत्व कमीबाट विरुवालाई बचाउन आफनो जिमनको माटो परीक्षण गराउनु अति जरुरी हुन्छ र त्यही अनुसार माटोको उपचार गर्नुपर्दछ।

Souvenir

सर्व्दम सामाग्रीहरू

वतानावे, का. २००४. तरकारी बालीमा खाद्यतत्व कमी तथा बढीका लक्षणहरु माटो परीक्षण तथा सेवा शाखा, कृषि विभाग, ललितपुर ।

जैसी, स. २०४८. एकीकृत खाद्यतत्व व्यवस्थापन कार्यपुस्तिका, माटो परीक्षण तथा सेवा शाखा, कृषि विभाग, लिलतपुर ।



दाहाल ट्रेडिङ्ग कन्सन

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- २. ग्रीन हाउस, नेट हाउसको सामान, एग्रोनेट
- ३. स्प्रीकल, ड्रिप, फोगर आदि
- ४. पिएच, म्याइस्चर दुवै रु. २५००/- मा
- ५. सबै प्रकारको औजारहरु
- ६. लन, मुभर, मेनुअट, इन्धन तथा इलेक्टीक
- ७. गार्डेन सोलार ल्याम्पहरु
- अडर अनुसार अरिकड तथा अन्य विख्वाहरु मगाइदिइन्छ ।
- ९. सबै प्रकारका तरकारी तथा फलको बिजहरु।
- १०. सबै समस्या समाधान गर्न एक मात्र थलो ।

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अवस्था

लोकनाथ गैरे उपाध्यक्ष, FAN

q. पृष्ठमुमिः-

नेपाली कट्फ्लावर बजारमा तीन खालका फुलहरु देख्न पाइन्छ । वर्षभरी उत्पादन हुने, वर्षमा तीन महिनाभन्दा बढी उत्पादन हुने र निकै कम समयमात्र उत्पादन हुने। त्यस्तै नेपाली बजारमा फूलको माग पनि कतिबेला निकै उच्च त कहिले निकै न्यून पाइन्छ। उत्पादन एवं आपूर्तिमा एक खालका तत्वहरुले असर पारिरहेका हुन्छन् भने मागमा अर्कै खालका तत्वहरुले असर पारिरहेका हुन्छन्। कट्फ्लावर अति नै छिटों नाशवान उत्पादन भएकोले यसलाई निश्चित अवधि भित्रै उपयोग गरी सक्नुपर्ने हुन्छ । उत्पादनको अवस्थामा फूलको उपभोग हुन सकेन भने उत्पादकले आफ्नो लगानी गुमाउन् पर्ने हुन्छ भने चाहेको समयमा फूल प्राप्त गर्न नसकेमा फूलका उपभोक्ताहरुले बदलामा अन्य गिफ्टका सामाग्रीहरुतर्फ सोच बनाउन्पर्ने हुन्छ । यी दुई बिचको सन्तुलन बनाइराख्नु निकै जटिल बिषय हो। यस लेखमा यस संबन्धमा संक्षिप्त चर्चा गर्ने कोशिश गरिएको छ ।

२. प्रमुख उत्पादनहरू:-

नेपाल भित्र उत्पादन हुने कटफ्लावरलाई निम्न वर्गमा विभाजन गर्न सिकन्छ

- २.१ बर्षभरी उत्पादन हुने:- Gladiolus, Rose, Carnation, Gerbera, Marigold
- २.२ सिजनल उत्पादन हुने (वर्षभिर उत्पादन नहुने तर तुलनात्मक रूपमा तीन महिना भन्दा बढी उत्पादन हुने):- Chrysanthemum, Tuberose, Aster, Heliconia, Cymbidium orchid, Antherium, Bird of Paradise, Renanculus, Statics, Stoma, Sweetwillium
- २.३ कहिले काही उत्पादन हुने (वर्षमा निश्चित समयमा एकपटक मात्र उत्पादन हुने):
 Antirinium, Alstromeria, Amarlies, Calendula, Calla, Celocia, Chinchi-rinchi, Daffodils,

Dahlia, Freezia, *Gypsophilia*, Golden rod (Solidago), Irish, *Lycoris*, *Limonium*, *Narcisus*, Tulips, *Zenthesia*, *Zinnia*

उत्पादन स्थिति:-

नेपाली कट्फ्लावरको उत्पादन मुख्यतया काठमाडौँ उपत्यकामा केन्द्रित छ । काठमाडौँ वाहिर मुख्य उत्पादन गर्ने स्थानहरुमा धादिङको नौविसे क्षेत्र, चितवनको गुन्जननगर-दिव्यनगर, टाँडी-पर्सा क्षेत्र र मकवानपुरको हेटौडा क्षेत्र हो । यसवाहेक काभ्रेको बनेपा क्षेत्र तेश्रो पंक्तिमा देखिन्छ । यसपछिका क्षेत्रहरुमा पूर्वको भापा देखि मोरङ, सुनसरी, धनुषा, सर्लाही, रौतहट, पर्सा हुँदै कास्कीसम्म कट्फ्लावरको आंशिक उत्पादन गरिरहेका छन्। यी सबै उत्पादनहरु काठमाडौंको बजारलाई केन्द्रिकृत गरी उत्पादन गरिएका छन्।

वर्तमानको उत्पादन प्रवृति (Trend) दुईखालको छ । गर्मीको उत्पादन र जाडोको उत्पादन । काठमाडौँ उपत्यका भित्रको उत्पादन र बनेपाको उत्पादन गर्मी समयलाई मात्र हो । वर्तमानको उत्पादन प्रविधि (ज्न Low Tech देखि Plastic shed house सम्म पुगेको छ) लाई हेर्दा जाडो याममा (खासगरी कार्तिक देखि फाल्ग्णको अन्त सम्ममा) उपत्यकाको उत्पादन open field मा श्न्य छ भने प्लाष्टिक सेड भित्र निकै नै न्युन छ । किनकी यस बेलाको तापक्रम निकै न्यून रहने गर्दछ । जाडो समयमा रोकिइरहेका फूलहरु गर्मी शुरु हुनसाथ व्यापक रुपमा उत्पादन हुने गर्दछन्। पेरिनियल कट्फ्लावर (Carnation, Gerbera र Rose) चैत्रको शुरुवात सँगै यसरी बजार मा देखापर्ने गरेको पाइएको छ । त्यस्तै अति सिजनल फुलहरु (जुन २.३ मा उल्लेख गरिएको छ) पनि गर्मीको शुरुवात सँगै व्यापक रुपमा बजारमा देखापर्न शुरु गर्दछन् । बर्षात् सँगै विस्तारै कम हुन्छन् र मध्यबर्षमा करीब अन्तितिर पुग्दछन् । यसबाट काठमाडौंको उत्पादन गर्मीयाममा बढी हुने देखिएको छ ।

दोश्रो जाडोको उत्पादन भापादेखि चितवनसम्मको तराई क्षेत्रको उत्पादन काठमाडौंको बजारमा जाडो समयमा फूल आपूर्ति गर्ने लक्ष्य लिएर उत्पादन गरिन्छ । तराईमा मुख्यतया कार्त्तिक देखि वैशाखसम्म उत्पादन लिन सिकन्छ । तराईबाट उत्पादन हुने कट्फ्लावरमा Gladiolus र Rose नै हन् । यसबाहेक गर्मी समयमा सयपत्री उत्पादन गर्न सिकने प्रशस्त संभावना भएतापनि यसतर्फ अहिलेसम्म खासै ध्यान दिइएको छैन । गर्मीमा बढी तापकमका कारणले गर्दा उत्पादनको गुणस्तर कायम हन नसक्नाले तराईमा संभावना छैन । त्यस्तै अति गर्मीका कारण कजभम बनाई उत्पादन गर्ने प्रकृया पनि श्रु भएको छैन । यी सबै स्थानका बेफाइदालाई दृष्टिगत गर्दा हाल उत्पादन भइरहेको धादिङ्ग को नौबिसे क्षेत्रमा तुलनात्मक रूपमा जाडो (काठमाडौँ भन्दा राम्रो) एवं गर्मी (तराई भन्दा राम्रो) दुबै मौसममा राम्रो उत्पादन पाइएको छ । तैपनि चैत्र-बैशाखमा यहाँको Gladiolus उत्पादन निकै राम्रो पाइएको छ । किनकी उक्तसमयमा Gladiolus उत्पादन काठमाडौंमा संभव छैन भने तराईमा बढी तापकम (तातो हावा) का कारणले गुणस्तर निकै कमजोर रहन्छ । तथापि प्लाष्टिक सेड भित्र हने ग्लाफ , कार्नेशन , जरबेराको उत्पादन जाडो याममा काठमाडौं भित्रैबाट आइरहेको हुन्छ । तर यो उत्पादन निकै न्यून छ।

यसलाई निम्न Matrix बाट बुभ्ग्न सिकन्छ

		STATE STATE OF	Area	
		Terai	Kathmandu	13 1
ature	High	No Production	Blooming	Summer
Temperature	Low	Good	Poor Production (High-tech needed)	Winter

(यस Matrix मा Gladiolus, Rose, Carnation, Gerbera लाई मात्र ध्यान दिईएको छ ।)

८. उत्पादनमा प्रभाव पार्ने तत्वहरू:-

वर्तमान उत्पादन स्थितिलाई मुल्यांकन गर्दा उत्पादनलाई प्रभाव पार्ने प्रमुख तत्व तापक्रम हो । जुन उद्यमीहरु आफूले परिवर्तन गर्न सक्दैनन् । यसको परिवर्तनका लागि प्रमुख तत्व प्रविधि हो । विगत केहि वर्षतया तापकमलाई दृष्टिगत गरी ग्लाडिओलस र गुलाफ, जुन open field मा उत्पादन संभव छ , तराईका केहि जिल्लाहरुमा विस्तार गरिएको छ। तर पेरिनियल एवं उच्च तापकम सहन गर्न नसक्ने जरबेरा, कार्नेशन जस्ता फूलहरु हाल उपत्यकाभित्र मात्र सिमित छन।

त्यस्तै भौगिलिक अवस्था (Geographical situation), उचित समयमा बजारमा आपूर्ति , स्थानिय माग न्यून आदि कारणले गर्दा उपत्यका बाहिर व्यवसायिक दृष्टिकोणबाट उत्पादनले उचित प्रतिफल पाउन गाह्रो छ ।

५. आपूर्तिमा प्रभाव पार्ने तत्वहरूः-

खासगरी काठमाडौं उपत्यका बाहिरं उत्पादित फूलहरु बजारमा उचित समयसिमा भित्रै आपूर्ति गर्न नसक्नाले जाडोयाममा उत्पादन विस्तार हुनसकेको छैन । विगतका बर्षहरुमा राज्यभित्रका द्वन्द्व, बन्द र हडतालले गर्दा बजार मा उचित समयमा आपूर्ति संभव भएन । जसले गर्दा देशभित्रका उत्पादनहरु खेर गए भने दिल्ली तथा कलकत्ताबाट हवाईमार्ग हुँदै तुरुन्त बजारमा आपूर्ति भए। खासगरी निम्न तत्वहरुबाट आपूर्ति व्यवस्था प्रभावित छ।

- नियमित तथा भरपर्दो यातायात व्यवस्था
- उचित परिणाम
- उचित इवानी भाडा (स्थल मार्गमा)
- उच्च हवाई भाडा दर (औषत रु. ४५ प्रति के.जी)
- उच्च Handling lost

