Nepalese Floriculture

Floriculture Association Nepal (FAN)

Basttishputali-9, Kathmandu, Tel/Fax: 977-1-4465704
fan_nepal@yahoo.com, info@fanepal.org.np
www.fanepal.org.np, www.nepalfloraexpo.com.np

Nepalese Floriculture

18th Flora Expo 2015

"Clean Environment and Economic Prosperity through Floriculture"

Editorial Committee:

Dr. Umed Pun
Lok Nath Gaire
Rajesh Bhakta Shrestha
Janga Bdr. Tamang

Floriculture Association Nepal (FAN)

Battishputali, Kathmandu

Published by:
Floriculture Association Nepal (FAN)
Battishputali-9, Kathmandu, Nepal
Tel/Fax: +977-1-4465704
E-mail: fan_nepal@yahoo.com, info@fanepal.org.np
www.fanepal.org.np, www.nepalfloraexpo.com.np

1500 Copies
2015 AD.

Volumn: 18

Design and Layout By:
Sabin Maharjan

Printed By:
S 2 Printers & Stationery
Naya Bazar-16, Town Planning, Kathmandu
Tel.: +977-1-4358921, Cell: 9841722948
E-mail: s2printers@yahoo.com.au

नेपाल उद्योग वाणिज्य महासंघ
Federation of Nepalese Chambers of Commerce & Industry
FNCCI

P.O. Box : 269
Sahid Sukra
FNCCI Milan Marg, Pachali
Teku, Kathmandu, Nepal
Tel. : 4262061, 4262218, 4266889
Fax : 977-1-4261022, 4262007
E-mail : fncci@mos.com.np
http://www.fncci.org

शुभ–कामना

पुष्प व्यवसायीहरूको प्रतिनिधि संस्था फ्लोरीकल्चर एशोसिएसन नेपाल (Floriculture Association Nepal) ले पुष्प व्यवसायको विकासमा खेलेको भूमिकाको सराहना गर्दछु । व्यवसायिक पुष्प खेतीमा आज जतिपनि नेपालले प्रगति गरेको छ यसको सम्पूर्ण श्रेय संघलाई दिनु पर्दछ । संघको निरन्तरको प्रयासका कारण नेपालमा पुष्प व्यवसाय निकै संगठित र विकसित हुँदै गएको कुरामा कसैको दुईमत छैन । यस महासंघको सक्रिय वस्तुगत सदस्य संघले हासिल गरेको यो सफलताको नेपाल उद्योग वाणिज्य महासंघ उच्च प्रशंसा गर्दछ ।

नेपालको भौगोलिक विविधता एवं जलवायु पुष्प व्यवसायको लागि निकै उपयुक्त मानिएको छ । पुष्प व्यवसायले उद्योगको रूप लिई सकेको आजको अवस्थामा आन्तरिक बजारमा फूलको माग पूर्ति गर्नुको साथै अन्तराष्ट्रिय बजारको माग र चाहना अनुरूप फूलहरू उत्पादन गरी निर्यात गर्न समेत नेपालले सफलता प्राप्त गरेको छ ।

एशोसिएसनले प्रत्येक वर्ष नेपालको पुष्प व्यवसाय र यससँग सम्बन्धित उद्योग व्यवसायको विकासका लागि विभिन्न स्वदेशी व्यवसायीहरूलाई सहभागी गराई आयोजना गर्दै आएको पुष्प व्यापार मेला यस अर्थमा निकै सहयोगी भएको मैले पाएको छु । नेपाली किसानलाई व्यावसायिक फूल उत्पादनमा हौसला एवं उत्साह प्रदान गर्न यो मेला निकै सहयोगी हुदै आएको छ । यस वर्ष पनि चैत्र ७ देखि १० गतेसम्म 18th Flora Expo-2015 आयोजना गर्न लागेको र यस व्यवसायलाई अझ बढी विकसित गरि लैजान थप सहयोग पुग्ने विश्वास लिएकोछु । पुष्प व्यवसायको विकास तथा यस व्यवसायमा लाग्न उत्सुक सबैका लागि यस्ता मेला प्रेरणाको स्रोत एवं मार्ग निर्देशक हुने र नेपाली पुष्प व्यवसायलाई प्रतिस्पर्धी, गुणस्तरीय बनाउन समेत सहयोगी हुने मेरो विश्वास छ ।

अन्त्यमा, पुष्प व्यवसाय सम्बन्धी विविध सामग्रीहरू सहित प्रकाशित गर्न लागेको पुष्प विशेषांक Nepalese Floriculture, Volume 19 को संस्करण पुष्प व्यवसायी र यस क्षेत्रमा रूची राख्नेहरूका लागि अत्यन्त उपयोगी हुने विश्वास व्यक्त गर्दै उक्त प्रकाशनको साथै पुष्प प्रदर्शनी/पुष्प व्यापार मेलाको पूर्ण सफलताको लागि हार्दिक शुभ–कामना व्यक्त गर्दछु ।

भवदीय,

(प्रदीपजंग पाण्डे)
अध्यक्ष

२०७१/१२/१

नेपाल सरकार
कृषि विकास मन्त्रालय

फोन नं. ४२११६३५
४२११८०८
४२११४३२
४२११६६५
४२११६८७
४२११४१५
४२११४४०

फ्याक्स: ४२११४३५
सिंहदरबार, काठमाडौं
नेपाल ।

पत्र संख्या:

च.नं.:

शुभकामना

फ्लोरिकल्चर एशोसिएसन नेपालले बिगत बर्षहरुमा जस्तै यस बर्ष पनि राष्ट्रिय स्तरको पुष्प मेलाको आयोजना गर्न लागेको थाहा पाउदा मलाई अत्यन्त खुसी लागेको छ । पुष्प मेला आयोजनासंगै पुष्प खेती सम्बन्धी उपयोगी सामग्री सहित बिबिध लेख रचनाहरुको संगालोको रुपमा **Nepalese Floriculture (Volume 19)** प्रकाशन हुनु प्रशंसनीय कार्य हो ।

हाम्रो देशको जलबायु र भौगोलिक विविधता पुष्प व्यवसायको लागि निक्कै उपयुक्त रहेको पाईएको छ । पुष्प खेती तर्फ कृषकहरुको अभिरुची बढ्दै गएको र फूलको आन्तरिक बजार दिनानु दिन बढ्दै गएको छ । यस व्यवसायको प्रबर्द्धनका लागि नेपाल सरकारबाट **"पुष्प प्रबर्द्धन नीति २०६९"** जारी गरि कार्यन्वयन कार्ययोजना तयार भई यसै आ.ब.०७१/७२ बाट बजेट बिनियोजनको शुरुवात गरेको छ । यस क्षेत्रको संभाव्यता अनुरुप पुष्प व्यवसायको व्यवसायीकरण गरी थप गुणस्तरिय, प्रतिस्पर्धी र दिगो बनाउनुका लागि निर्यात प्रबर्द्धन गर्ने दिशामा थप कृयाशिल हुनु पर्ने देखिन्छ ।

एशोसिएसनद्वारा आयोजित राष्ट्रिय स्तरको यो मेलामा पुष्प बिज्ञ, उपभोक्ता उवं उत्पादकहरु एउटै थलोमा भेटघाट हुने अवसर मिलेको छ । यसबाट पुष्प व्यवसायमा संलग्न व्यवसायी, उद्यमीहरुलाई हौसला र प्रेरणा मिल्ने छ र व्यवसायको आधुनिकरणमा समेत योगदान पुग्ने अपेक्षा लिएको छु ।

अन्तमा **FAN** ले भृकुटीमण्डप प्रदर्शनी हल काठमाण्डौमा **१८ औ** फ्लोरा एक्स्पो यहि चैत्र ७ देखि १० गतेसम्म संचालन गर्न लागेकोमा पूर्ण सफलताको कामना गर्दछु ।

उत्तम कुमार भट्टराई
सचिव

२०७१ चैत २

Regd. No. 244/049/50

फ्लोरिकल्चर एशोसिएसन नेपाल (फ्यान)
Floriculture Association Nepal (FAN)

Ref.:

शुभकामना सन्देश

कृषि व्यवसाय भित्रको पुष्प क्षेत्रलाई बिस्तारै परिमार्जित एवं परिष्कृत गर्ने क्रममा फ्लोरिकल्चर एशोसिएसन नेपालको दुई दशक भन्दा लामो अथक परिश्रमबाट विस्तारै परिमाणहरु आउन शुरु गरेको कुरालाई पाठक समक्ष पुऱ्याउन पाउँदा खुसी लाग्नु स्वभाविक हो । नेपाल सरकारबाट "पुष्प प्रबर्द्धन नीति २०६९" जारी गरी सोहीअनुरुप कृषि विकास मन्त्रालयले कार्यान्वयन कार्ययोजना तयार गरी यसै आ.ब.०७१/७२ बाट बजेट बिनियोजनको शुरुवात हुनु एक सुखद समाचार हो । यसका अतिरिक्त प्राविधिक शिक्षा तथा व्यवसायिक तालिम परिषद (CTEVT) बाट एशोसिएसनको सहयोगमा गार्डेन डिजाईनर, फ्लोरिष्ट र नर्सरी सहायक गरी तीन वटा विषयमा आधारभुत तालिमका लागि पाठ्यक्रम तैयार गरी तालिम लिन वा दिन चाहनेहरुका लागि मार्ग चित्र अगाडी सारेको छ । यी सबै कदमहरुमा पुष्प व्यवसाय समेटिनुका पछाडि एशोसिएसनले बिगतमा गरेको प्रयासले महत्वपूर्ण भुमिका खेलेको छ ।

पुँजी र प्रविधी बिनाको औद्योगिक बिकासको कल्पना समेत गर्न सकिदैन । हाल नेपाल सरकारबाट विभिन्न बैंक तथा वित्तिय संस्थालाई कृषिमा लगानी गर्न उत्प्रेरित गर्ने कदम स्वागतयोग्य नै छ । तथापि कार्यान्वयनको क्रममा बैंक वा बिमा कम्पनीहरुले कृषि क्षेत्रमा लगानी गर्न प्रर्याप्त मात्रामा रुची नदेखाउनुले केही अन्यौल श्रृजना गरेको छ ।