६. नेपाली बजारमा मागः-

नेपाली बजारमा कट्फ्लावर माग अनियमित छ । फूलका ग्राहकले प्रायः नियमित रुपमा फूल खरीद गर्ने अथवा नियमित रुपमा फूल सजावट गर्ने प्रचलन छैन । यस्ता नियमित ग्राहकको संख्या निकै कम छ । संस्थागत रुपमा नियमित खरीदकर्ताको संख्या पिन निकै कम छ । नेपाली कट्फ्लावर उपभोक्ता र विगत दुइ वर्षमा उनीहरुको उपयोग प्रवृति निम्नानुसार छ ।

उपरोक्त Survey analysis लाई केलाउँदा के देखिन्छ भने नेपाली कट्फ्लावरका उपभोक्ताहरु दुइ प्रवृतिका

S.N.	उपभोक्ता (consumer)	विगत दुई वर्षको उपभोग प्रवृत्ति	वर्ग
1	Officials	Constant	
2	Foreign diplomatic mission	Constant	Group A
3	Hotels	Declining	dioap //
4	Restaurants	Constant	
5	Weeding receptions	Increasing (blooming)	
6	Special occasions (traditional, religious)	Increasing	Group B
7	Welcome, farewell & similar other events	Increasing	
8	Birth ,death and other programs	Increasing	

(Source: FAN/AEC, 2007)

छन् - Regular / Occasional । खासगरी officials, foreigners, होटल तथा रेष्ट्ररेन्टहरु कट्फ्लावरका नियमित ग्राहकहरु हुन् । अर्कोतर्फ विवाह समारोह, व्यक्तिगत तथा सामाजिक समारोहहरु अनियमित तथा आकस्मिक समारोहहरु हुन् । होटलहरु नियमित उपभोक्ता भएता पनि विशेष गरेर वैवाहिक अवसरहरुमा बढी समारोहहरु हुने हुनाले उनीहरुको माग पनि पूर्ण नियमित छैन ।

विगतका बर्षूहरुको माग प्रवृति (Demand Trend) लाई हेर्दा विवाहका अवसरहरुमा निकै ठूलो कट फ्लावरको प्रयोग भएको पाइएको छ। सामान्यतया नेपाली क्यालेन्डर अनुसार विवाहका महिनाहरु जाडोमा मंसिर, माघ र फाल्गुन हुन् भने गर्मीमा बैशाख, जेष्ठ र असार हुन्। प्रायशस्यी महिनाहरुमा बजारमा कट्फ्लावरको माग अति उच्च छ। उत्पादन स्थिति, तापक्रम तथा भौगोलिक अवस्थालाई हेर्दा यी मध्ये केहि महिनाहरुमा उत्पादन एकदमै न्यून छ।

७. ग्राहक र उनीहरूका रूची :-

वर्तमानमा नेपाली फूलका ग्राहकहरु र उनीहरुका रुची भिन्न छन्। कार्यालय, वैदेशिक मिशन र सिमित उपभोक्ताहरुले आफ्नो घर, कार्यालय सजावट गर्नका लागी फूलको प्रयोग गर्दछन्। होटलहरु ग्राहकलाई आकर्षण र स्तरीयताका लागि फूल प्रयोग गर्दछन्। यी वर्गका

ग्राहकहरु फूलको स्तर, गुण र ताजापनमा सतर्क छन् । स्तरीय फूलमात्र यिनीहरुले खरीद गर्दछन् ।

तर माथि उल्लेख गरिएका ग्रुप B का ग्राहक्हरुलाई फूलको सजावट (Flower arrangement) चाहिन्छ । तसर्थ यिनीहरु प्रशस्त फिक्निसकेका फूलहरु खरीद गर्दछन् । यी ग्राहकहरु बढी सस्तो मुल्यमा केन्द्रित छन् तर गुणस्तरमा भने सतर्क देखिदैनन् । नेपाली बजारमा यो समूहको ठूलो पहुँच भएका कारणले अन्तिम बिक्रेताहरु फूललाई गुणस्तरीयता कायम गर्नुभन्दा बढी परीणाम बिक्री गर्नमा केन्द्रित छन् ।

८. फूलको महत्वको ज्ञान :-

नेपाली उत्पादकहरुले सदैव आफ्ना उत्पादनलाई विस्तार गर्न र गुणस्तर विकासमा केन्द्रित छन् । फूल वितरण प्रणाली र अन्तिम उपभोक्ताका रुचि र विचार प्रति उनीहरुले कुनै ध्यान दिन सकेको देखिदैन । मध्यस्तकर्ताहरु जे जस्तो उत्पादन छ त्यसलाई मात्र अगाडि बढाउनमा केन्द्रित छन् । उपभोक्ताहरु जे पाइन्छ त्यस्मै चित्त बुभाएका छन् । कट्फ्लावर भनेको के हो ? यसको क्षमता र टिकाउपन कित छ ? यसको प्रयोग कसरी गर्न सिकन्छ ? आदि बारेमा न त कुनै प्रकाशन छ , न त जनचेतना अभिबृद्धि गर्ने कुनै काम गरिएको छ । न यसको दायित्व कसैले लिएको छ । FAN बाट आयोजना हुने बार्षिक पुष्प व्यापार मेला नर्सरी व्यवसाय (सिजनल, आलंकारिक, आर्किड, गार्डीनड आदि) मा बढी केन्द्रित छ । यसको



महत्वको बारेमा यथेष्ठ जानकारी नहुनाले कट्फ्लावरको बजार वर्तमानमा अति नै सिमित तथा संक्चित छ।

ए. मागमा असर पार्ने तत्वहरू:-

उत्पादकलाई जस्तै उपभोक्तालाई पिन नियमित रुपमा फूल प्राप्त गर्न गाह्रो छ । उनीहरुले खरीद गर्ने मुल्य अपारदर्शी छ र प्राय नियमित (एउटै) छ । थोक बजारमा फूलको मुल्यमा निकै परिवर्तन आउदछ तर खुद्रा मुल्य स्थिर छ । उच्च नाशवान तथा पूर्ण लचकदार (Highly elastic) वस्तु हुँदा हुँदै पिन उपभोक्ताहरु मुल्य अनुसार मागमा परिवर्तन गर्न सकेका छैनन् । स्थिर अन्तिम मुल्यका कारण नियमित उपभोक्ता (वर्ग A का) ले पिन नियमित फूल प्राप्त गर्न निकै गाह्रो छ ।

90. माग र उत्पादन सन्तुलन:-

प्रत्येक फूलको फरक फरक उत्पादन प्रविधि फरक तापक्रमको आवश्यकता र एकदमै भिन्न उत्पादन प्रवृति (Production Trend) हुने हुनाले आ-आफ्नै तरीकाले उत्पादन हुने गर्दछ । त्यसैले विभिन्न समयमा भिन्न फूलको माग अनुसार उत्पादन सन्तुलन निम्न समयमा देखा पर्ने गर्दछ ।

महिना	माग अनुसारको उत्पादन सन्तुलन (फूलहरु)					
आश्विन	गुलाफ, कार्नेशन, जरबेरा					
कार्त्तिक	कार्नेशन					
वैशाख	गुलाफ, कार्नेशन, जरबेरा					

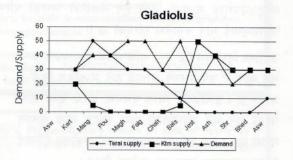
११. माग र उत्पादन बिच असन्तुलनः

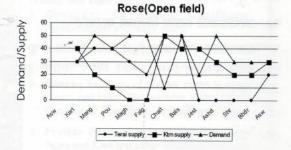
नेपाली कट्फ्लावर बजारमा अधिकांश समय माग र उत्पादन विच असन्तुलन हुने गर्दछ । यसको प्रमुख कारण Low Tech. उत्पादन प्रविधि र न्यून भण्डारण क्षमता हो । नेपाली बजारमा कट्फ्लावर भण्डारण गर्ने स्थान, प्रविधि र क्षमता छैन । भिन्न समयमा भिन्न फूलको कहिले बढी माग हुन्छ त कहिले बढी उत्पादन हुने गर्दछ। FAN थोक बजारमा सामान्यतया बढी उत्पादन तथा बढी माग देखिने महिना निम्न छन्।

महिना	वढी उत्पादन हुने फूल
कार्त्तिक	गुलाफ
चैत्र	गुलाफ, कार्नेशन, जरबेरा
जेष्ठ	ग्लाडिओलस, गुलाफ

महिना	वढी माग हुने फूल (न्यून आपूर्ति)
मंसिर	कार्नेशन, जरबेरा
माघ	सबै फूलहरु
फाल्गुण	सबै फूलहरु
वैशाख	ग्लाडिओलस

यी फूलमध्ये Open field मा तराई एवं काठमाडौंको उत्पादन स्थिति र मागको अवस्थालाई निम्न ग्राफमा देखाउने कोशिश गरिएको छ ।





Note: The level of demand/supply is categorized as:

0	\Rightarrow	Nil
10	\Rightarrow	Very low
20	\Rightarrow	Low
30	\Rightarrow	Average
40	\Rightarrow	High
50	\Rightarrow	Very high

१२. मुल्य प्रवृति :-

विगत आठ वर्षमा उत्पादकले पुष्प थोकवजारबाट केहि कट्फ्लावरमा प्राप्त गरेको बार्षिक औषत मुल्य र वगत दुइवर्षमा खुद्रा विकेताले प्राप्त गरेको बार्षिक औषत मुल्य निम्न अनुसार रहेको पाइन्छ ।

Cut flowers	Growers/Wholesale price (Rs per stick)					Retail price (Rs.)				
	1998	1999	2000	2001	2002	2003	2004	2005	2005	2006
Gladiolus	6	5	5	6	4	5	5	5	8.5	9.5
Local Rose	5	4	4	3	2	3	3	3	11	11
Dutch Rose	10	10	12	7	6	6	6	7	14	14
Carnation	8	6	9	7	6	6	6	7	15.5	15.5
Gerbera	8	4	. 11	7	7	5	7	7	15.5	15.5
Tube Rose	5	5	4	4	3	2	4	4	9.75	9.75
Cymbidium	15	15	38	23	27	36	31	31	72	72

(Source: Wholesale Statistics, FAN 1998-2006)

(नोट:-उपरोक्त मुल्यमा बिकी हुन नसकेको फूलको परिणामलाई समावेश गरिएको छैन । बिक्री भएको मुल्य र परिणामलाई मात्र समावेश गरिएको छ ।)

उपरोक्त विश्लेषणबाट भन्न सिकन्छ कि उत्पादकले प्राप्त गर्ने मुल्य र उपभोक्ताले भुक्तान गर्ने मुल्यिबच निकै नै अन्तर छ । उत्पादकले भिन्न समयमा फरक मुल्य प्राप्त गरेका छन् भने उपभोक्ताले प्रायः समान मुल्य भुक्तान गरेका छन् । यस बारेमा उत्पादक एवं उपभोक्ता दुबैलाई यथेष्ठ सूचनाहरु प्राप्त हुन सकेका छैनन् ।

१३. उत्पादकले ध्यान दिनुपर्ने कुराहरू:-

कट्फ्लावर उत्पादकले आफ्नो उत्पादन योजना तजुर्मा गर्दा बजार सम्बन्धि निम्न कुराहरु विशेष चनाखो हुनु जरुरी छ ।