आयातलाई क्रमश घटाउदै लगी निर्यातमा थप प्रयास गर्नु आजको हाम्रो आवश्यकताहो । आन्तरिक बजारको आकार बढी हुँदा समेत आयातलाई बढ्न नदिनुले हाम्रो उत्पादन बृद्धिलाई संकेत गरिरहेको छ तापनि निर्यातलाई लक्षित गरी प्रविधीमा यथेष्ट मात्रामा बिस्तार हुन सकेको छैन । बिगत केहि बर्षदेखि प्रविधीमा परिवर्तन गर्नु पर्दछ भन्ने लक्ष्यका साथ केही व्यवसायीहरु निरन्तर रुपमा अघाडि बढेको पाइएतापनि यसलाई सम्पुर्ण व्यवसायीहरु समक्ष पुऱ्याउन सकिएको छैन । यसै तथ्यलाई मनन् गरी आगामी बर्षहरुमा नर्सरी एवं कट फ्लावर उत्पादनमा उच्च स्तरका ग्रीनहाउसको प्रयोगमा एशोसिएसनले बहस चलाई धेरै भन्दा धेरै व्यवसायीलाई यसको प्रयोगमा जागरुक बनाउने तर्फ अग्रसर गराउने प्रयत्न शुरु गरेको छ ।जब प्रविधीमा परिवर्तन आउँदछ तब मात्र उत्पादन, उत्पादकत्व र गुणस्तरमा परिवर्तन ल्याउन सकिन्छ । यसले समष्टिगत आयात प्रतिस्थापन र निर्यात प्रवेशलाई सहज बनाउँदछ ।

हामीले दिगो बिकासका लागि अघि सानुपर्ने कदमहरु मध्ये स्थानिय (रैथाने)बीउ, बिजन र बोट बिरुवाको व्यवसायीकरण एक महत्वपूर्ण बिषय हो । यसलाई दृष्टिगत गरी एशोसिएसनले आगामी बर्षहरुमा आलंकारिक बोट बिरुवा उत्पादन व्किास र बिस्तार गर्ने लक्ष्यका साथ "Vision Ornamental" अघाडि सारेको छ । वनस्पती विभाग र विश्वबिद्यालयहरुसंगको सहकार्यमा यी विषयहरुलाई अगाडि बढाउने लक्ष्यका साथ हामी अघाडि बढिरहेका छौं । आशा छ भविष्यमा हामीले नेपालका बोट बिरुवाको व्यवसायीकरणबाट राष्ट्रिय र अन्तराष्ट्रिय पहिचानको निर्माण गर्न सकौं ।

अन्तमा हामीलाई सहयोग गर्ने नेपाल सरकारका अंगहरु, कृषि मन्त्रालय, उद्यमी व्यवसायीहरु, विज्ञहरु लगायत पदाधिकारी र कर्मचारी साथीहरुलाई आ-आफ्नो क्षेत्रबाट पुष्प व्यवसाय र एशोसिएसनलाई उपलब्ध गराउनु भएको सल्लाह, सुझाव र सहयोगको लागि हार्दिक आभार प्रकट गर्न चाहन्छु । आगामी दिनहरुमा यहाँहरुको सदैव साथ र सहयोग रहनेछ भन्ने समेत आशा लिएको छु ।

.....

लोकनाथ गैरे
अध्यक्ष

Battishputali-9, Dhobikhola, Kathmandu, Nepal, Tel./Fax: +977-1-4465704
Email: fann@wlink.com.np, fan_nepal@yahoo.com, Website: www.fanepal.org.np, www.nepalfloraexpo.com.np

सम्पादकीय

फ्लोरिकल्चर एशोसिएसन नेपालले प्रत्येक वर्ष नयाँ अंकका साथ पुष्प क्षेत्रसँग सम्बन्धित बिषयहरुलाई समेटी तपाईहरुको हातमा १९ औं संस्करण लिएर आएका छौं । मेला तथा प्रदर्शनीमा स्मारिकाको रुपमा प्रकाशन हुदै आएकोमा यो अंकबाट नेपालको पुष्प व्यवसाय (Nepalese Floriculture) को रुपमा परिवर्तन गरी यहाँहरु समक्ष ल्याएका छौं । पुष्प सम्वन्धी लेख, रचना, अध्ययन, अनुसन्धान र सुचनाहरुलाई नियमित रुपमा प्रकाशन गर्नका लागि वार्षिक प्रकाशनलाई क्रमशः बढाउदै लैजाने सोच अगाडि सारेका छौं ।

उच्च मुल्यवान बाली भएकोले पुष्प उत्पादन, भण्डारण, सम्बेष्ठन तथा ढुवानीका क्षेत्रमा फरक फरक प्रविधीको प्रयोग गर्नुपर्ने हुन्छ । हाम्रो जस्तो भौगोलिक विविधता भएको क्षेत्रमा एक स्थानमा गरिएको परिक्षण अर्को स्थानमा उपर्युक्त नहुन सक्दछ । तसर्थ धेरै उत्पादन परिक्षण र प्रविधीको प्रयोग गर्नुपर्ने अवस्थामा विभिन्न सूचनाहरु संकलन, विश्लेषण र दिईएका सुझावहरु आम उत्पादक एवं उपभोक्ता समक्ष पुऱ्याउने हाम्रो लक्ष्य रहेको छ । यो लक्ष्यलाई आ-आफ्नो क्षेत्रबाट समय सापेक्ष सहयोग गरी दिनु हुन हार्दिक अनुरोध गर्दछौं ।

प्रस्तुत अंकमा Replacement of Methyl Bromide for use on control of soil borne pathogen on cut flower industry, Public parks of Sindhuli district, Repairs and Maintenance of greenhouse structures and Micro Irrigation Systems, Effect of different Levels of vermiliquer on quality parameters of potted Marigold in Bharatpur, Chitwan नेपालमा पुष्प तथा पुष्प-जन्य वस्तुको उत्पादन, निकासी संभावना, आयात प्रतिस्थापनको व्यवसाय आदि लेखहरु समेटेर यहाँहरु समक्ष ल्याएका छौ । FAN को आ.२०७०/७१ को वार्षिक प्रतिबेदन समेत यस स्मारिकामा प्रस्तुत गर्ने क्रमलाई पनि निरन्तरता दिएका छौं ।

पुष्प क्षेत्रमा लाग्नु भएका उधमी व्यावसायीहरु, अध्ययन अनुसन्धानमा लाग्नु भएका महानुभावहरु, सरकारी तथा गैर सरकारी संघ संस्थाहरु लगायत सम्पूर्ण पुष्प प्रेमी महानुभावहरुले यसबाट थोरै भएपनि पुष्प सम्बन्धि सामग्रीहरु प्राप्त गर्नु हुनेछ र यसबाट लाभन्वित हुनुहुनेछ भन्ने आशा लिएको छौं ।

अन्त्यमा यस Nepalese Floriculture प्रकाशनमा लेख रचना पठाई सहयोग गर्नुहुने लेखकहरु, विज्ञापन दाताहरु प्रति हार्दिक धन्यवाद ज्ञापन गर्दछौं । आगमी दिनहरुमा पनि यहाँहरुको अमुल्य सुझाब, सहयोग र सद्भावको अपेक्षा गर्दछौ । प्रकाशनका क्रममा भएका कमि कमजोरी प्रति वेलैमा सचेत गराई यसको स्तर उन्नती गर्न र समय सापेक्ष परिमार्जन गर्न यंहाँहरुको सहयोगको सदैव हार्दिक अपेक्षा राख्दछौं ।

TABLE OF CONTENTS

फ्लोरिकल्चर सहकारी संस्था लि.

स्थापनाको पाँचौ वर्ष सफलताका साथ पुरा गरी
छैठौं वर्षमा प्रवेश गरेको उपलक्ष्यमा
यस सहकारी संस्थाको उत्तरोत्तर प्रगतिको कामना
साथै
नव वर्ष २०७२ को
हार्दिक मङ्गलमय शुभकामना व्यक्त गर्दछौं ।

फ्लोरिकल्चर एशोसिएसन नेपाल

शुभ-कामना

स्थापनाको पाँचौ वर्ष सफलताका साथ पुरा गरी
छैठौं वर्षमा प्रवेश गरेको उपलक्ष्यमा
यस सहकारी संस्थाको उत्तरोत्तर प्रगतिको कामना
साथै
नव वर्ष २०७२ को
हार्दिक मङ्गलमय शुभकामना व्यक्त गर्दछौं ।

नर्सरी उप समिती परिवार

Replacement of Methyl Bromide for use on control of soil borne pathogen on cut flower industry

Manoj Basnet
Head of the Department
B.Sc. HFM
MRMC/TU, Ilam

Introduction

Commercial floriculture worldwide is characterized by high investment and stringent quality demands which often imply high pesticide usage. Consumers want perfect flowers completely free of damage caused by pests and diseases. Additionally, more and more flowers are being grown in tropical countries where the climate is benign and allows for year round production at reasonable costs. The flowers are then exported to temperate countries. Increasing trade in flowers has lead to the establishment of stringent phyto-sanitary measures at ports of entry in an effort made by importing authorities to avoid accidental entry and spread of unwanted pests and diseases in their countries. Generally, this means that exporters are required to send flowers that are disease and pest free.

Most importantly though, in every country in the world where flowers are grown for commercial purposes, production is greatly affected by severe diseases that prevail and build up in the soil leading to significant losses in yield and quality. Eradicating these noxious organisms from the soil can be difficult; they may even render whole areas unsuitable for the production of susceptible flowers, and make soil disinfestations mandatory. Traditionally, the treatment of choice has been fumigation with methyl bromide (MB) given its wide spectrum of action, its efficacy, and its cost which is usually lower than that of other fumigants.

Methyl bromide is an ozone depleting pesticide that is used to fumigate soil before planting some crops, to treat some commodities and grains after harvest, to fumigate buildings and vehicles, and to disinfest some commodities before export to or upon import from another country ("quarantine and pre-shipment" uses). The pesticide is produced primarily in the United States, Israel, Japan and France, with some reported production in the Ukraine, China and Romania.

Methyl bromide is extremely toxic, acting as a broad-spectrum biocide that kills most living organisms exposed to it. Direct exposure causes a range of health effects in humans, including neurological symptoms such as headaches, nausea, muscle tremors and visual disturbance. Toxicology studies indicate that the pesticide can cause birth defects in animals6, and severe exposure can lead to death. It is also a potent ozone depleting substance (ODS). The bromine atom from methyl bromide acts quickly in the stratosphere ozone to break down 60 times as much ozone as a chlorine atom from CFC emissions. Ozone depletion contributes to human health problems caused by increased exposure to ultraviolet-B radiation (UV-B). UV-B is known to affect human health by causing eye cataracts, skin cancer, and suppression of the immune system.

The occurrence of edaphic plant pathogens, mainly nematodes and fungi, frequently constrains cut-flower production. The root-knot nematodes Meloidogyne hapla, M. incognita, and M. javanica have

been found associated with the decline of various crops such as roses, carnations, and strelitzia (Reis, 1985). Fusarium wilt has also affected the carnation at Spain. It is very difficult to control the soil born disease and pest. Methyl bromide during previous years was considered only the best option to control these soil borne pathogens. But this chemical has already been phased from developed countries because of its action in depleting the ozone layer. The flower can be grown even without the use of MB which has been practiced by Colombia. It is the first country which produced quality flowers even without the use of MB and became the second largest flower export in the world after Netherland. This was possible as the Colombian soil was high in organic matter content.

Similarly, at present, Nepal is also emerging towards floribusiness. The transaction of cut flowers is going on increasing day by day. According to FAN, 2013, the floriculture transaction was found to be around NRs. 105.32 crores. There might be chance of misuse of the chemicals on the name of increasing flower production. Government of Nepal should strictly prohibit the import of this chemicals by sensitizing its quarantine department.

Alternatives to methyl Bromide for commercial floriculture

Substituting MB requires a grower to take a new approach towards producing flowers. There is no single replacement for this product; rather, a holistic approach, involving different measures which together lead to disease reduction, is the answer. In different parts of the world, several alternatives to MB are already in use in cut flower production, often with excellent results.

Depending on circumstances related to environmental conditions, supplies, infrastructure available and others, one or another of these alternatives might be more suited for a particular grower. However, the best option is to combine or integrate them in a programme so that together, they lead to the best results.

Steam sterilization (Pasteurization)

Pasteurization or steam sterilization of the soil is a process by which pests, diseases and weeds present in the soil at a given time are killed by heat. Although dry heat can in theory be applied with very similar results, steam is preferred because it diffuses more efficiently through the soil and is generally more cost effective. In very simple terms, steam sterilization involves injecting or otherwise diffusing hot water vapor into the soil with the aid of a boiler and conductors such as metal or hose pipes in order to kill noxious soil-borne organisms. The soil needs to be covered with canvas or a resistant plastic sheet to keep the steam in contact with it. As a general rule, it is recommended to carry out treatment so that the coldest spot in the soil or substrate is held at 90°C for ½ hr.

If carried out properly, steam is probably the best alternative to MB, proving equally effective. Its utilization is not new to the industry; steam has been used in greenhouses for many decades. In fact, with the advent of soil fumigants, some growers abandoned this technique in their favor, due mainly to reduced costs and simplicity of application.

Many variables influence the success and cost effectiveness of steam, for example

the boiler and diffusers used, soil type and structure and soil preparation (Morey, 2001; Pizano, 2001). Other problems may also arise in association with steaming itself, such as accumulation of soluble salts (particularly manganese), ammonium toxicity and recontamination. Some helpful guidelines to prevent this are: Use only disease-free plant material; replant treated areas as quickly as possible, ideally as soon as the soil cools off; avoid disrupting or manipulating the soil whenever possible; and practice hygienic measures that help prevent disease dissemination. Adding compost and / or beneficial organisms such as Trichoderma also gives good results (Carulla, 2001).

It is important to note that steam is always more effective when a limited amount of substrate is treated but not the ground soil. This is due to the depth at which harmful organisms can be found in the soil, which too often is either out of the reach of steam or can be reached only at extremely high costs. Heating the soil at depths of more than 30 cm requires much longer use of the boiler, more hand labour and fuel quantities that may render this to costly. However, steam can be used as an alternative to MB for flowers grown commercially, when it is part of an integrated management system that helps maintain diseases and pests at low levels of incidence. This allows for treatment of the first 30 cm of soil to be sufficient for reducing pathogen populations significantly. For example, the carnation wilt fungus Fusarium oxysporum f.sp. dianthi) can be controlled at costs comparable to those of fumigants. Resistant varieties work well with steam, as they can be grown in areas where disease has occurred in the past (Carulla, 2001).

Steam has other benefits when compared to fumigants, as these usually require a waiting period, sometimes at least thirty days - before replanting can occur, while steamed soils can be replanted immediately.

Compost

It is a crucial solution to large amounts of plant waste generated in flower farms, composting has now become more popular because the rich organic amendment obtained not only is an excellent fertilizer but also contains high amounts of beneficial organisms that prevent and help to control soil-borne diseases. Compost contributes to restoring natural soil flora and increases water retention capacity.

Compost enriched with beneficial organisms such as Trichoderma provides very good control of soil fungi such as Phoma and Pythium, in Dendranthema ranges (Valcárcel, 2001). These fungi are associated with monoculture, poor soil structure and aeration and deficient water management. Addition of compost has virtually eliminated these problems and no soil steaming or fumigation is now necessary, which represents not only big savings but also a much friendlier approach towards the environment.

Growers also report fewer problems with soluble salts and an overall improvement in plant vigor and productivity. In Dendranthema nurseries, compost is easily incorporated into the soil as cropping cycles are short (about four months) and plants have to be completely removed and new ones put in. However, it can also be applied during the cropping cycle of many flowers with excellent results (Pizano, 2001).

Soil less substrates

Cultivation of cut flowers on raised beds and in artificial (inert) or soilless substrates (sometimes called hydroponic production) has been widely used for many years in several countries including Holland and Israel. The reasons for using them have generally been associated with the presence of poor soils that are not suited for flower or vegetable production.

Raised or otherwise isolated beds have several advantages including no necessity to fumigate or the possibility of a limited amount of substrate requiring sterilization. Better control of plant nutrition is also possible. In the past, growers in the developing world often considered this option too costly and "high-tech". Materials such as rock wool and even peat moss were often not available and needed to be imported. Concrete raised beds and floors are usually very expensive. These factors, together with the availability of plentiful extensions of fertile, rich soils, explain why soilless culture did not become widespread in tropical and subtropical countries where flowers are produced. For many years, when soil-borne diseases that were difficult to control caused economic losses, a grower would simply plant the next crop on "new" soil, leaving the infested areas for producing a different non-susceptible species.

However, in recent years this situation has started to change. Many times flower industries have developed around large cities where international airports are readily accessible for shipping their products. As cities have developed over time, land often becomes expensive and expansion of farms is restricted, hence new soil is no longer within easy reach. Broad-spectrum fumigants either will not be available (for example MB) or will be restricted in their use by other environmental or health concerns. Steam is too costly as a control measure for soils already containing high populations of pathogens.

These reasons have stimulated flower growers to look for materials and systems that are locally available, suitable for soilless production and economically feasible. Among these, rice hulls, coir (coconut fibre substrate), sand and composted bark, are possibly the most promising (Calderón, 2001). Although setting up a soilless production system is expensive – around 47% more expensive than traditional ground beds - growers are able to compensate the extra cost through significantly better yields (20-25%) that result from higher planting density, optimum plant nutrition and better pest and disease control (Carulla, 2001; Valderrama and La Rota, 2001).

Fumigants

Trials and experiences with soil fumigants in floriculture have shown that their effectiveness varies with factors according to the pathogens to be controlled, the soil characteristics and crop species. These chemicals have been combined together or with other options such as steam with variable results (Arbeláez, 2000).

Several fumigants are being evaluated as alternatives to MB, both by commercial growers in many countries, as well as in several demonstration projects conducted by the Montreal Protocol's implementing agencies (Pizano, 2001). The most promising results have been obtained with metam sodium, dazomet and 1,3 dichloropropene + chloropicrin.

However, when determining the treatment of choice, cost is not the only

factor to be considered as the environment, sustainability of production, health hazards and others also play an important role in this decision.

Integrated control

Due to the difficulties encountered when searching for methods of controlling soil-borne plant pathogens such as F. oxysporum f.sp. dianthi, the integration of several methods with partial effectiveness seemed to be essential. This approach was followed in some extent, since plastic trapping at the time of treating soil with fumigants or organic amendments increased the soil temperature over the 4 week period to close to solarization temperature, even though the time of trapping was not optimal in this regard.

Recently, Eshel et al. (2000) emphasized the importance of integrated control combining short duration (8 days) solarization and fumigation at low dose, and found relevant the sequence of these two methods of control in order to have synergic effects.

Other important approaches to study are the combination of eradication methods of control and the use of carnation cultivars with a high degree of resistance to the pathogen (Ben-Yephet et al. 1997), and the combination of those with the use of biocontrol agents, mainly non-pathogenic Fusaria, Trichoderma and Streptomyces (Gullino, 1997; Pizano, 1997).

Summary and conclusions

The control of soil borne plant pathogens is not an easy task. So, to control diseases caused by soil borne plant pathogens, many carnation, pink, lily and gerbera producers use methyl bromide (MB) in their greenhouses because no other chemical method available has the same broad spectrum of activity. However, soil solarization can be an alternative to MB for the disinfestation of those soils.