- (क) बजार माग स्थित (प्रवृति)
- (ख) उच्च माग र न्यून माग
- (ग) उत्पादन (कट्फ्लावर) को रंग , जात(Cultivars) बारे ग्राहकको रुचि
- (घ) मौसमी अवस्था (अनुकुलता र प्रतिकुलता)
- (ङ) उच्च माग र आफ्नो उत्पादन बिच तालमेल हुन सक्ने (नसक्ने अवस्था
- (च) स्थानको छनौट

आफ्नो उत्पादन आइसकेपछि बजारमा त्याउनुको बदलामा यी सबै बिषयको अध्ययन गरी आफ्नो उत्पादन प्रविधिमा ध्यान प्र्याउन् जरुरी छ ।

१८. अन्तमाः-

वर्तमानको उत्पादन संरचना र बजार संरचनालाई हेर्दा दुवै पक्षको राम्रो समन्वय बन्न सकेको छैन । उत्पादन तर्फ प्रविधि विकाश र उच्च लगानी तत्कालको लागि आवश्यक छ भने बजार व्यवस्थापन तर्फ पूर्वाधारहरु (भण्डारण क्षमता र शित गृह) अति आवश्यक छ। त्यस्तै उच्च उत्पादनको समयमा बजारमा उपभोक्ता मुल्य परिवर्तन गरी बढी ग्राहकलाई आकर्षण गर्न वर्तमानको वितरण प्रणालीमा समेत सुधार गर्नुपर्ने देखिएको छ । जसबाट फूलका पारखीले उचित मुल्यमा फूल प्राप्त गर्न सहज हुनेछ भने उत्पादकले न्यून भएपिन मुल्य प्राप्त गर्न संभव छ ।

यी सबै प्रकृयाका लागि उत्पादक, मध्यस्थकर्ता र उपभोक्ताबिच सुचना प्रवाह, योजना निर्माण र समन्वय हुन् नितान्त आवश्यक छ ।

Reference

FAN Wholesale Market- Sales Statistics (1998-2005).

FAN/AEC 2007. Trade competitiveness of the floriculture sub-sector in Nepal -FAN/AEC-2007 ■



Agro Enterprise Center कृषि उद्यम केन्द्र

INTRODUCTION

Agro Enterprise Center (AEC), an agricultural wing of the Federation of Nepalese Chambers of Commerce and Industry (FNCCI) was established in September 1991 under the cooperative agreement between FNCCI-the FNCCI is an umbrella organization of the Nepalese private sector established in 1965 with the aim of promoting business and Industry while protecting the rights and interests of business and industrial commodities-and USAID/Nepal, In the growth of past twelve years, AEC has made valuable contributions in Agro Business Development and Promotion. Since 01 October 2002, AEC has been re-shaped with more focused Mission and Vision

THE MISSION

"To expand and strengthen market oriented private sector driven agro enterprises in order to increase the value and volume of high-value products sold domestically and internationally."

THE VISION

"The vision of AEC in the national context is to be a strong, vibrant and sustainable private sector led agro-enterprise sector capable of contributing high and broad based economic growth, which in a precondition proposed strategy".

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- Policy Advocacy and Policy Advices/Studies.
- Market and Demand Analysis of High Value Agriculture Crops
- Trade and development focusing on Trade Fair/Exhibitions and new business development
- Strengthening Agro-Commodity Associations and supports for their development/promotional programmes.
- Agro Business information Service including Market Information Services.

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इफोरविया मिल्ली : एक व्यवसायिक अनुभव

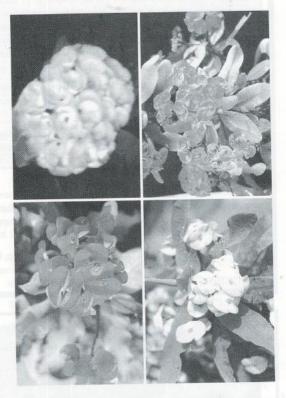
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परिचय

बजारमाग र लोकप्रियताको आधारमा नेपालमा व्यवसायिक रूपमा स्थापित भइसकेका केहि सिमित फुलहरु मात्र जस्तै ग्लाडियोलस, गुलाफ, जरवेरा, कारनेशन, गोदावरी आदिको खेती भएको पाइन्छ । यसैविचमा नयाँ फूलको प्रवेश त्यतिबेला हुनसक्छ जुनबेला यसको सुन्दरता र महत्वबारे सबैलाई जानकारी हुन्छ । इफोरविया मिल्ली पिन एक यस्तो फूल हो जुन नेपालको सन्दर्भमा एकदमै नयाँ छ । ५० भन्दा बढी विभिन्न रगंहरुमा आकर्षक रूपमा फूल्ने इफोरविया मिल्ली हेर्दा जित सुन्दर र आकर्षक देख्न सिकन्छ त्यति नै सरल तिरकाले इफोरविया मिल्लीलाई प्रत्येक फूलप्रेमीहरुले आफ्नो घर आँगनमा सुन्दर र लोभ लाग्दो तिरकाले फुलाउन सक्छन् ।

काँडाको डाँठ भएको इफोरविया मिल्ली गमलामा रोपिने फूल हो । यसलाई कटिङ्ग गरेर विरुवाको रुपमा सार्न सिकन्छ । क्रूटिङ्ग गरिएको बिरुवा गमलामा रोपिएको चार महिनापछि लगातार फूल्न सूरु हुन्छ । कम पानी चाहिने र बाह्रैमास फुलिरहने इफोरविया मिल्लीको महत्वपुर्ण विशेषता हो । भन्द हेर्दा यसको डाँठ र बिरुवामा तिखो काँडै काँड देखिन्छ । यसको डाँठभित्र एकिकिसिमको सेतो रगंको चोप हन्छ ।

रगंकै आधारमा पनि इफोरविया मिल्ली छुटै विशेषता भएको फूल हो । सेतो, पहेंलो, क्रिम, गुलाफि, रातो, छिकेंमिकें जस्ता विभिन्न रगंमा इफोरविया मिल्ली पाउन सिकन्छ। तर सामान्यतया इफोरविया मिल्ली फूलप्रेमीहरुको घरमा कम्तिमा पनि पाँच रगंसम्म गमलाभरी फूलाएको देख्न सिकन्छ। त्यस्तै यस फूलको साइज मिसनो, मध्यम र ठूलो तीनै थरीमा पाइने हुँदा बजारको माग र आफ्नो रोजाइ अनुसार लगाउन सिकन्छ।



इफोरविया मिल्ली कहिले र कसरी मित्रियो ?

पाँच वर्ष अगाडी नेपालमा भारतको नागाल्यान्ड प्रान्तवाट भित्रिएको इफोरविया मिल्ली थाइल्याण्डको बैंककमा हाइब्रिड गरिएको हो । नागाल्यान्डवाटै सिधै नेपालको पूर्वी धरानमा सर्वप्रथम भित्रिएको इफोरविया मिल्ली अहिले धरानको प्रायः प्रत्येक घरमा सजिएको देख्न सिकन्छ । यसपछि इफोरविया कमशः विभिन्न शहरमा फैंलदै गएको छ ।

इफोरविया मिल्लीलाई कसरी स्याहार्ने ?

पानी

इफोरविया मिल्लीलाई पानीको धेरै आवश्यकता पर्देन । त्यसैले विशेषगरी वर्षायाममा यसलाई जोगाउन पर्ने हुन्छ । खासगरि कटिंग गरिएको विरुवालाई र एक वर्षसम्मको बोटलाई धेरै हेरचाह गर्नंपर्छ । वर्षायाममा कीरा लाग्ने धेरै सम्भावना भएकोले त्यसबेला विरुवालाई कीराबाट बचाउन उचित उपायहरु अपनाउनु पर्छ ।

माटो

यसको लागि साधारणतया बलौटे दोमट खालको माटो राम्रो हुन्छ । जसमा २४% कम्पोष्ट मल, २४% बोन मिल, २५% बालुवा र २४% माटोको मिश्रण भएमा अभ राम्रो हुन्छ ।

तापक्रम र प्रकाश

इफोरविया मिल्लीको लागि तापकम वढी चाहिन्छ । साधरणतया यसलाई ६ डिग्री सेन्टिग्रेड देखि ४५ डिग्री सेन्टिग्रेडसम्मको तापकममा राम्ररी हुर्काउन सिकन्छ । यसले ४५ डिग्री सेन्टिग्रेडभन्दा माथि सम्मको पनि तापकम सहन सक्छ तर यसले चिसो भने खप्न सक्तैन । त्यस्तै यसलाई वढी घामको किरण चाहिने भएकोले धेरै छायाँमा राष्ट्रन हुँदैन ।

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इफोरिवया मिल्लीलाई किटङ्ग मार्फत सार्न सिकन्छ । ३ ईन्चसम्मको डाँठलाई किटङ्ग गरेर पोलि ब्यागमा रोप्न सिकन्छ । विरुवा हुकँदै गएपिछ गमलामा सार्नु पर्छ । इफोरिवया मिल्लीमा ३ फिटसम्मको उचाइ हुने क्षमता भएकोले बोट हुर्कने र बढ्ने कम त्यही अनुरुप गमलाको साइजलाई पनि बढाउनु पर्नेहुन्छ ।

अन्तमा

विभिन्न साइज, बाह्रै मिहना फूल्ने, सुन्दर र आकर्षक देखिने इफोरविया मिल्ली धेरै सम्भावना बोकेको फूल हो। फूललाई व्यवसायको रुपमा अंगालिसकेको यस वर्तमान परिवेशमा यसरी नयाँ किसिमका फूललाई बजारमा ल्याउन सकेमा सम्पूर्ण व्यवसायीहरुमा नै एउटा नयाँ आयाम थिपनेछ।



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Bottle Gardening: An Art of Interior Decoration

Binod Kumar Basnet NHPL, Godawary

Background:

Women take pride in home decoration and gardening and want some unique and prized possessions. For this Bottle garden could be the ultimate choice. In fact Gardening offers creation and good utilization of leisure time especially in the field of flower arrangement, bonsai, mini-rock garden etc. But a sure and unique possession is a bottle gardening. Many of us have seen a ship inside a bottle. This creative craft has given rise to the concept of bottle gardening. Bottle gardening can be compared to an aquarium where fishes survive with regular inputs of water and feed. The bottle garden is also known as terrarium. It is especially worthy for inhabitants of cities who do not have land space for outdoor gardening and like to have. some greenery around.

Requirements:

A bottle garden has the essential requirements of soil and water for the survival



of plants that are housed in it, but with occasional care and maintenance. Apart from these essential requirements, the bottle garden has reservoir of water which keeps readily available moisture to the plant and also

enables a humid environment in the bottle. Bottle gardens if effectively designed can fetch very high price. Selection of plants to be planted for the bottle garden is very important and in quite a few cases people fail to appreciate this fact and try to incorporate any plant they can lay hands up on.

An ideal bottle plant is of slow growth and dwarf habit. The soil or the compost, used in bottle gardens should be just adequate



for survival of the plants and should not induce vigorous growth. Bottle gardening can be taken up in many different shapes and sizes and one can even go for custom made glass containers of the size and shape of choice. But containers of normal bottle shaped with narrow neck is the most effective one for bottle gardens as it helps in proper maintenance of humidity and also for the appearance when the garden gets established. The first step is to clean the container thoroughly by using water and detergent. Rich compost is avoided to have plants with slow growth and dwarf habit. The compost, which is moistened enough but not wet, is put into bottle by means of a paper funnel, preventing the compost from spilling on the sides of the bottle by adhering to the wet surface.