Soil solarization trials so far conducted in localities ranging from northern to southern Portugal indicate that this technique can give satisfactory to good control of the major soilborne plant pathogens such as phytoparasitic nematodes viz. Meloidogyne spp., Pratylenchus spp., fungi, e.g. Fusarium oxysporum f. sp. gladioli, and weeds. Thus, it seems to follow the integrated control method at our context in order to explore the floriculture business in long run and sustained approach.

References

- Arbeláez, G. 2000. Investigación y desarrollo en el control de la marchitez vascular del clavel en Colombia. In: Pizano, M. ed. Clavel. Ediciones Hortitecnia, Bogotá, Colombia. Pp. 89-98.
- Calderón, F. 2001. Qué son los cultivos hidropónicos y el por qué de la hidroponía. In: Calderón, F. Ed. Memorias, Primer curso de hidroponía para la floricultura. Mayo 31 – Junio 2, 2001. Bogotá, Colombia. Pp. 1-20.
- Carulla, R. 2001. Flexport de Colombia.
- Eshel, D., A. Gamliel, A. Grinstein, and J. Katan. 200. Combined soil treatments and sequence of application in improving the control of soilborne pathogens. Phytopathology 90:751-757.

- FAN, 2013. Floriculture Souvenir Vol. 16. Floriculture Association Nepal, Kathmandu.
- Gullino, M.L. 1997. Combination of solar heating with chemicals and/or biocontrol agents for soil disinfestation. Pp. 357-364. In: CIPA Proceedings International Congress for Plastics in Agriculture. Ed. Ben-Yehoshua, S. Tel-Aviv, Israel.
- Morey, L. 2001. Steam rolling – a reliable system for beds. Growertalks (Oct.): 60-62.
- Pizano, M. 1997. How to manage and prevent carnation fusarium wilt. Floracultura International 22-25.
- Pizano, M. 2001. Floriculture and the environment – growing flowers without methyl bromide. UNEP Publication (in press).
- Reis, L. G. L. 1985. Nemátodos fitoparasitas associados à floricultura em Portugal. In: Jornadas Técnicas de Floricultura. Associação Portuguesa de Horticultura e Fruticultura. DGA. Ministério da Agricultura, Lisboa. 5p.
- Valcárcel, F. 2001. Cut flower production in Colombia without methyl bromide. In: Banks, J. ed. Agricultural production without methyl bromide – four case studies. CSIRO, Australia. Pp. 8-28.
- Valderrama, H.; La Rota, R. 2001. Phytopathogenic fungi on greenhouse's roses in Madeira Island. In: Proceedings 11th Congress of the Mediterranean Phytopathological Union and 3rd Congress of the Sociedade Portuguesa de Fitopatologia. Évora (Portugal), 17-20 September 2001. pp. 264-265.

Public parks of Sindhuli district

Debraj Adhikari
Plant Protection Officer
DADO Sindhuli

Sindhuli is one of the mid-hill district of Nepal which lies between the latitude 26°55"- 27°22" north and longitude 85°25"- 86°15" east. Altitude varies from 168 to 2797 masl. This district is divided into three topographical ranges–Mahabharat, Chure range and Inner Terai. There are 53 VDCs and one Kamalamai municipality (DDC, 2008). Climate of Sindhuli district is subtropical and there is ample climate for plant diversity (DADO, 2014). Public Park is an open space in public area which integrates places to offer recreation and green space to stay visitors including other components.It is a landscape design which may consist of rocks, soil, water, flora and fauna and grass areas, but may also contain buildings and other artifacts. This writing presents the current status of public parks of Sindhuli district. Information was collected by direct observation visit, personnel communication with related persons and review of secondary information. Public parks of Sindhuli district are constructed and maintain by government, and operated by private person. Common features of public parks of Sindhuli include flower and ornamental plants, gardens, paths, place for rest and recreation.

Bal Uddhyana Park, Sindhulimadi

This park is located at centre of Madibazzar, Kamalamai Municipality – 6, Sindhuli in around 0.13 ha. The shape of the park is round. The construction of park was done by Kamalamai Municipality which was funded by ADB on fiscal year 2065/66. The common features of Bal Uddhayana Park are boundary (concrete and iron railing), plantation of Ashoka and Dhupi alternately around the inside boundary, focal point of a concrete vertical cylindrical structure at centre, flowers and ornamental plants such as Murrraya, and Duranta hedge. Way inside park is paved with stone and cemented chairs, slides and swings, gate, ticket/guardroom, dustbin are available there. That park was found operated by private personnel at the rate of NRs. 12500/- per year to municipality office and entry fee was NRs. 5/- per person.

Sahid Bal Uddhyana, Bhiman

Sahid Bal Uddhyana is built at Kamalamai Municipality – 10, Sukekhola, Sindhuli covering 0.16 ha. land on the way of B P highway at Bhiman. The construction of park was done by Kamalamai Municipality and shape of the park is rectangular. The common features of park are boundary (concrete and iron railing), focal point

of a concrete vertical cylindrical structure at centre. There are no flowers and ornamental plants. Way inside park is paved with stone. The construction of the park was found not completed and is not in operation.

Sindhuli is a historical district. Sindhuligadi fort and palace are celebrated for the place of victory with British emperor. Besides, Hariharpurgadi is also located at western part of district. Kamalamai, Kalimai, Siddhababa, Langurbaba, Kuseswor Mahadev temples etc are also worthful places for religious ornaments at Sindhuli. Kamala river side near Kamalamai temple, Sindhuligadi, Marin Khola at Kushumtar, Goganpani at Ranibas and Kalimati/Dhakalgaun at Kamalamai municipality are the celebrated picnic spots of Sindhuli district. Moreover, B. P. highway which passes in between Sindhuli, under construction joined the Terai and Kathmandu valley created attractive journey. The environment-friendly constructed bended road and islands of B.P. highway has possibility to built parks for rest and recreation. The population growth and urbanization is increasing in Sindhulimadi bazzar which will make increasing trend of visit of Public Parks by the people. Thus, the existing public parks of Sindhuli should maintain well operate adequately.

References

- DADO Sindhuli. 2014. Annual Book of DADO Sindhuli, Sindhulimadi, Nepal.
- DDC. 2008. JILLA PARSWA CHITRA 2065 Sindhuli. District Development Office, Sindhuli.
- Personnel communication with Binod Babu Khakural, Sub Er. Kamalamai Municipality and Sagar Kumar Dhakal, Programme Officer, DDC Sindhuli on 18th March, 2014.

Repairs and Maintenance of greenhouse structures and Micro Irrigation Systems

Anand Zambre
Vice President Agri business
ESSEN Multipack Ltd, Rajkot, Gujarat, India

Introduction -

Greenhouse cultivation on commercial basis started in India 20 years ago in 1991. After 24 years, today greenhouse cultivation is very common in India almost in every state and farmers are increasingly showing interest in greenhouse cultivation. At present, more than 50,000 greenhouses exist in India cultivating roses, gerbera, carnations, anthuriums, orchids and vegetables like capsicums, tomatoes, cucumbers, exotic vegetables etc. It is very important in greenhouse cultivation to repair and maintain the greenhouse structures and Irrigation systems to achieve better climate control, fertigation etc to produce better quality and quantity of the produce. This article aims to literate the farmers and greenhouse growers to understand the basic concepts of greenhouse structures preventive maintenance and small repairs which they can and should undertake on a regular basis to increase the life of the structures and irrigation systems.

Repairs and Maintenance of greenhouse structures -

Greasing - Greasing should be done to the following parts of a polyhouses once a week.

1. **Doors -** The wheels of the doors and the ridge on which the wheels move from one side to other, should be greased properly at least once a month.
2. **Racks -** In case of an automatic opening and closing vents of a greenhouse, the racks should be greased fully once in a month. The adopters, in which the racks are moving, should be greased. This will result in easy movement of racks. The pipes on which the racks are mounted, the joints of the pipe and the racks should be greased.
3. **Motor & gear assembly -** The motor and gears in case of automatic opening and closing of vents, should be greased once in a month. This will allow the gears to operate smoothly without rusting & it will not make any sound while in operation.
4. **Handles of side vents -** In case of side vents, the handle of side vents should be greased properly once in a month. This will allow less force to operate the vents up and down.
5. **Wheels of shade nets -** The wheels, on which the string of shade net is moving, should be geared once in 15 days to achieve easy movement of shade net.

Cleaning of top plastic - Because of winds, it is possible to get the dust (soil particles) on the top of plastic. It reduces the light transmissions in the polyhouses up to 15%. In order to achieve maximum light transmission in the polyhouses, one has to remove dust particles from the top plastic. We can achieve this by washing the top plastic with clean water every month

particularly in a peak season. In rainy season, washing is not necessary as the rain falls on the top plastic and removes dust. We should start washing from November to March. Such washing also helps removal of algae if it is collected on
top plastic.

Application of Distemper/chalk -

Application of distemper/chalk helps in reducing light intensity and temperature in the greenhouse, especially in summer and hot seasons.

Way of application- Lime or calcium carbonate [CaNO3] is used for coating on top plastic. White coating of lime reduces the temperature inside the greenhouse by 3-40c. It also reduces the lux intensity by 20-25 Klux. For a polyhouses of 500 sqm area, 20 Kg of lime is mixed in 150 lit of water and is sprayed on top plastic with the help of foot pump or knapsack sprayer. The lime should be thoroughly mixed in water and it should be properly filtered with the use of clean cloth, otherwise there may be chances of chocking of nozzles of spray gun. To stick the lime properly on the plastic, a gum or sticker [fevicol-ddl] is used in lime solution. Before using lime on the top plastic, plastic should be washed with clean water. Two labors can finish washing and lime coating in 4 hours for a polyhouses of an area 500 sqm. Procedure of application of distemper is same, only the quantity required is 15 Kg of distemper.

Painting - In case of mild steel polyhouses, one should paint the structure with silver paint once in every two years. It will avoid rusting of the structure.