It will be beneficial if a layer of crushed charcoal or small sized gravel is put before running in the compost. This layer of charcoal or gravel acts as water reservoir and replenishes the compost or soil with water as and when needed. Small amount of water can

Souvenir

be added through the aid of a straw fitted with funnel or running down the water carefully along the inner surface of the bottle. Coming to planting in the bottle gardens, the plants should have previously grown in small pots so that they have a compact ball of roots with adhering compost. A thin rod or stick be taken to make holes of suitable sizes on the compost layer and the plants are dropped in to these holes, after carefully pressing through the bottle neck.

To increase the aesthetic appearance of a bottle garden, natural things of beauty such as colored and suitably shaped stones or pieces of bark can be placed in the bottle garden. Care must be taken to prevent the bottle garden from disease and pest attack. Hence sterilization of such things which can , carry disease and pest is required before introduction. After planting, the bottle neck is plugged with cotton wool. Occasional pruning of leaf and shoots is necessary for a healthy bottle garden.

During the day time when the plant receives sunlight, it is advised to turn the position of the bottle periodically to maintain the symmetry of the plants in the bottle. Bottle garden rarely needs watering but it requires regular removal of accumulated dead plant parts and other care and maintenance. Direct sunlight can raise the temperature inside the bottle and hence extreme temperatures should be avoided. Few of the plants which can be taken up for bottle garden are *Pilea*, *Selaginella*, *Polystichum*, *Osmunda*, *Peperomoia*, *Maranta* etc.

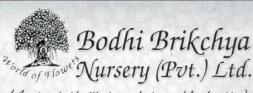
At last:

During bottle gardening, one can experiment a lot keeping in strict adherence to the rule that the plants grow slow and have a dwarf habit. With the utilization of creativity, time and resources, one can develop a beautiful and unique bottle garden, which can be named with the name of a maker.

The keeping of the plant in bottle gives some kind of pleasant environment and makes feel that it is a kind of entertainment and refreshment. It is time consuming art of imagination therefore it kills the leisure time unknowingly. It sensitizes the peripheral

neurons of the body that certainly enhance the neurotransmitter system probably save from paralyzing the organ during the old age people.





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Pruning: Why, When and How??

Lajmina Joshi NHPL, Godawary

Introduction

Plant pruning is a very high sounding word to the entire plant lover. Proper pruning enhances the beauty of almost any landscapes trees and shrubs. But improper pruning makes the healthy plants often weakened or deformed. So it is very important to know what is pruning, how and when it is done and what is the cause behind in the continuation of plant's activities after pruning. In nature it does not need to prune. Plant eventually is prune in some manner.

What is pruning?

Pruning has many definitions but actually it is the selective removal of any part of a plant's top growth, namely small and large branches and shoots or part of its bottom growth, the roots, faded or dry flower spike or removal of fruits with stalks to improve the health, landscape effect, or the value of the plant. So the aim of pruning is to maintain tree structure, form, health and appearance as trees mature. Pruning can be differently termed depending on the parts of the plants to be trimmed. For example pruning of terminal part of shoots is termed as pinching and removal of flower-buds is known as disbudding. Similarly there are some examples of pruning to create a desired, unnatural effect such as Pollarding and Topiary. In pollarding type of pruning all new growth of the trees are annually removed. The following year, a profusion of new branches is produced at the ends of the branches. While in topiary type of pruning, trees and shrubs are pruned into geometric or animal shapes. Both pollarding and topiary are specialized applications that involve pruning to change the natural form of trees. So given enough care and attention, plants can be pruned into nearly any form.

Why do we need pruning?

All woody ornamental plants, trees, shrubs and climbers need pruning. The main reasons lies behind pruning ornamental and shade trees include safety, health, and aesthetics. Pruning for safety involves removing branches that could fall and cause injury or property damage, trimming branches that interfere with lines of sight on streets or driveways, and removing branches that grow into utility lines.

Pruning for health involves removing diseased or insect-infested wood, thinning the crown to increase airflow and reduce some pest problems, and removing crossing and rubbing branches. Pruning can best be used to encourage trees to develop a strong structure and reduce the likelihood of damage during severe weather. Perennial plants grow for many years, produce flowers and often fruits, and becomes essential to regulate the growth of the plants in a limited space in a garden and maintain them in a condition favorable for growth and flowering. If left untouched for an indefinite period, shrubs and climbers continue to produce mostly thin interlaced shoots which hardly bear flowers and also become a home for pests and diseases. Plants which are not maintained often become a dense or tangled mass of branches. The inner shoots are deprived of light and die back, and in wind many twigs rub on each other and may become injured



or broken. These conditions lead to a greatly increased risk of disease.

Pruning for aesthetics involves enhancing the natural form and character of trees or stimulating flower production. Pruning for form can be especially important to opengrown trees that do very little self-pruning. Similarly, pruning of roots is also needed to promote the development of fibrous roots for water and mineral salts absorption.

How does pruning retard the growth of the plants?

It is very necessary for all the plant lovers to know how the pruning helps in retardation of plant's growth and what is the mechanism behind it? We know that the response of a plant to pruning is due to the alteration of the root shoot ratio. So if branches are removed. the hormones and complex metabolites, made by leaves and buds will not be as plentiful and this will reduce root growth. If roots are removed, the flow of nutrition from the soil and the supply of hormones and storage compounds from the roots will all be reduced. If these are not so readily available to buds on the shoot system their growth will be controlled. Hence, it is sometimes useful to control this transport by making incisions in the stem, called nicking and notching or to impede the downward flow of nutrients by ring barking or girdling. Bending branches down (festooning) and planting at a shallow angle to the ground, such as with cordons, also impedes transport in the stem.

In some situations, such as when clipping a hedge or in topiary, it is desirable that removal of a shoot tip should promote the breaking and growth of several lateral buds, resulting in a very close texture to the hedge surface. In other situations, for example when shaping

a young fruit tree, the breaking of numerous buds might be undesirable. It is essential to understand how the root and shoot systems communicate, so that they can be managed to obtain the desired results.

Importance of pruning

Pruning is an essential devise if anybody wants to put plants in tidy condition in the garden. It helps in rejuvenation of old plants by producing healthy shoots which will continue to grow and flower for several years. Pruning is essential to **c**ontrol of plant size, form and fruitfulness.

a. Control of plant size

Pruning can be used to maintain any desired plant size which facilitate easier cultural practices such as spraying, picking flowers etc. Root pruning has the same effect as the dwarfing root stocks have. The loss of root tips results in a reduced supply of cytokinins, and a reduced capacity for water and mineral salts absorption. As a result the top growth is curtailed. Bonsai plant is an example where regular root pruning plays a major role preventing coarse growth, and ensuring short internodes and small leaves in keeping with the miniature habit. However the reduction in leaf area for photosynthesis and the removal of a reservoir of stored foods is really a retarding process and is more likely to alter the type of growth than to increase the overall growth.

b. Control plant form (Formative pruning)

For garden plants an additional consideration is to produce a pleasing attractive appearance, both during the growing season and winter (when the leaves have fallen). Controlling plant form through selective removal of buds from the young plants is

perhaps the most obvious reason for pruning

Prior to planting plant, any broken, decayed or dried roots should be cut cleanly across, to reduce the risk of disease-causing organisms entering, and the roots should be spread out over a gentle mound of soil in the base of the planting hole. Roots which are too long to be accommodated should be cut cleanly to fit the planting hole, rather than being bent round and crammed in.

c. Develop a strong and open framework

With pruning, the scaffold branches of a tree are spaced adequately and arranged uniformly to give the structural strength. The strongest crotches are formed when branches arise from the trunk at an angle between 40 and 90°.

d. Rejuvenate old plant

Severe pruning encourages the development of vigorous shoot. Rose for cut flower requires severe pruning after a season of flower production to produce new growth and quality flowers.

When to prune?

The timing of pruning for any particular plant is partly dependent upon the reason for the pruning. Time of pruning usually depends on growth, habit and time of flowering.

General cleaning and trimming can be done during monsoon.

Conifers may be pruned any time of a year, but pruning during the dormant season may minimize sap and resin flow from cut branches

Hardwood trees and shrubs without showy

flowers are pruned in the dormant season to easily visualize the structure of the tree, to maximize wound closure in the growing season after pruning, to reduce the chance of transmitting disease, and to discourage excessive sap flow from wounds. Recent wounds and the chemical scents they emit can actually attract insects that spread tree disease. Usually, the best time is during the late fall and winter

Flowering trees and shrubs these should also be pruned during the dormant season for the same reasons stated above; however, to preserve the current year's flower crop, prune according to the following schedule.

- Spring and summer flowering plants are pruned at the onset of monsoon.
- Deciduous and semi-deciduous plants are pruned after the leaves have fallen or leafless and dormant in winter and early spring.
- Broad leaved trees are safely pruned in spring or early rains when new vegetative flushes appear. In general, the fast growing perennials respond to pruning better than slow growing ones.

Perennials can broadly be classified into two groups with regard of flowering. One groups flower in 1-6 months on shoots emerging from pruned branches. These shoots grow fast e.g. Cestrum, Jasmine, Lagerstroemia indica, Lantana, Malvaviscus.

The other groups flower on mature shoots which are of 6 months to 1 year or more old. Pruning in such plants should be done carefully and the new shoots allowed to mature or flowering.

Besides, nature has also provided the

Souvenir

mechanism of self pruning and continuation of the process of growth and flowering in plants but human efforts is more effective and can be modified when necessary. In the natural process, many axillary shoots may be produced which are often thin and weak, if allowed to grow, and flowering is adversely affected on such shoots. It is necessary to remove a number of these shoots at the early stage retain a few for better growth and flowering.

Which part should be pruned?

- The diseased or dead branches should be removed first.
- The branches close to the ground and those growing irregularly and affecting the shape of the plant should be pruned.
- Old branches usually produce weak shoots, so it is necessary to prune them from the base.
- The thin, weak and interlaced shoots are not capable of bearing flowers and should thoroughly be removed.
- In case of compact growth, the centre of the bush should be opened by pruning a few shoots from the base.
- Healthy shoots are pruned above an axillary bud tending to grow in an outward direction

Conclusion

Hence pruning is an important cultural practice to keep the garden tidy, maintain the shape or form of the plant and produce strong, healthy and attractive plants in the garden. Everyone should know the timing of pruning and how to do it. Proper pruning can enhance the form or character of plants whereas improper pruning can destroy it.



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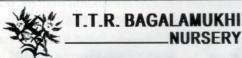


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Flower Wholesale Market Price Behavior Analysis in Kathmandu Krishna

M.Sc.Ag. (Agri Economics)
Deputy Director, AEC/FNCCI

Introduction

Private sector owned floribusiness in Nepal is contributing significantly to the agricultural sector. There are 550 active flowers and plant growers in 34 districts and have invested about Rs.375 million. Their turnover in 2006 was estimated Rs. 230 million. In aggregate, this sub-sector is offering employment for about 2500 people; more than 60 % of them are women.

Floriculture has both domestic and international market potential. The quality and quantity of desired floral species is precursor of creating demand in international niche. However, Nepalese situation is compelled to supply regularly to meet the domestic market requirement. We have poor practices in production planning of cut flowers in desired volume and quality in lean period. This is creating vacuum for importing cut flowers. The only organized FAN wholesale market's gross turnover crossed 1.8 million sticks and worth Rs. 5.2 million in 2005. In the horizon of floribusiness expansion, by virtue of production and managerial efficiency, an average price per unit of cut flowers have reduced remarkably from Rs. 6.2 in 1998 to Rs.3.0 in 2005. This trend gives path forward to compete in the international auction. To date, Nepalese floriculture is dedicated to serve the metropolitan areas (basically Katmandu valley) only. However, there is bright prospect of floribusiness in other rapidly growing urban centers inside the country.

Marketing Information: Price

Marketing of cut flowers in Nepal is predominately governed by private sector and regulated by interaction of effective demand for and supply of the market. Therefore price depicted by the market is seen as free market pricing theory. The consumer theory of demand states that the market demand function of cut flowers may be as;

Demand of Flowers (Qd) = f (Price, quality, quantity, season, packaging, selling locales, eventsetc)

Amongst, price of the flowers is the uniquely assumed first determinant and responsible variable for determining market demand. The regular sources of market price of cut flowers will facilitate both newcomer growers and traders to make effective plan of running flower business. FAN is maintaining the market information system of most of the cut flowers in cooperation with Agro Enterprise Center (AEC). The trend of price in different years will be the further guideline to reshape their floriculture enterprise.

Price Behavior Analysis:

The average wholesale price of four cut flowers viz; Rose, Gladiolus, Gerbera and Carnation observed in four years of period from 2003 to 2006 indicated that the average price value was maximum in the year 2006 except in Carnation; whose average value was maximum in the year 2003 (Table 1). The minimum price value varied with the years and the flowers. Rose showed minimum average price in 2004, Gladiolus in 2003,

Gerbera in 2004 and likewise Carnation in the year 2005.

Table: 1 Year the selected						
Flowers Avg. Wholesale Price(Rs/Stick)						
	2003 2004 2005 2006					
Rose	3.12	3	3.04	3.27		
Gladiolus	3.95	4.41	4.45	4.54		
Gerbera	5.87	5.37	6.58	6.75		
Carnation	6.08	5.7	5.37	5.87		

Source: AEC, MIS section, 2007

The average price of these selected cut flowers from years 2003 to 2006 are explained in the Table 2. During four years of period the maximum and minimum average wholesale price was found to be Rs.6.14 (Gerbera) and Rs.3.27 (Rose) respectively.

Table: 2 Average Price of Cut flowers from year 2003 to 2006					
Flowers	Average Wholesale Price (Rs/Unit)				
Rose	3.27				
Gladiolus	Gladiolus 4.34				
Gerbera	6.14				
Carnation	5.76				

Source: AEC, MIS section, 2007

Price Variability & Market Consistency:

Price variability and market consistency measurement is uniquely paying a significance to the marketing functionaries for understanding the nature of product price with respect to the market locales. The application of statistical tools like standard deviation and CV are important for the measurement of marketing variability. From the Table 3, the variability in the price structure was high in Gerbera in the year 2003, Rose in 2004, Gladiolus in 2004 and Carnation in the year 2006.

Table: 3 Co	perficient of Variation (CV) of
Selected cut	flowers in FAN wholesale market
Flowers	Coefficient of Variation

Flowers	Coefficient of Variation (Monthwise basis)					
	2003 2004 2005 2006					
Rose	21.7	38.27	23.72	23.62		
Gladiolus	21.17	23.56	10.09	18.45		
Gerbera	36.31	27.22	18.83	11.6		
Carnation	17.81	27.05	20.65	27.9		

Similarly from the Table 4, it is found that Gladiolus had the lowest value of CV among these four cut flowers. This does imply that market price for the Gladiolus was consistent over other compared flowers. It had less fluctuation in price trend. This may also provide guidelines to the investors for choosing the comparatively stable product.

Table: 4 Coefficient of Variation (CV) of cut flowers in Kathmandu from years 2003 to 2006

Flowers	Coefficient of Variation (CV)	Ranking
Rose	28.72	1
Gladiolus	19.01	IV
Gerbera	25.11	11
Carnation	23.41	- ш

Note: Rank IV does imply for least variability in the table.

Conclusion:

This primary data analysis of selected four cut flowers in Kathmandu market has revealed that Gladiolus stands for more consistent and Rose stands for less consistent in terms of market price in the wholesale market in Kathmandu Valley.

References:

www.agripricenepal.com Various Bulletins of AEC

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Varietal Evaluation of Gladiolus

Surmila Shakya M.Sc.Ag (Horticulture)

Background

The history of gladiolus cultivation dates back to 2,000 years when some species commonly known as "Sword lily" were grown in parts of Asia Minor. In Nepal, the transformation of gladiolus cultivation from a hobbyist activity into a commercial enterprise started only from past two decades. But with the advancement of civilizations and rapidly growing urbanization its demand is growing at the speedy pace.

Nowadays, gladiolus is used in various ways by amateurs, professionals and commercial growers. As a landscape plant, it is grown to improve the aesthetic look of the garden. Gladiolus is grown in formal or informal beds, as border plant and is planted in groups also. It is very well grown in various types of containers, like earthern or clay pots. Gladiolus is also widely grown as specimen for exhibitions. But it is mainly cultivated for cut flowers as the spikes are the most popular in flower arrangements and for preparing high-class bouquets.

Though there may be various purpose of growing gladiolus, the selection of the proper cultivar is important. The right choice of the cultivar for the right purpose is very important to get the maximum benefit from the gladiolus cultivation. But, the promising gladiolus genotype with a good spike quality is not enough criteria while selecting commercial cultivation of gladiolus. The colour of the florets and the market value of the cultivar also influence the net return to the growers.

Catagories of Gladiolus

Gladiolus is especially utilized for exhibition and cut flower purpose. For these purposes various criteria are assigned and selection of suitable cultivars is very important to fulfill such purposes.

If gladiolus is growing for the purpose of flower show or exhibition, then the cultivars with excellent florets size and bright colours should be selected. All the varieties chosen should have straight, healthy and without blemish spikes. A stem has to be straight, without side shoots, and at least 1/2 or 1/3 of its length should be the flower head i.e. portion containing the florets. The florets should be well distributed, uniform and without apparent gaps in-between. These must face in one direction and not facing up and down. Floret colour has to be true to the cultivar. The basal florets must not fade up. There is fixed specification of the exhibition committee like the varieties are categorized as giants, large, medium and small, which should be followed accordingly. For the largeflowering group, any cultivar having less than 21 florets per spike or a flower head of less than 70-80 cm length has to be avoided.

In USA, there are 5 categories of gladiolus for exhibition purposes. The "Giant" should have florets of about 14 cm and above; the "Large" between 11.5 and 14 cm; the "Medium" between 9 and 11 cm; the "Small" between 6.5 and 9 cm and the "Miniatures" under 6.5 cm. The different classes are denoted by 3 digit numbers starting with miniatures represented by 100 and going up

in ascending order (200, 300, 400, 500) for the next categories. Similarly, the floret colours are also represented by 2 digit numbers in ascending order starting from white (00), yellow (10), orange (20), salmon (30), pink (40), red (50), rose (60), lavender (70), violet (80) and tan (90). The number in the parentheses represents the pale tone of each colour, and this goes up in the multiples of 2. For example, light yellow is 12, medium 14 and deep 16. If there is an odd third number in the category then, that denotes the presence of a prominent mark or blotch.

For the purpose of cut flower, the large flower cultivars must have at least 18-21 florets per spike. The floret should have thick petals as otherwise a spike will not stand rigours of transport and would not last long in vase. For the ease of the cultivation, each cultivar has to be grown separately. Different cultivars take different time to come to flowering. The early cultivars flower within 60-69 days, early-mid within 70-79 days, mid season within 80-84 days, late in 91-99 days and very late in 100 days plus. Corms are to be planted in staggered manner at intervals of 7- 15 days to get continuous flowers for a longer period and to avoid possible market glut.

But, it may be worthwhile to study the colour preference of customers of a particular region also. Because the market demand of the cultivar will determine the cost per spike, which will affect the overall net return from the gladiolus production. For example, the red and pink colour spikes of gladiolus are more in demand in Delhi market than white colour varieties. The market survey done in Delhi in 2005 observed that the market price of dark colour varieties range from IRs.60-70/ dozen while that of white colour varieties range from IRs.30-40 / dozen. Due to this, though most

of the white colour varieties showed good performance and wide adaptability under prevailing climatic condition, the net return per unit area to the growers are more from dark colour varieties like *Emperor*, *Happiness* and *Oscar*. So it is wise to select the right type of cultivar depending upon the market demand.

Around Delhi, Psittacinus hybrids like 'Monsoer' are grown for cut flower trade. This is a hardy variety and is relatively free from corm rot. Each corm produces between 2 and 4 spikes. Though spikes are not of good quality, but because of the ease of the cultivation, this is favoured by ordinary growers.

Some popular varieties of Gladiolus in India

'Apple Blossom'- Excellent for exhibition. Florets delicate, light baby-pink in colour with darker dots on ruffled petals.

'Cherry Blossom'- Late season cultivar. Spike about 95 cm; florets 17-20, white, tinged with rose- purple. Poor cormel production.

'Emperor'- Early season, hardy cultivar. Heavily ruffled florets of Lady's Pink colour with creamy white throat. Good cultivar for cut flower.

'Friendship' - Mid season cultivar. Spike length 90-95 cm; florets between 16 and 20, bright rose, striped white, with yellow throat; petals filled. Produces large number of cormels. A hardy and good cultivar.

'Golden Rosette'-Very early flowering cultivar, spike length 50-55 cm, florets 9-12, light yellow, multiplication of corm is unsatisfactory.

'Happiness'- Very early season cultivar, shrimp-red with capsicum-red streaks. Spike length about 70 cm. Florets 13-15. poor

Souvenir

Cormels production.

'Happy End' – Mid season cultivar. Spike length 65- 70 cm; florets 12-14, mandarinred with lemon yellow blotch,. Good cormel multiplier.

'Hawaii'- Late season gladiolus. Spike length 75-80 cm; florets 10-14, mahogany- purple. Good cormel yield.

'Jackson Ville Gold'- Mid season gladiolus. Spikes long upto 90-100 cm; florets 19-22, dark red. Cormel production is good.

'Legend'- A good cultivar for cut flower trade. Florets rich deep salmon pink with white throat, beautifully ruffled.

'Majesty'- Late flowering cultivar. Spike length 80-90 cm; florets 15-18 per spike, bloodred. poor cormel yield.

'Meera'- Early season cultivar. Spike length about 90 cm, florets 16- 18 per spike, snow white colour. Good cormel production.

'Melody' - Mid season cultivar. Spike length about 90 cm; florets 19-21 per spike, spinalred with scarlet and Indian yellow blotch.

'Morning Kiss'- Mid season gladiolus. Spike length 80- 85 cm; florets white, 11-14 per spike. Good cormel producer.

'Oscar'- Early season cultivar. Spike length 110-115 cm, floret dark red, 20-22 per spike. Produces large number of cormels.

'Poonam'- Mid season gladiolus. Spike length about 100 cm; florets 17-18 per spike, dresden-yellow with mimosa yellow blotch. A good cormel multiplier.

'Ratna's Butterfly'- An early- flowering gladiolus with novelty colour. Spike length 85-90 cm; florets 13-18 per spike, azalea- pink with purple stripes. A very good multiplier.

'Sapna'- Mid season cultivar. Spike length 85-90 cm; florets 15-18 per spike, barium-yellow with primrose- yellow blotch and mandarinred tinge on margins. Good cormels yield. 'Shobha' – Early season gladiolus. Spike length 100-105 cm, florets 18-19 per spike, shell- pink with empire- yellow throat. Cormel production is very good.