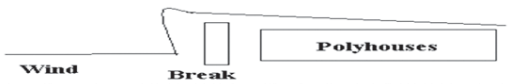
Polythene damages:

Pressing- Use of press to patch up the polythene cuts.

1. UV Plastic tape for small cuts and for larger holes apply patch on it.
2. If possible wrap the GI pipe beneath the polythene with PUF (foam) or old plastic
3. paper.
4. If wind velocity is very high ropes can be used on top of vent to avoid flapping of the paper on windward side.
5. The curtain flap controller should be kept tightened.
6. Washing of Polyfilm regularly.

Wind Breakers -

1. The trees like Casurina, Silver oak, Acacia Mangium can be planted on the periphery of the polyhouse at least 10 meters away from the structure.



2. 3-4 rows should be planted in zig zag manner so that proper screen will be maintained.
3. The care should be taken that the shadow of the plants should not fall on the structure

Curtains and Aprons -

- Curtains of 2 meter height and Aprons of 1.25 to 1.5 m height from

ground are must.

- Aprons should be tightly fixed in soil at least 30 cm below ground by making a trench to avoid damage by flapping. It should be fitted in Aluminum profile and zig zag spring at the top and not by GI wires to avoid early damage.
- Curtains should be open in the morning when temperature rises and it should be closed according to climate so that average day night temperature is maintained.

General sanitation -

1. Greenhouse path- It should be either concrete or of soil.
2. At the entrance of the greenhouse door, foam wetted by KMNO4 should be kept.
3. It is always beneficial to have double doors system for the polyhouses.
4. Regular weed control should be followed in & around the greenhouse.

Maintenance of Irrigation systems on a regular basis -

Checks in the system -

A. Daily checks -

1. Check whether the water is available enough for irrigation in water tank or source, availability of electricity, at least one sub main ball valve is open.
2. Check whether Check/Adjust pressure in the system.

B. Weekly checks -

1. Check the pressure at the lateral end. It should be 1 Kg/sq cm.
2. Check the discharge of drippers at various places in greenhouse and compare it with the designed discharge. It should be same.

Maintenance of the system -

3. Flush the laterals every day, sub mains and mains once a week.
4. Clean the screen/disc filter every day after irrigation is over and back wash of sand filter once a week.
5. Cleaning of water tank once in 6 months and change of sand in the sand filter once in 3 years.

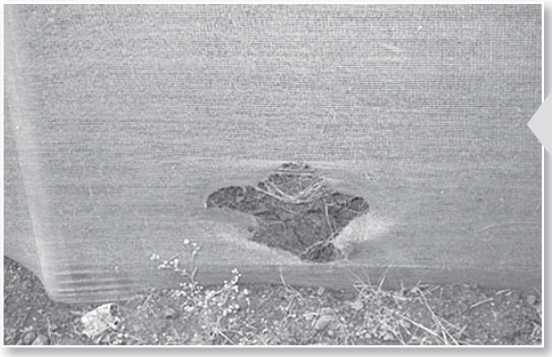
Chemical Treatment

Clogging and plugging of dripper will be due to precipitation and accumulation due to certain dissolved salts like carbonate, bicarbonate, iron, sulphate, manganese and calcium salts. The clogging may also be due to the presence of microorganism, algae, and bacteria.

The clogging or plugging is avoided by chemical treatment of water.

a) Acid treatment: HCL or Nitric acid is injected in to drip system at the rate suggested in the water analysis report. The acid treatment is performed till a pH of 4 is achieved at the lateral lines. After achieving a pH of 4 the system is shut for 24 hours. Next day opening the flush valve and lateral end the next day flushes the system.

b) Chlorine treatment: In the form of bleaching powder can be used to inhibit the growth of microorganism like algae, bacteria are injected in to drip system for about 30 minutes. The system is shut for 24 hours. Next day opening the flush valve and lateral end flushes the system.



Such patches should be closed by another patch of shade net and stitched properly.

Wheels of the shade net assembly should be greased for smooth operation.

Clean the disc filter after irrigation every day to avoid clogging of drippers.

Nylon ropes fitted on top plastic in heavy wind region.

The polythene in such case should be replaced rather than sticking patches.

Effect of different levels of Vermiliquer on Quality Parameters of potted Marigold in Bharatpur, Chitwan.

Shrestha, B. [1], K. Mishra [2]*

INTRODUCTION

Vermiliquer is a complex mixed solution containing essential major and micro nutrient and microbes like bacteria, fungi, protozoa and useful nematodes made out from vermi castings. It also acts as excellent organic fertilizer and has pesticidal property as it contains beneficial microorganism in it. Vermicompost, the solid form may be difficult for some plants in absorbing nutrients, unlike that vermiliquer facilitates the plants in speedy absorption of nutrients and results in increased plant immune power. Vermiliquer drenched or sprayed promotes plant growth and development and amends the soil physical properties. The plant growth regulators present in vermiliquer influences plant growth and development significantly independent of available nutrient on it (Arancon, et al, 2006).

Marigold (TageteserectaL.) is the commercially exploited flowers of family compositae. Broadly marigold is divided into 2 groups i.e. African marigold (TageteserectaLinn.) and French marigold (TagetespatulaLinn). The flowers of marigold are extensively used in decoration of houses, stalls etc in several social and religious functions.Marigold is considered as one of the important commercial flower in Nepal however its production area and productivity is quite low.

The area under marigold have been stagnant over many years in Nepal and many constraints including unavailability of inorganic fertilizers for its commercial cultivation has also been one of the bottleneck in modern floriculture business of Nepal. Thus the use of vermi products in this crop can also provide additional advantage. Thus the two way advantage can be obtained by utilizing the biodegradable solid wastage for the preparation of vermi products and again using these products in crop production. Thus this chain may be a milestone in the development of organic agriculture in Nepal.

METHODOLOGY:

A pot experiment was conducted in complete randomized design with four replication in 2014 to assess the efficacy of different doses of vermiliquer on the growth, quality and yield characteristics of African marigold. Marigold planted in earthern pots were drenched with five different levels of vermiliquer i.e. Control, 25%, 50%, 75% and 100% vermiliquer at the rate of 150 ml/pot/week for five

1 * Major author, BishalShrestha, Assistant Professor, Department of Horticulture, Agriculture and Forestry University, shr_bishal76@yahoo.com

2. Kalyani Mishra, Assistant Professor, Department of Horticulture, Agriculture and Forestry University,

weeks. In control water was used for drenching. Different quality parameters (days to flowering, diameter and depth of flower) were taken during the study period

FINDINGS:

Effect on flower quality characteristics

Days to first and 50% flowering

The effect of different doses of vermiliquer on days to flowering varied significantly. The treatment with 100 percent vermiliquer application took maximum number of days (51 days) for first flowering of potted marigold plant followed by control (47 days) (Table 1). The effect of 75 percent vermiliquer on days to first flowering (46 days) was at par with treatment with control. Similarly the minimum number of days for first flowering (43days) was found on 50 percent vermiliquer application.

Table 1. Days to first and 50% flowering after transplanting as influenced by different levels of vermiliquer in marigold at Bharatpur, Chitwan, Nepal, 2014

Treatments	Days to flowering	
	First	50%
Control	47b	56b
25% vermiliquer	45bc	53bc
50% vermiliquer	43c	50c
75%vermiliquer	46b	55b
100%vermiliquer	51a	61a
LSD	2.06**	3.64**
SEM(±)	0.67	1.18
CV (%)	2.84	4.17
Grand mean	47.20	56.80

Means followed by common letter (s) within column are non – significantly different based on DMRT at P = 0.05. NS-Non significant.SEm-Standard Error of Mean. CV-Coefficient of Variation

Similar pattern as in days to first flowering due to different dose of vermiliquer was seen in days to 50 percent flowering in potted marigold (Table 1). The treatment with 100 percent vermiliquer application took maximum number of days (61 days) for 50 percent flowering of potted marigold plant whereas 50 percent vermiliquer application showed the minimum number of days (50 days) for 50 percent flowering.

Sivasubramanian and Ganeshkumar (1998/99) also reported that the foliar sprays of vermiwashes also influenced the number of days taken to flower on marigold. The mean number of days taken to flower was distinctly low in vermin washes i.e. 41 days.

Diameter and depth of flower

Diameter of flower of potted marigold was also found to be significantly affected by different doses of vermiliquer ($p<0.05$) (Table 2). The highest diameter of flower on potted marigold plant (6.3 cm) was found on 50 percent vermiliquer application which was at par with 75 percent vermiliquer application (5.9 cm). The lowest diameter of flower (3.9 cm) was recorded at 100 percent vermiliquer application which was at par with 25 percent vermiliquer application (4.1 cm) and control (4.1 cm) as well.

Different doses of Vermiliquer also had highly significant ($p<0.01$) effect on depth of flower of potted marigold. The maximum depth of flower on potted

marigold plant (3.5 cm) was found on 50 percent vermiliquer application which was at par with 75 percent vermiliquer application (3.5 cm) (Table 2). The minimum depth of flower (2.4 cm) was recorded at 100 percent vermiliquer application which was at par with control (2.4 cm) and 25 percent vermiliquer application (2.6 cm).

Table 2. Effect of different levels of vermiliquer on qualities of flower in potted marigold at Bharatpur, Chitwan, Nepal, 2014

Treatments	Diameter of flower (cm)	Depth of flower (cm)
Control	4.1b	2.4b
25% vermiliquer	4.1b	2.6b
50% vermiliquer	6.3a	3.5a
75% vermiliquer	5.9a	3.5a
100% vermiliquer	3.9b	2.4b
LSD	0.98*	0.312**
SEM(±)	0.32	0.1012
CV (%)	13.00	6.84
Grand mean	4.91	2.945

Means followed by common letter (s) within column are non – significantly different based on DMRT at P = 0.05. NS-Non significant.SEm-Standard Error of Mean. CV-Coefficient of Variation

There are reports that certain metabolites produced by earthworm may be responsible for stimulating plant growth (Gavrilov, 1962).It is believed that earthworms release certain vitamins and similar substances into the soil which may be the B group vitamins (Gavrilov, 1963) or some provitamins or free amino acids (Dubash and Ganti, 1964). Several experiments have proved that worm casts can promote lush growth of plants, which may be due to the presence of plant growth factors like cytokinins and auxins in the worm cast (Edward 1995).