'Suchitra' - Early season gladiolus. Spike length 90-95 cm, florets 16-17 per spike, scarlet with Dutch vermillion and barium blotch and jasper- red spots. Poor multiplier.

'Vink's Glory'- Early season cultivar. Spike length 100cm; florets 18-20 per spike, sulphur-yellow. Cormel yield good.

Conclusion

Gladiolus can give high return per unit area and so is gaining popularity commercially also. The varieties are valued based on parameters like magnificent inflorescence in exhaustive range of colours, different shades, varying number of florets and size, wide range of keeping quality and adaptability to different seasons and places. While selecting cultivars for commercial cultivation of gladiolus, the market value of the cultivar should also be taken into view i.e. the commercial cultivation of the gladiolus should be market oriented also.



Bonsai: A History and a Mystery

Kiran Ghimire Bonsai Artist

Bonsai are ornate, exquisitely formed trees; they are not merely plants but elaborate works of art. The word "pen-tsai", which later became "Bonsai" was first used in China during the Chin dynasty (265 AD to 420 AD). At that time, there was only "tree pen-ching", a term that referred to potted landscapes using only trees. During Sung dynasty (960 AD -1280 AD) the art of "Landscape penching," using decorative rocks and pavilions was developed. This form later became known as "pen-wan". Later in the Yuan dynasty (1280 AD-1368 AD), the size of landscape pen-ching was reduced; and it then became known as "little child scenes, 'which mean "miniature bonsai scenery. During the T'ang dynasty (618 AD-907 AD), the art spread to Japan. It became popular among Japanese civilians after the 2nd world war. The Japanese transliterated the Chinese word "pen-tsai," into "bonsai". This is the name by which the form became known all over the world.

The art is in choosing a tree or a plant that has the potential of becoming a god bonsai, and then growing it, using normal horticulture techniques combined with artistic expression, so that it blends with the container to give an authentic impression of nature in miniature. The beauty of bonsai lies in the balance and harmony between the tree and the pot.

Bonsai varied with size ranging from 2.5 cm (1") to about 125 cm (4ft.). The smallest bonsai is known as mame, and is normally up to about 15 cm (6") high. The next size above mame is called shohin which lies in between 15 to 30 cm (6-12 ") in height. The

largest one with the size of about 30 cm (12") high is simply called bonsai, and is sometimes so large that it takes two or three people to lift it. These larger trees are relatively easier to look after, because they are mainly grown in quite larger pots

Bonsai now began to appear regularly in prints and illustrations of everyday Japanese life. The bonsai containers are enormously important and occasional competitions are held among the potters for the best pots. During eighteenth century, bonsai had its own literature and forms, and this period is regarded as the peak of bonsai in terms of both popularity and achievement. Periodic Japanese bonsai magazines were published during nineteenth century, and regular exhibitions were being held. Special shallow pots were imported from China and Copper was the first metal to be used for shaping branches and trunks. Different approaches for growing miniaturized trees evolved among bonsai growers.

While bonsai was refined into a high art form in the east, the west remained largely ignorant about the culture until the midnineteenth century. Japan was the first country to introduce Bonsai and the travelers who visited Japan, brought the description of fantastic, seemingly aged, miniaturized trees contained in shallow ceramic pots to Europe. Bonsai were marveled by thousands of eager visitors in the Paris exhibition of 1878, 1889 and 1900.

In 1909, the London exhibition brought the art form to an already educated horticulture

public, and bonsai has never been looked back. Its influence has encouraged slowly, in keeping with such an ancient and contemplative tradition. Interest, curiosity and the desire to own such beautiful trees started to grow on gardeners.

By 1920s, Japanese horticulturists had begun to acquire specialized implement, including the concave-cutter. Two years after the great earthquake of 1923 in Tokyo, thirty local families of professional growers rebuilt their bonsai nurseries in a forest clearing the northern edge of Omiya, a small town at northeast of Tokyo. This assemblage of bonsai growers encouraged other interested parties to come to the village, and soon students arrived to learn all about the refined art of bonsai. The village rapidly became the center of the bonsai world.

In twentieth century, bonsai was firmly embedded in Japanese consciousness and the first Kokufu Exhibition was held in Tokyo

in 1934. Kokufu bonsai exhibition, then continued and is held annually in February at the Metropolitan Art Museum in Ueno Park developing all the time, and far such a slow discipline, it was remarkable in its evolution. For example, in the mid-1930s, ideas about bonsai changed and became acceptable to create the shape of the tree in an aesthetically pleasing manner rather than its natural shape. The beauty of the tree became paramount over any other spiritual or symbolic essence that was held. Fashion in bonsai began to be as important and changeable as fashion in art and culture. However, bonsai still represents a fusion of strong ancient beliefs of the eastern philosophies in harmony with humanity, soul and nature.

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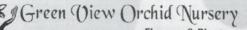
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Transit and Storage Period *

Recommended Temperature and Approximate Transit and Storage Period for Cut flowers and Florist Greens

SN	Product	Temperature (°C)	Temperature (°F)	Storage Life
1	Acacia	4	40	3 to 4 days
2	Alstroemeria	4	40	2 to 3 days
3	Allium	0 to 2	32 to 35	2 Wk
4	Anemone	4 to 7	40 to 45	2 days
5	Anthurium 4	13	56	2 to 4 wk
6	Aster, China	0 to 4	32 to 40	1 to 3 wk
7	Bird-of-Paradise	7 to 8	45 to 46	1 to 3 wk
8	Bouvardia	0 to 2	32 to 35	1 wk
9	Buddleia	4	40	1 to 2 days
10	Calendula	4	40	3 to 6 days
11	Calia	4	40	1 wk
12	Camellia 5	7	45	3 to 6 days
13	Candytuft	4	40	3 days
14	Carnation	-0.5 to 0.6	31 to 33	2 to 4 wk
15	Carnation Buds	-0.5 to 0	31 to 32	4 to 12 wk
16	Carnation, Miniature	-0.5 to 0	31 to 32	2 wk
17	Chrysanthemum	-0.5 to 0.6	31 to 33	2 to 4 wk
18	Clarkia	4	40	3 days
19	Columbine	4	40	2 days
	Careopsis	4	40	3 to 4 days
20	Cornflower	4	40	3 days
21		4	40	3 to 4 days
22	Cosmos	0.5 to 2	33 to 36	1 to 2 wk
23	Crocus	4	40	3 to 5 days
24	Dahlia	4	40	3 days
25	Daisy, English	2	36	1 to 2 wk
26	Daisy, marguerite	4	40	1 wk
27	Daisy, Shasta	4	40	1 to 2 days
28	Delphinium	7 to 10	45 to 50	7 to 10 days
29	Eucharis 5	7 (0 10	40	3 days
30	Feverfew	4	40	1 to 2 days
31	Forget-Me-Not	4	40	1 to 2 days
32	Foxglove	0 to 0.5	32 to 33	10 to 14 days
33	Freesia	0 to 0.5	40	3 days
34	Gaillardia	0 to 1	32 to 34	2 wk
35	Gardenia 5	1 to 4	34 to 40	1 to 2 wk
36	Gerbera	1 to 4	55	4 to 7 days
37	Ginger		40 to 42	5 to 8 days
38	Gladiolus, as buds	4 to 6	40 to 45	1 wk
39	Gloriosa Lily	4 to 7	50	1 wk
40	Godetia	10	40	1 to 3 wk
41	Gypsophila	4	40	1 to 3 wk
42		4	54	10 days
43		12	32 to 33	2 wk
44		0 to 0.5	32 to 33	1 to 2 wk
45		-0.5 to 0.6	31 to 33	3 days
46		4		4 to 6 days
47	Lilac, forced	4	40	4 to 0 days



SN	Product	Temperature(°C)	Temperature (°F)	Storage Life
48	Lily, Easter	0 to 2	32 to 35	2 to 3 wk
49	Lily-of-the-valley	-0.5 to 0.6	31 to 33	2 to 3 wk
50	Lupine	4	40	3 days
51	Merigolds	4	40	1 to 2 wk
52	Mignonette	4	40	3 to 5 days
53	Narcissus (daffodils)	0 to 0.5	32 to 33	1 to 3 wk
54	Orchid, Cattelya 4 5	7 to 10	45 to 50	1 to 2 wk
55	Orchid, cymbidium	-0.5 to 4	31 to 40	2 wk
56	Orchid, vanda	13	55	5 days
57	Orinthogalum	4	40	4 to 6 wk
58	Poppy	4	40	3 to 5 days
59	Poppy, tight buds	0 to 2	32 to 35	4 to 6 wk
60	Phlox	4	40	1 to 3 days
61	Poinsettia	10 to 15	50 to 60	4 to 7 days
62	Primrose	4	40	1 to 2 days
63	Protea	4	40	7 to 10 days
64	Ranuncullus	0 to 5	32 to 41	7 to 10 days
65	Rose in Preservative	0.5 to 2	33 to 35	.4 to 5 days
66	Rose dry pack	0	32	1 to 2 wk
67	Snapdragon	4	40	1 to 2 wk
68	Leucothoe, drooping	2 to 4	35 to 40	STATE OF THE REAL PROPERTY.
69	Magnolia	2 to 4	35 to 40	2 to 4 wk
70	Mistietoe	0	32	3 to 4 wk
71	Myrthus, Myrtie	2 to 4	35 to 40	
72	Palm	7	45	
73	Philodendron	2 to 4	35 to 40	
74	Pittosporum	2 to 4	35 to 40	2 to 3wk
75	Podocarpus	7	45	915
76	Pothos	2 to 4	35 to 40	
77	Rhododendron	0	32	2 to 4 wk
78	Salal (lemon leaf)	0	32	2 to 3 wk
79	Scotch-broom	- 4	40	2 to 3 wk
80	Smilax, southern 6	4 -	40	
81	Staghorn fren	13	55	
82	Vaccinium huckieberry 6	0	32	1 to 4 wk
83	Woodwardia fern	0 to 4	32 to 40	

- 1. Storage periods given should allow satisfactory handling and keeping after removal from storage.
- High relative humidity of 90 to 95 percent recommended in refrigerated storage rooms for cut flowers and florist greens. Likely, some flowers for which temperature of 4 degree is recommended could be stored longer and safely at lower temperatures.
- 3. At retail level, florist greens held at approximate 4 degree for only 1 or 2 wk. Most stored with stems in water, except where noted otherwise.
- 4. Stems of orchids and some anthuriums should be placed in vials of water. However, some orchids are anthuriums may be stored by dry-pack methods.
- 5. Not placed in water for handling or storage but may be misted.
- 6. Usually held in moisture-retentive shipping cases.

(Source: the Refrigeration Research and Education Foundation, hardenburg, Watada, and Wang).



EU Quality Standards for Cut Flowers * (Regulation 316/68)

1. Definition of Produce

These standards shall apply to fresh cut flower buds of a kind suitable for bouquets or for ornamental purposes, falling within subheading no. 06.03 A of the Harmonized Commodity Description and Coding System (HS).

2. Quality Requirements

a. Minimum requirements

Produce must have been carefully cut or picked, according to the species, and have reached an appropriate stage of growth.

b. Classification

i. Class I

Produce in this class must be of good quality. It must have the characteristics of the species, and where appropriate, of the variety (cultivar).

All parts of the cut flowers must be:

- · Whole:
- · Fresh;
- Free of animal or vegetable parasites and from damage caused by such;
- Free of residues of pesticides and other extraneous matter affecting the appearance;
- Un-bruised;
- Free of defects of development; for Dianthus, a split calyx is not considered a defect of development.

However, in respect of American Dianthus, flowers with a split calyx must be ringed, put up separately in uniform lots and the packages marked accordingly. The stems

must, according to species and variety (cultivar) be rigid and strong enough to support the flower(s).

ii. Class II

This class shall include all produce which does not meet all the requirements of Class I.

All parts of the cut flowers must be:

- · Whole:
- Fresh:
- Free of animal parasites.

The flowers may, however, have the following defects:

- Slight malformation;
- Slight bruising;
- Slight damage caused, for example, by disease or by animal parasites;
- Weaker, less rigid stems;
- Small marks caused by treatment with pesticides.

The permitted defects must not impair the keeping quality, appearance or utility of the products.

iii. Extra Class

Produce which qualifies for Class I without the aid of any quality tolerance may be marked 'Extra'. However, this classification may not be used for American Dianthus with a split calyx.

3. Special Provisions

The special provisions for certain types of flowers.

Souvenir

4. Sizing

For cut flowers, sizing must comply at least with the following scale:

Code:	Length:
0	< 5 centimeters or flowers marketed without stems
5	5 - 10 centimeters
10	10 - 15 centimeters
15	15 - 20 centimeters
20	20 - 25 centimeters
30	30 - 40 centimeters
40	40 - 50 centimeters
50	50 - 60 centimeters
60	60 - 80 centimeters
80	80 - 100 centimeters
100	100 -120 centimeters
120	> 120 centimeters

These lengths include the flower head.

The difference per unit of presentation (bunch, bouquet, box, and the like) between the maximum and minimum lengths of the flowers in the unit may not exceed:

- 2.5 centimeters for flowers in codes 15 and below;
- 5.0 centimeters for flowers in codes 20 to 50 (inclusive);
- 10.0 centimeters for flowers in codes 60 and above.

This difference may be doubled for flowers presented in fan shape. For Dendranthema with large flowers presented in fan shape, this difference may go up to 20 centimeters for flowers in codes 20 to 50 (inclusive). The size scale and the uniform lengths set out above are not applicable to mimosa. The minimum length for branches of mimosa shall be fixed at 20 centimeters. However, bundles and bouquets composed exclusively of small

sprigs of a length less than 20 centimeters may be permitted subject to the words 'short term' or an equivalent term being marked on the package.

5. Quality Tolerances

Quality tolerances shall be permitted in each unit of presentation as follows:

Class I

Five per cent of the cut flowers may have slight defects, on condition that the uniformity of the flowers in a unit of presentation is not affected.

Class II

Ten per cent of the cut flowers may vary from the requirements of the class. Half of this percentage may have been attacked by parasites of animal or vegetable origin. The defects in question must not impair the utility of the products.

6. Packaging and presentation

a. Presentation (regulation (EC) No. 802/71)

'A unit of presentation (bunch, bouquet, box, and the like) must consist of 5, 10 or a multiple of 10 pieces. However, this rule does not apply to:

- i. flowers normally sold singly;
- ii. flowers normally sold by weight;
- iii. flowers for which seller and buyer agree expressly to derogate from the provisions concerning the number of flowers in a unit of presentation. This derogation is admissible solely for transactions outside wholesale markets on condition that:
- the goods are the subject of a direct sale, based on a fixed selling price per unit of presentation, at wholesale level to a retailer or a person acting on behalf of a retailer;



- the goods are accompanied by a bill, delivery note or similar document showing the above-mentioned selling price;
- the unit of presentation is in the packaging required by the buyer / for the buyer / for the ultimate purchaser.

This packaging must be such as to permit identification of goods.

b. Uniformity

Each unit of presentation (bunch, bouquet, box, and the like), must contain flowers of the same genus, species or variety (cultivar) and of the same quality class, and must have reached the same stage of development. Mixtures of flowers or mixtures of flowers with foliage of different genius, species or variety (cultivar) are, however, permitted so long as products of the same quality class are used and that they are appropriately marked.

c. Packaging

Packaging must protect the producé adequately. Paper or other materials in direct contact with the cut flowers must be new.

7. Marking

The following particulars must accompany the goods:

a. Identification:

 Dispatcher or packer: name and address or code mark.

b. Nature of produce:

- · Genus:
- Species or variety (cultivar) or colour of flowers;
- where appropriate, the word 'mixture' (or equivalent term).

c. Origin of produce (optional):

 Region or origin, or national, regional or local name.

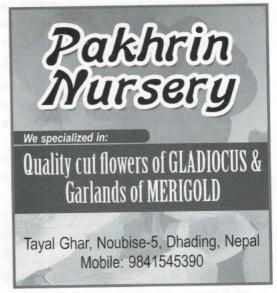
d. Commercial specifications:

- class;
- size (length code) or minimum and maximum lengths (optional);
- number or net weight.

e. Official control mark (optional)

f. Presentation (EC regulation 802/71):

If the number of flowers per unit of presentation does not correspond to the provisions defined by EC regulation packages must be marked to show the exact composition of the units of presentation contained therein.







Import Status of Different Flowers and Plants in Holland Market *

Imports (in million stems) and Average Prices (in Euro) of Flowers and Plants in Dutch Flower Auction Market

SN	Product Name	Import in 2005	Average Prices 2005	Average Prices 2006	Import Share in % 2005
	Total	3442.7	0.21	0.15	29.5
1	Alstroemeria	15.5	0.11	0.13	5.9
2	Ammimajus	6.7	0.16	0.16	78.8
3	Anemone	45.0	0.09	0.10	72.6
4	Anthurium (Domestic 77 million stems)	0	0.53	0.62	0
5	Aster	17.0	0.18	0.18	47.0
6	Carnations Spray	63.0	0.08	0.13	67.0
7	Carnations Stand	74.4	0.13	0.19	57.0
8	Carthamus	6.7	0.17	0.19 🐱	26.8
9	Chrysantmums Spray	0.8	0.15	0.18	0.05
10	Delphinium	9.96	0.17	0.23	36.0
11	Eustome	13.0	0.20	0.26	11.6
12	Gerbera Large	17.7*	0.22	0.25	8.5
13	Gerbera Mini	1.4	0.16	0.26	0.3
14	Gladiolus Big	1.6	0.24	0.40	2.9
15	Gypsophila	156.5	0.18	0.14	90.3
16	Helianthus	25.4	0.25	0.33	38.8
17	Hypericum	138.8	0.18	0.20	83.2
18	Leucadendron	31.0	0.16	0.14	97.8
19	Liatris	7.6	0.15	0.23	76.8
20	Lilium Asiatic	1.1	0.16	0.36	1.4
21	Lilium Longiflor.	8.8	0.32	0.33	11.7
22	Lilium Oriental	1.7	0.40	0.47	1.2
23	Limonium	30.8	0.19_	0.20	48.2
24	Ornithogalum	46.0	0.14	0.14	82.0
25	Protea	3.4	1.10	1.03	97.0
26	Ranunculus	43.2	0.13	0.15	73.1
27	Roses: all varieties: Large	758.5	0.16	0.17	33.6
28	Roses: all varieties: Small	1060.1	0.11	0.10	89.0
29	Rose Spray	43.1	0.10	0.10	51.0
30	Rudbeckia	3.9	0.10	0.07	81.2
31	Ruscus	64.5	0.08	0.08	98.3
32	Solidago	92.2	0.13	0.11	83.9
33	Trachelium	15.6	0.17	0.13	43.5
34	Tulip	6.9	0.14	0.27	0.5
35	Veronica	37.0	0.15	0.15	72.5
36	Wax Flower	57.3	0.14	0.13	97.1
37	All Houseplants including dom		1.29		

Notes: 1. Houseplants include mainly Aglaonema, Chamaedorea Eleg., Cocos, Cordyline, Croton, Dracaena, Ficus Benjamina, Philadendron, Phoenix, Schefflera Arbor., and Yucca.

2. Source: Dutch Flower Auction Market



Prices of Cut Flowers in Singapore Flower Market in January 2006 *

SN	Names of Flower	Sources	Price/stem in US\$
1	Anthurium Assorted Large	Malaysia	1.54
2	Anthurium Assorted Medium	Malaysia	1.29
3	Anthurium Assorted Small	Malaysia	0.99
4	Carnation Spray	China	0.25
5	Carnation Spray	Malaysia	0.22
6	Gladiolus	China	0.62
7	Gladiolus	Malaysia	0.49
8	Lilium	Various	0.92 to 1.82
9	Orchid: Cymbidium	Malaysia	1.54
10	Orchid: Cymbidium	Dutch Green	13.26
11	Orchid: Cymbidium	Dutch White	12.02
12	Orchid: Cymbidium	Dutch Yellow	13.26
13	Orchid: Oymordium BS	Thai	0.18
14	Orchid: Dendrobium L	Thai	0.37
15	Orchid: Dendrobium M	Thai	0.31
16	Orchid: Dendrobium S	Thai	0.25
17	Orchid: Denfrobium XL	Thai	0.43
18	Orchid: Oncidium L	Malaysia	0.55
19	Orchid: Oncidium M	Malaysia	0.37
20	Orchid: Oncidium S	Malaysia	0.26
21	Orchid: Oncidium XL	, Malaysia	0.68
22	Orchid: Phalenopsis	China	2.47
23	Rose Spray	China	4.93
24	Rose Spray	Vietnam	0.55
25	Roses Assorted	India	0.16
26	Roses Assorted	Malaysia	- 0.18
27	Roses Assorted	Sri Lanka	0.21
28	Roses Assorted	Vietnam	0.40
29	Wax flower	Israel	0.22



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Market Access Requirements (Standards and SPS) *

Non-tariff Barriers (NTBs) and their effects on trade and potential opportunities need to be examined carefully before undertaking any transaction. The main NTBs applicable to cut flowers and foliage are phytosanitary control, breeders' rights and IP, quality and grading standards, labeling requirements, traderelated environmental and safety issues, and CITES (The Convention on International Trade in Endangered Species). Phytosanitary regulations, intended to prevent the introduction of plant pests and diseases which are not present in the EU, are important to be considered by the exporter in developing countries for export of flowers and plants to EU markets. Moreover, authorities may also demand environmental as well as social standards connected to the conditions in which plants and flowers are grown and harvested.

A. Product Legislation

The EU Regulation (EC) No 316/68 and 315/68 specify minimum standards required for cut flowers and flowering bulbs. However, the quality standards of the Dutch auctions (VBN) give a much better impression of the general requirements of the European floricultural trade. Regarding cut flowers, foliage, bulbs, tubers and rhizomes the following legislations are relevant:

a. Plant health Control:

The EU Directive 2000/29/EC laid down the protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community. According to the directive the following protective measures are taken:

- Import Bans;
- Phytosanitary certificate and/or phytosanitary certificate for re-export;
- Customs Inspection and plant health checks;
- Importers Register;
- Advance notice on imports.

a.1 Import ban: Member States have banned imports into their territory of:

- Certain particularly dangerous harmful organisms.
- Plants and plant products that are contaminated by the relevant harmful organisms.
- Plants or plant products that originate in the relevant countries.

a.2 Phytosanitary certificate and/or Phytosanitary certificate for re-export:

- Documents should certify the phytosanitary conditions of plants and plants products, and also the shipment has been officially inspected, and complies with statutory requirements for entry into the EU. Also declaring it free from quarantine pests and other harmful pathogens.
- The certificate should be in one of the official languages of the EU and should be issued by the designated authorities of the third country of export or re-export.
- It should be made not more than 14 days before the date on which the plants, plant products or other objects covered by it left the country of issuance.

a.3 Customs Inspection and plant health checks:

Plants and plant products are subjected to customs inspection at the time of their entry into the EU. The inspections include:

- Documentary checks establishing that the required certificates, alternative documents or marks have been issued or satisfied
- Identity checks establishing that the plants, plant products or other objects conform to the ones declared on the required documents and
- Plant health checks establishing that the plants, plant products or other objects, including their wood packing material if any, comply with the specific requirements and phytosanitary measures specified in Directive 2000/29/EC and can be imported into the EU.