CONCLUSION:

Application of vermiliquer significantly increased plant growth, quality parameters and yield characteristics. All treatments showed significant values for plant growth when compared to controlPlant growth and development have been enhanced by the increasing level of vermiliquer up to certain critical level beyond which it become inhibitory to the plant process.

Application of vermiliquer enhanced early flowering of the marigold. The application of 50% vermiliquer advanced flowering (46 days) which was at par with 25% (45 days) vermiliquer application. Similarly 50% flowering was reached faster in 50 % vermiliquer (50 days) which was also at par with 25% vermiliquer (53 days). Thus, application of 50% vermiliquer showed early flowering of marigold as compared to the higher and the lower dose of vermiliquer.

The quality of flower was also influenced significantly by vermiliquer. The highest diameter and depth of flower on potted marigold plant (6.3 cm and 3.5 cm) was found at 50 percent vermiliquer application which was at par with 75 percent vermiliquer application (5.9 cm and 3.5 cm).

REFERENCES:

1. Arancon, N. Q., C. A. Edwards and P. Bierman. 2006. Influences of vermicomposts on field strawberries: Part 2. Effect on soil microbiological and chemical properties. Bioresoure Technology97: 831–840.
2. Sivasubramanian, K. and M. Ganeshkumar. 2004. Influence of vermiwash on the biological productivity of marigold. Madras Agriculture journal2004. 91: 221–225.
3. Gavrilov, K. 1962. Role of earthworms in the enrichment of soil by biologically active substances.VoprosyEkologiiVysshayashkola (Moscow). 7: 34.
4. Gavrilov, K. 1963. Earthworms producers of biologically active substances. ZhObshch Biol. 24: 149-154.
5. Edwards, C. A. 1995. Historical overview of vermicomposting. BioCycle, 36 (6): 56-58.
6. Dubash, P. J. and S. S. Ganti. 1964. Earthworms and Aminoacids in soil. Current Science 33: 219-220.
7. Edwards., C.A., N. Q. Arancon and S. Greytak. 2006. Effects of vermicompost teas on plant growth and disease. BioCycle 47: 28-31.
8. Elumali, D., P. K. Kaleena. M. Fathima and M. Hemavathi. 2013. Influence of Vermiwash and Plant growth regulators on the Exomorphological characters of Abelmoschusesculentus(Linn.), African Journal of Basic & Applied Sciences. IDOSI Publications 5 (2): 82-90.
9. Gawande, S. S., D. J. Joitode, A. B. Turkunhede and S. O. Darange. 1998. Effect of organic and inorganic fertilizers on yield and quality of sapota.J. Soils Crops 8: 58-60.
10. Hargreaves, J. 2008. The use of composts and compost teas in the production of strawberries and raspberries. Ph. D. dessertation, Dalhousie University, Halifax, Nova Scotia

Effect of Spring Pruning on Growth and Production of Quality Cut Flower of Hybrid Tea Rose Cultivars in Chitwan, Nepal

T.P. Sharma, S.S. Pant, K. Mishra and R.B. Thapa
Institute of Agriculture and Animal Sciences, Rampur, Chitwan, Nepal

Introduction

Rose is the most popular of all the flowers because of its beauty and fragrance and is called the "Queen of Flowers" (Schneider and Dewolf, 1995).Roses are the symbol of beauty, fragrance and are used to convey the message of love. Without roses, gardens are not considered complete (Arora, 2007). It is one of the most economically important genus of ornamental, aromatic and medicinal plants with about 200 species and 20,000 cultivars widely distributed all over the world (Cuizhi and Robertson, 2003; Ritz et al, 2005).

A rose occupies first position in international trade followed by Chrysanthemum, Carnation, and Gladiolus (Bose and Yadav, 1980; Malla, 1998). Rose demand is increasing due to elegance, beauty and long vase life. The volume of floriculture business is growing at the rate of 10-15 % a year (The Himalayan, 2008) and the demand of rose has been increased by 45% each year (Oli, 2004). The demand of rose in 1992/93 was 100-150 sticks per day on an average .its demand now it has been significantly increased and reached to 7000-9000 Sticks per day (FAN,2013) in Kathmandu and is in increasing order. Now days with increase in urbanization, market of rose has been explored and extended in other part of the country such as Pokhara, Narayanghat, Biratnagar, Butwal etc. About 172 ropanies land is covered under rose cultivation in Nepal (FAN, 2013). Of these, more than half the areas are under protected cultivation. Dutch and local rose are most popular types of rose cut flower available in Nepalese market.

Due to the availability of lot of garden roses species, cheap labor and diversify climate and topography of Nepal it gives comparative advantage over South Asian region to produce quality rose for international market especial for export during summer season. We can produce different varieties of rose cut flower all-round the year. Besides cut flowers, many expensive by-products such as Rose oil, Gulabjal, perfumes and other different products can be prepared which has also substantial economic values.

Although rose cultivation is profitable enterprises and at the same time the climate in Nepal is very much suitable, only very few farmers are involved in its cultivation. Rose production is highly technical: lack of knowledge on these aspects leads to the poor quality of the produce and low quantity. As a result increases the cost of production. Lack of technical know- how is the major problem encountered by almost all the growers of Nepal.

In Nepal, rose occupied second position among the cut flower production. Rose cut flower is grown in Kathmandu, Lalitpur, Bhaktapur, and Chitwan district.

Most of the cut flowers sold in Nepal during main seasons are produced within the country while during off seasons, they are supplied by imports (Pun, 2007).

Currently, rose cultivation has been confined to Kathmandu valley and Chitwan district. The production time of cut roses in Kathmandu valley with the exception of hi-tech unit in summer through autumn whereas that of Chitwan is from winter through spring (Joshi, 2009). Rose grown in Nepal is mostly Indian cultivars. Trade statistics shows that cut flowers and ornamentals are being exported from Nepal. Recently, roses are being exported from Nepal. These roses are being grown under glass house and are finest of the quality.

Availability of cut flowers in Nepalese market is low in quality as well as in quantity. In Nepal, Pruning is usually done once in a year i.e. in October. As pruning is done usually in a same time by all rose growers, there is large production of rose during Feb – March and demand of rose in Nepalese market is high from Feb to June. Plant that is pruned during winter can be successfully harvested until March. After March, due to less care and management, production reduces, as a result there is scarcity of rose in April-June and to fulfill the demand, we have to import large amount of rose from other foreign country. There is no standard time of pruning for the market oriented rose production in Nepal.

Rose pruning

Roses respond well top runing and are believed strictly to be pruned every year regularly. The judicious removal of leaves, branches, buds, flowers and undesirable parts of the plant to increase its usefulness is termed as pruning (Schneider and Dewolf, 1995). Pruning is the management of plant structure and fruiting wood and involves removal of plant's top and root system to facilitate and increases its usefulness (Hessayon, 1988). Pruning also increases the percentage of high quality cut flowers (Han et al., 1997). Pruning can also be used for the size control of rose plants (Horan et al., 1995). Pruning is a very important and necessary step towards rose beneficial growth and increases the Aesthetic values like profuse and larger blooms with inspiring colour and quality of the flowers (Gibson, 1984; Anderson, 1991). Malhotra and Kumar (2000) reported that pruning intensity has a definite role in regulating flower production in roses.

Chimonidouet al. (2000) observed that when flower stem was removed by pruning, flower initiated shortly after the start of axillary bud growth. However, Terada et al. (1997) reported that after the cut flower and pruning, growth rate decreased immediately. Different rose cultivars respond differently to sequences of pruning. Hard pruning is recommend for newly planted bush roses of the hybrid tea, grandifloras and floribunda tribes (Hessayon, 1988) Growers often use hard pruning to produce blooms for exhibition (Gibson, 1984). Moderate pruning is the accepted method for treatment of established garden roses, floribundas, hybrid teas, grandifloras, and tree roses all respond best to the pruning practice (Denison, 1979).

Pruning in different rose cultivars are

done principally for altering the growth phases to facilitate new growth and make it vigorous and profuse flower bud initiation, depending on the variety (Gibson, 1984). Rose pruning in Chitwan, Nepal commonly performed on July, August owing to good vegetative growth and also to coincide flowering on Dashain, Tihar festivals and Wedding season (Adhikari, 2009).

Time and intensity of pruning rose

Roses need different types and timing of pruning depending on their variety (Hessayon, 1988).Repeated blooming roses such as floribunda and hybrid tea roses need a heavy annual pruning that is done in December-January (Schneider and Dewolf, 1995). The different dates of pruning influenced flower yield and quality subsequently (Mukhophadhyay, 1990). We can produce different varieties of rose cut flower all-round the year. Roses respond well to pruning and are believed strictly to be pruned every year regularly. Pruning in different rose cultivars are done principally for altering the growth phases to facilitate new growth and make it vigorous and profuse flower bud initiation, depending on the variety (Gibson, 1984). Roses should be pruned when the new buds start to swell up (Denison, 1979). Moderate pruning is the accepted method for treatment of established garden roses, floribundas, hybrid teas, grandifloras, and tree roses all respond best to this pruning practice (Denison, 1979).

Most of the varieties take about 40-65 days to bloom after pruning. Therefore to secure flower for particular occasion, pruning can be adjusted accordingly (Arora, 2007). Gopal (1978) reported that by sequential pruning of rose, cut flowers can be produced year round without greatly affecting yield and quality. Pruning rose plants in different dates was helpful in staggering the harvest of cut flowers. The different dates of pruning had influence on first flower bud appearance, duration of flowering, flower diameter and flower production (Singh and Sujata, 1992). Pruning can also be done twice a year so as to produce flowers show or for special occasion.It is a practical and economical technique that not only for the control of plant growth but also for Commercial purpose as fluctuation in timing demand for roses during altered seasons.