The inspections must be made at the point of entry into the EU at the proper Member State's border inspection post (BIP). However, identity checks and plant health checks may be carried out at the place of destination provided that there is satisfaction of specific guarantees and documents regarding transport of plants and plant products determined for each particular case.

a. 4 Importers register

Importers, whether or not producers, of plants, plant products or other objects must be included in an official register of a Member State under an official registration number.

a.5 Advance notice on imports:

 Member States may require airport authorities, harbor authorities, importers or operators to give, as soon as they are aware of the imminent arrival of a consignment of plants, plant products and other objects advance notice to the customs office of point of entry and to the official body of point of entry.

 In addition and without prejudice to provisions of Directive 2000/29/EC, plants, plant products and any other material capable of harboring plant pests may be subject to emergency measures.

b. CITES regulation:

The Convention on International Trade in Endangered Species (CITES) lays down provisions for the protection of endangered species of flora and fauna through controls of the international trade in specimens of these species.

b.1 Trade is prohibited

Species that are the most endangered among CITES-listed animals and plants are threatened with extinction and CITES generally prohibits commercial international trade in specimens of these species. However, trade may be allowed under exceptional circumstances, e.g. for scientific research.

b.2 Trade is bound to restrictions, but permitted

Species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled. International trade in these species may be authorized by the granting of an export permit or re-export certificate. No import permit is necessary for these species under CITES (although a permit is needed in some countries that have taken stricter measures than CITES requires). Permits or certificates should only be granted if the relevant authorities are satisfied that certain conditions are met, above all that trade will not be detrimental to the survival of the species in the wild.

b.3 Regulated trade is permitted

Species included at the request of a Party that



already regulates trade in the species and that needs the cooperation of other countries to prevent unsustainable or illegal exploitation. International trade in specimens of those species is allowed only on presentation of the appropriate permits or certificates.

More information on endangered species can be found at http://www.cites.org/.

c. Breeders' regulation:

Creating and selecting new plant varieties diversifies the number of varieties offered on the market. Furthermore, the technical performance of varieties in terms of yield, size, appearance, disease-resistance and adaptation to different agricultural and climatic conditions, is improved. In this respect, the breeders' work benefits the whole industry by making productive plantbased materials available to producers and invigorating the market by constantly introducing new products. Protection frameworks and royalty payments support the future development of new varieties. An increase in the importance of breeders' rights is to be expected. However, exporters from Nepal should also understand that protection laws and penalties for infringement of breeders' right are not equal worldwide. There are several protection frameworks for new plant varieties:

c.1 Protection in countries belonging to the UPOV (International Union for the Protection of New Plant Varieties)

The UPOV is a group of countries which operates according to the principles of the Convention of the same name in 1961 in Paris. The registered office of this intergovernmental organization is in Geneva (Switzerland). The purpose of the UPOV Convention is to ensure that the member States of the UPOV acknowledge the achievements of breeders of new plant varieties, by making available to them an

exclusive property rights, on the basis of a set of uniform and clearly defined principles. The rights are granted for a limited period of time (25 years) at the end of which varieties protected by them pass into the public domain. For more information see http://www.upov.int/ or http://www.cpov.fr/.

The Convention therefore established four simple protection principles:

- 1. The creator of a variety is the only person who can ensure its multiplication;
- Protection applies to all parts of the plant, and to the products derived from harvesting that plant;
- The breeder is fully entitled to authorize the commercial use of all or part of his protected variety in exchange for the payment of a fee or royalty; and
- The notion of an essentially derivative variety (the breeder is also protected against varieties too close to his own).

c.2 Protection in EU countries (CPVO)(Community Plant Variety Office)

The CPVO is a Community institution, seated in Angers (France) with independent legal status and has been operational since 27 April 1995. Protection to breeders is offered by a Community Plant Variety Right (CPVR), established through Regulation (EC) No 2100/94 on Community Plant Variety Rights. A CPVR is an industrial property right, like patents and copyrights, but designed for plant varieties of which material is produced and commercialized. Its implementation is regulated by Regulation (EC) No 1239/95.

c.3 Other forms of protection :national plant registration: patents and trade marks

Patents:

The TRIPS (Trade-Related Aspects of Intellectual Property Rights) rules of the World



Trade Organization stipulate that member countries must develop provisions for the protection of varieties in their territory. The TRIPS allow its member countries to choose between joining the UPOV and using patents.

Trade mark:

Since 1 April 1994, breeders have been able to apply for a European trade mark. This can be used by the breeder and by companies which pay for the use of licenses. Trade marks can last longer than protection rights, which are limited to 25 years.

License agreements:

A breeder can decide to entrust the production of a protected variety to 'licensed' companies. He must then entrust the marketing material to the multiplier. The multiplier is required to identify the flowers by their names and trade marks. Licenses can be exclusive or non-exclusive. In the case of a non-exclusive license, several companies can protect the variety.

Breeder's rights and developing countries

When an exporter would like to do business in a plant to which a patent is applied, he can only obtain young plant material from the one company holding the patent. Propagating of this plant material is also prohibited. To receive the grant of the breeder's right in a country which is a member of the UPOV; a grower should file an application with one of the contracting parties of the UPOV. The authority in the area of breeder's right will then examine if the variety is new, distinct, uniform and stable.

B. Quality related market requirement

The quality of floricultural products demanded by European traders and consumers is extremely high. As indicated earlier, there are EU regulation (Regulation (EC) No 315/68 and 316/68 that specifies

minimum requirements for floricultural products. However, the quality standards of the Dutch Auctions (VBN) give the general requirements of the European floricultural trade.

The VBN product specifications are more detailed and specific than those of other EU markets. If selling via one of the Netherlands auctions, these standards are compulsory. Exporters from developing countries must be familiar with the specific standards required for their products. An example of such a norm sheet which specify the quality, packing and marking standards required for each product. Some of them are ISO 9000, EUREGAP and Florimark. For more information see http://www.vbn.nl/. For Standards refer http://www.iso.org/.

C. Social Requirement

Apart from ILO conventions and SA8000 other labels and standards such as Fair Flowers and Plants, EUREPGAP and MPS also social provisions. include Accountability 8000 (SA8000) is based on the internationally accepted ILO Conventions. It now has 572 facilities certified, 50 industries represented and 45 countries involved. Exporters in developing countries trading with European companies and wishing to demonstrate to companies and consumers that they are treating workers fairly can apply for certification. Applying codes of practice in Europe is not without its problems, but in developing countries, their implementation will be even harder for exporters and growers.

D. Environmental Requirements

In recent years, issues such as Life Cycle Assessment (LYA) of products, Cleaner Production (CP) and Eco-design have all become important tools for companies to improve on the environmental performance of their products and production processes

(by analyzing where the environmental impacts are the largest and how a company may improve on these points). This can lead to both internal (improved efficiency) and external (perceived image) advantages. Companies that apply the environmentally sound approach gain a reward in the form of formal recognition, which can in turn be used as a 'green' marketing tool. These tools can be environmental management standards (for the whole organization, such as ISO 14001 and EUREPGAP) and eco-labels.

E. Occupational health and safety

The prime health and safety concern in this sector is the use of pesticides. Not only can the use of pesticides cause immediate and long-term health and safety problems at the production site, but they can negatively influence the competitiveness of the products on the EU market as well. Other important issues are good housekeeping, safety of machines and physical strain experienced by employees. Refer http://www.st-mps.nl/.

F. Environmentally sound production

The cultivation of flowers can potentially be environmentally very unsound, depending on the manner of cultivation and the chemicals used for disease control, pest and weed control, as well as the use of fertilizers. Inappropriate floriculture methods can seriously damage and pollute large areas of land and water. Too much use and misuse of, often toxic, herbicides and pesticides can cause damage to human, animal and plant life.

The amount of waste, caused by dumped containers, can be reduced by using containers which are made of biodegradable materials, for example peat, paper or biodegradable plastic. Another option is to collect used plastic containers and re-use or recycle them. If possible, containers made of recycled plastic should be used.

Fertilizers

The extensive use of fertilizers can cause eutrophication (the aging process of a body of water choked by plant life; evolution into a marsh, with the depletion of available oxygen followed by eventual disappearance) threaten the supply of drinking water, cause atmospheric emissions and effect the crop quality. Experiments prove that it is possible to grow flowers without chemical fertilizers. Manure from barnyards, stables or feedlots can be used as natural fertilizers. Other sources of organic or natural fertilizers include bone, castor bean, cottonseed, fishmeal, dried blood and sewage sludge. Furthermore, it is possible to collect waste from agricultural and floricultural companies and compost it.

Pesticides

The use of pesticides can have various environmental and health impacts. It is important for farmers and workers to deal with pesticides in a way that will have little or no effect on their health and the environment. Awareness of different ways to control pests is important: alternative methods, integrated pest management (IPM) and developments in biotechnology. If pesticides are used it, is important to take the necessary precautions.

G. Packaging, Marking and Labeling

Different packaging materials are used, depending on the type of product and the function of protection and influence over the micro climate required. The packaging has to satisfy a number of conditions, mainly in the field of handling, and the protection of the quality. The transport volume must be as efficient as possible, and a high level of uniformity is desirable. In order to optimize transportation, it is recommended to use boxes, the measurements of which are in accordance with the EU pallet sizes or the airfreight pallet.

The trade in flowers and plants generates a considerable amount of (transport and sales) packaging waste such as boxes, trays and plastics. Furthermore, packaging materials can cause pollution due to toxic substances. The best solution should be found in environmentally sound packaging, while sufficiently protecting the flowers. It is important to use re-usable and recyclable material and to limit the amount of packaging where possible.

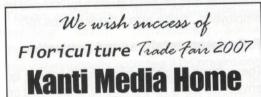
As of March 1, 2005 a new amendment has been made regarding new Phytosanitary measures for all wooden packaging material that is used with the import of goods into the EU from third countries. The background for this legislation is to protect the EU from the introduction of organisms harmful to plants and plant products via wood packaging material. The Directives 2004/102/EC and

2005/15/EC require heat treatment or fumigation and marking of wooden packaging materials (including for example packing cases, boxes, crates, drums and similar packing, pallets, box pallets and other loader boards, pallet collars). The requirements refer to the international standard ISPM 15. As of March 1st 2006 the additional requirement applies that round wood packaging material shall be made from debarked round wood. For more information on this label and its requirements, see http://www.flower-labelprogramm.org/

* Data presented in different tables and the contents from Page 43 to page 55 have been reported in the "Trade Compitiveness of Floricultural Sub-sector in Nepal" jointly prepared by FAN and AEC/FNCCI. The report consists of all the aspects related to the trade competiveness of Nepalese floriculture in domestic as well as international market.







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