Spring pruning of rose

Moderate pruning done after first week of March in Chitwan condition helps to produce quality Rose cut flower in terms of bud character and stem length. Flowers that are remained unpruned after harvesting in February remain tall in height than pruned plant but number of quality cut flower is produced by pruned plants (Sharma, 2013). Due to increasing in temperature and short rainfall from March in Chitwan, its seems heavy infestation of insects life sucking pest and borer. Late pruning after second week of March showed poor quality production due to heavy infestation of pest and increased temperature. Number of flower bud emergence seems to be increased for late pruning but the size of flower bud is very small and short stem length. Among other color rose white and red color showed better performance in term of production

and quality (Sharma, 2013). Therefore there is chance in reduction in production. Thus to get remedy from this special care and plant protection measures should be apply regularly from first week of April.

Due to heavy flowering in winter, the plant seems to be exhausted and weak in term of nutrient therefore for better flowering and recovery of plant heavy manuring, fertilization and spraying of different micro-nutrient is required immediate after pruning flower plant. In order to produce better quality cut rose flower and replace the import during off-season in Nepal it is recommended to do Rose farming under protected condition under green house or net house. It is because due to heavy infestation of disease and pest in summer, it is difficult to control in open field condition in tropical climatic area of Nepal like Chitwan.

Conclusion

Rose response better for pruning. Pruning is a very important and necessary step towards rose beneficial growth and increases the Aesthetic values like profuse and larger blooms with inspiring color and quality of the flowers. In Nepal rose pruning is done only one time i.e. august to September for the production of cut flower in winter season. In rest period of time we are depending upon foreign import in lean period though there is greater demand of rose cut flower all year round due to urbanization and awareness of people using cut flower in every ceremonies, festivals and parties. Prunings help to rejenuvate and provide stress to plant which lead to better and quick flowering. After harvesting of flower in February, pruning of rose plant in second week of March helps to increase good quality cut flower as a result it increase the time of harvesting and help to fulfill the demand of cut flower in summer. Due to increase in temperature and humidity by short rainfall after March in Chitwan, Nepal, there seems the heavy infestation of pest and disease. Therefore the one who wants to do rose farming and produce rose cut flower year round in tropical region of Nepal like chitwan district, he / she should prune rose plant in 2nd week of March and special attention should be given for plant protection from April. If possible, protected production of Rose in green houses and net house will increase production and can get better price in lean period due to quality production of rose cut flower.

LITERATURE CITED

- Adhikari, D. 2009. Influence of time and intensity of pruning on growth, flowering and postharvest performance of cut rose cv. Super Tata (Rosa hybrid). Thesis, M. Sc. Ag. Trivbhuvan University, IAAS, Rampur, Chitwan, Nepal.
- Bose,T.K and L.P.Yadav.1980. Gladiolus In:T.K Bose and L.P. Yadav, (eds.). Commercial Flowers.NayaProkash, Calcutta-7, India
- Chimonidou, D.P., M. Bodson and M. N. Verhoyen. 2000. Correlation between internal and external stages of rose development. Acta Hort. 515: 233-244.
- Cuizhi, G. and K.R. Robertson, 2003.Rosa Linnaeus Sp. Flora of China 9: 339-381.

- Deepauw, W. B. 1985. Effect of time of pruning on subsequent growth of greenhouse roses. Bull. Colorado Flowers Growers Assoc. 300: 1-3.
- Denison, E.L. 1979. Principles of Horticulture. Macmillan Pub. Co. New York. 2: 202-216.
- FAN. 2013 Floriculture Souvenir Vol 16 Floriculture Association Nepal, Kathmandu.
- Gibson, M.1984. Growing Roses. Croom Helm Ltd.,Provident House, Burrell Row, Beckenham, Kent, England BR31AT.
- Gopal, A. 1978. Influence of time of pruning on growth, production and quality of cut flowers in rose varieties. Mysore J. Agri. Sci. 12(3):527.
- Hessayon, D .G. 1988.The Rose Expert. Pub. Publications, Britanica House, Waltham Cross, Herts, England.
- Horan,I.,S.Walker,A.V.Roberts,J.MottleyandI.Simpkins.1995.Micropropagation of roses: the benefits of pruned mother-plant let sat stage II and a greenhouse environment at stage III.J.Hort.Sci.70: 799-806.
- Joshi, K. R. 2009. Effect of corm size and varieties on growth performance, cut flower characteristics, corm/cormels production and vase life of gladiolus.M. Sc. Thesis, Tribhuvan University, Inst. of Agric. and Ani.Sci. Rampur, Chitwan, Nepal.
- Malhotra, R. and R. Kumar 2000. Effect of pruning height, shading and polythene covering on growth and flower production of rose cv. Raktagandha. J. Orna. Hort.3: 94-99.
- Mukhopadhyay, A., K. sujata and K. P. Singh. 1987. Note on influence of different levels of pruning on growth and flowering of rose cv. 'Happyness'. The Indian Journal of Horticulture.
- Oli, P.2004.Postharvest System for Cut Flowers.Floriculture Trade Fair 2004, Souvenir, Floriculture Association Nepal (FAN).
- Pun, U.K. 2007. Import substation versus export promotion of flowers and floral product: Opportunities and Challenges. In: Proceeding of the Fourth National Agricultural Marketing Conference. Central Horticulture center Kritipur, Kathmandu.19-21 June, 2006.Kathmandu Nepal.Pp.203-208.
- Ritz CM, Schmuths H, Wissemann V. 2005. Evolution by reticulation: European dogroses originated by multiple hybridization across the genus Rosa. J. Heredity 96(1): 4-14.
- Schneider, P. and G. P. Dewolf. 1995. Taylor's Guide to Roses. Houghton Mifflin Co. 215 Park Avenue South, New York, USA.
- Sharma, T.P. 2013. Effect of Spring Pruning On Growth and Production of Quality Cut Flower of Hybrid Tea Rose Cultivars in Chitwan, Nepal. Thesis, M. Sc. Ag. Trivbhuvan University, IAAS, Rampur, Chitwan, Nepal.
- Sing, K. P. and Sujata. 1992. Studies on influence of time of pruning on growth and flowering of rose cv. 'Happyness'. Haryana Journal of Horticulture Sciences. 21 (1-2):11-15.
- Terada, M., Y. Kageyama and K. Konishi. 1997. The relationship between growth of a rose plant and its nutrient and water uptake in hydroponic culture. J. Japan. Soc. Hort. Sci. 66: 149-155.

The Possibilities for exporting cut flowers to India, Thailand and Middle East

Mandir Shrestha

With the vast climatic zones in our topography, Nepal is one of the best eco climates for different flora and fauna, more than 500 of native species of orchids in our Himalayas also prove that we have a tremendous potential in patenting our varieties and then export these plants via tissue culture.

With the thriving demand of cut flowers in our domestic market also develops the potential of exporting some of the items to countries like India, Thailand and Middle East.

The countries we are talking about are tropical and sub tropical zones where there is no cold climate. Cold climate crops have greater demand and greater monetary values in these parts of the world.

With our experience of more than 15- 20 years of growing cold climate crop such as Carnations, Liliums, Cymbidium Orchids, Lisiantus, Limoniums and many others we just need to scale up our productions so that we can meet our local demands and then proceed for exports.

There are already buyers who are willing to buy flowers from Nepal but the challenge is of Quality and Quantity. Thus we need to meet these challenges by investing in modern technologies such as poly- houses, drip irrigation, micro fertigation, post harvesting, cold storing and packaging.

Exporting flowers to these destinations are comparatively easier than to exporting it to Japan and Europe as with these destinations we have many direct air route connectivity and also quarantine activates are less hassle.

What we floriculture Entrepreneurs need to do is form a co operative farming so that at least one crop could be grown in only one location so that we can have uniform production i.e. uniform quantity and Quality.

Cymbidium and Lilium are one of the key products which have demands in the international market and are high value; we can use these crops as a trigger to initiate other crop exports. When we can give good quality cymbidium and lily flowers we can push other low value crop such as Carnation, Limonium, lisianthus and other wild flowers.

These crops could be grown in the temperature of 18-28 degree Celsius and to start with the foot hills and hills around Kathmandu valley already have this climate. The destination to Tribhuwan International Airport is less than 20 Kms which gives value addition to the flowers for its freshness. Arrival to any international destination is between 3-6 hours and lesser transit in the airports. So we can save a lot of damage of flowers during transport and transits.

The possible markets in India, Thailand and Dubai are as follows:

WHOLESALE FLOWER MARKET BRIJ PHOOL MANDI

This general plant industry in Connaught Position, New Delhi begins day at 4:00 AM and ultimately ends up beginning by 9:00 AM. It is considered that this plant industry in Connaught Position was established in 1995 by Shri Brij Mohan Khanagwal. There are Thousands of plant providers at this industry who come from far off locations every day and earn a residing by promoting the different wide variety of blossoms. Most of the flower shops from different areas of Delhi also come here to buy the blossoms they offer during the day. While they buy the blossoms at very inexpensive prices, but offer them at a much greater costs.

Once you get into the industry you would see collections of providers or flower shops promoting different kinds of cut blossoms that are brought in from other locations and nations. The perfumes from the blossoms like flowers, chrysanthemums, rajnigandha would invite you in here. This is a general industry so you can get your preferred blossoms at very low costs here. Number of Flower Investors shows their promotions during this time when suppliers and designers, and some clients who want blossoms for their personal use, come to inventory up for their own clients. Thousands of traders set up store every day of the year, all short-term, to do a yearly business over $100 thousand (unofficial estimates).

Flowers

Focusing on the blossoms themselves, the variety is as amazing as the resource itself. Flowers come here from all over Indian – as well as from far away nations like Thailand, Chinese suppliers and Netherlands amongst others. Number of blossoms in plant industry in Connaught Position, contains flowers, orchid flowers, geberas, lilies, eye, marigolds, anthuriums, and even synthetic ones. In all shades of white-colored wines, orange, yellow, doldrums, white-colored wines to emphasize just a few.

The well-known blossoms like Roses, Fowl of Heaven and Carnations that are available here are brought in from Pune and Bangaluru. One can also find different kinds of Gladiolus or the light red trumpet blossoms, marigold or 'genda fool' blossoms, lemon and apple shaded Asiatic Lilies, Rajnigandha, orchid flowers, wide variety of Gerbera blossoms which are available in red, yellow-colored, lemon and light red shade.

Other kinds of blossoms contains anthorium, Jaffri, Maggie, patti Kolkata, lotus and more. For increased fans, apart from the well-known red increased, the providers also offer apple flowers, yellow-colored flowers, white-colored flowers, light red flowers and other tinted flowers.

Leaves

Different kinds of leaves or foliages are also marketed here which are used for designing the blossoms. These are especially well-known with the flower shops who use them in the arrangements.

Bamboo and Plants

The plant traders also offer bamboos

and other vegetation that can be used in your house. The industry also has its discuss of dry plant providers who offer quite a number dry blossoms, dry plant holders and pot-pourri that could be a part of your house designing or used as presents.

Bouquet Accessories

The plant industry in Connaught Position offers various other products and components that was often needed by the flower shops. For example one can buy different shade netting, clear wrapping linens with different styles, division cables and sponges used for the arrangements, glimmer, guitar record, scissers, and lace in different shades and so on. Stick holders, cup jugs and other components can also be discovered here and are traded at very low costs.

Prices

As in other marketplaces of Connaught Position, Negotiating is a thumbs concept here as well. For example, a top quality increased one would buy for Rs. 15 ($ 0.4) in a retail store. But here in plant industry at Connaught Position, this can be bought for Rs. 4 only. Or a gerbera going for Rs. 100 for 10 can be had for a 10th of the price. During optimum period, usually long-lasting Sept – Feb, and in short jolts at other times, costs can be greater with suppliers less willing to lower price their products.

THE BANGKOK FLOWER MARKET, OR "TALAAD PAK KLONG"

The Bangkok Flower Market or "Talaad Pak Klong" to Thai's) is the largest fresh flower market for both retail and wholesale in Bangkok. The market is full of a wide selection of Thailand's most loved flowers and flower related goods. Some of the flowers available here include orchids, lilies and roses. For a cheap price you can buy packs of flowers that typically comes

in bunches of 50 or 100. The market also has wholesale fruit and vegetables.

The market is said to be one of the country's most beautiful, and best smelling. The vast selection of flowers comes from all over the country. Many of the flowers come from Samut Sakhon, Nakhon Pathom and Samut Songkram. Flowers that need cooler temperatures to grow are delivered from the north, such as Chiang Rai and Chiang Mai.

Best time to visit Bangkok Flower Market

Despite its 24-hour opening time, Pak Klong market tends to be the busiest

during late night hours and early morning. The best time to purchase flowers, in terms of freshness and selection, is before dawn. This is because many of the deliveries tend to arrive at around this time. If you can, visit the market at around 2:30am in order to see the deliveries being made via trucks and boats. After about 3am the shops will start to organize their goods and offer a large selection of flowers, fruits, vegetables and spices.

The quietest time of day at Pak Klong market is around noon, since it is too hot for many of the locals. This would be the best time of day to have a look around and decide on the shops that suit you. Collecting name cards and business information is a great way to make wholesale contacts at Pak Klong market.

Who visit Bangkok Flower Market

Pak klong market caters to both regular customers and wholesalers. It is common for florists in Bangkok to make the early morning rounds in order to make a selection for their shops. Many makers of the famous flower garlands come to Pak Klong to purchase marigold and jasmine at a better price.

Getting to Bangkok Flower Market

One of the best things about this market is its accessibility. There are several options to reach the market but a favorite amongst many is to take Bangkok's express boat service directly to Memorial Bridge. When you arrive at the bridge you take a left from the pier and continue along the river until you pass a bus area. The back of the market is just a bit further along the river from the transportation zone.

DUBAI FLOWER CENTER

The Dubai Flower Centre a state-of-the-art facility built at a cost of US$300 million at Dubai Cargo Village, is capable of handling 150,000 tonnes of perishable products on annual basis, and is fast emerging as a hub for regional flower trading.

Dubai Flower Centre receives 80 tonnes of flowers a year, but it has a total capacity for up to 150,000 tonnes.

The Dubai Flower Centre (DFC) is planning to improve its business links with Thailand,Thailand grows over 1,000 species of orchids, ranging from the common Violet Bloom to the rare and highly prised White Orchid. DFC has plans to offer storage facilities for such flowers from Thailand.

DFC's closed-loop cool chain supply method uses refrigerated transfer pallets that keep perishable items at the right temperature from the centre to an aircraft at Dubai airport. The chain includes automated handling equipment, specially designed electronic transfer vehicles, temperature controlled air locks and climate-controlled storage zones. DFC is located at next to Dubai International Airport. The country is well served by international airlines.

Dubai Flower Centre (DFC), the only state-of-the-art transshipment facility for perishable goods in the region, is well poised to tap the Indian flower export market which is expected to exceed Dh3.67 billion (US$1 billion) by 2010.

Geographical location and superior infrastructure are two major factors that will favour Indian exporters if they decide

to use the 180,000-tonnes per annum capacity DFC, which can act as a hub for Indian growers and traders so that they can reach out to regional, European and American markets.

As a part of a wider strategy, a DFC delegation has been visiting various countries including India to create awareness about the Centre and its unique facilities. Recently Emirates airline flew the first shipment of 1,000 cut flowers from Kolkata to Dubai. The consignment originated from India's Northeastern states of Mizoram and Meghalaya and was organized by Bangalore-based ZOPAR Exports Private Limited to a local importer in Dubai.

Currently India produces 200,000 tonnes of loose flowers and 500 million tonnes of cut flowers according to India's Agricultural and Processed Food Products Export Development Authority (APEDA). The country is ranked 23rd in the world market with floriculture exports estimated to be around (US$760 million). However, recent studies indicate the country has the potential to increase exports to (US$1.30 billion) in the next few years.

The DFC - a one-stop shop for local and international buyers, traders and exporters - offers several benefits including a closed loop supply chain system that ensures the right temperature from aircraft to the climate-controlled zone, a supply chain intelligence that offers state-of-the-art computerized tracking system, and a business-friendly free-zone environment.

Greening Kathmandu: Let's do it!

Umed Pun
Ornamental Horticulturist

Greenery in Kathmandu went through a drastic dress up during the SAARC SUMMIT 2014 held in Kathmandu. The most significant change is visible from maitighar to tinkune stretch of the city road. This stretch has median and road side planted with herbaceous perennials, shrubs and trees. The plantation in itself is a noble work and in a place like Kathmandu (city of concretes) it is much more essential and relevant. The question therefore is how to maintain and grow those plants into a beautiful landscape that compliments with Kathmandu life.

To achieve that we need to have a system in place that can effectively function in developing and maintenance of landscape in the city. A week after the SUMMIT, there was lots of writings in print medias, radio and TV regarding how these newly planted plants has been vandalized, who will take care, how it should be taken care of, commitment by Kathmandu Metropolitan (KM) officials to take good care, millions being spent, plant species selection not correct and so on and so forth. However, in few months time everyone has forgotten about the plants and every one is busy with their own life. I believe, it is of no more interest to discuss in public forum but those thousand of plants planted need love and care.

In a recent protest, it has been reported that many plants were uprooted and perhaps many have turned into a dead wood. We planted those trees to beautify our living space, improve environment of our living space. For those plants to look beautiful it needs to be healthy and happy and for that, those plants need to be well looked after. The care for these plants needs urgently because with the harsh winter gone... those survived plants need food and water to grow in spring and summer. Similarly, many flower beds needs removal of old and dried plants and replaced with new and fresh flowers.

The greenery development in Kathmandu began with controversy, the design of the plan and the actual plantation in field differed. There was also huge up roar with the selection of tree species, spacing of plants etc. Never the less, plantation continued and the planting were completed in the nick of time to welcome our dignitaries and guests from our neighboring countries. The plants definitely improved the beauty of our capital city and hopefully our guests took home some good images of our city in terms of greenery along the road.

Now, the important question is how to manage it efficiently. The first and foremost is who shall oversee the greenery of Kathmandu valley. The current responsibility is with the Kathmandu Metropolitan. To effectively manage greenery of Kathmandu valley, KM should have a dedicated team of subject matter

specialist, trained gardeners, plant nurseries, green houses and production area for larger plants. In fact, there needs to be urban greenery and park section. Presently, KM has neither trained experts nor logistics (nursery and plant propagation unit) to cater to maintenance of greenery in the Kathmandu valley.

Kathmandu Metropolitan should have annual operational plan for the management of green space in particular area such as when to train and prune, weeding, transplanting of seasonal flowers, manuring and fertilizing apart from irrigation. Hence, either KM should get its logistic and trained experts ready and functional or seek support from relevant government department.

It may be relevant to note here that in many cities of the world there is horticulture section or horticulture division in city councils or city government. The senior horticulturist who leads such program is specialized in amenity horticulture. In many cities of the world, e.g. New Delhi they have horticulture division within Delhi Development Authority which overlooks the development and maintenance of green spaces, parks and avenues trees within the jurisdiction of the city.

It may be therefore important to have better coordination between city governments and government agencies that have such subject matter specialist (SMS). To begin with, Department of Agriculture should set up division of Urban Horticulture which shall support city governments with regards to support of SMS and city government should further set up horticulture/park section to oversee green space and parks within the city. Expert from university or government or private sectors can also join the city horticulture section on deputation. A good coordination between agencies and dedicated team of green space/ park management team in the city will dramatically improve urban green space and make living healthier in cities of Nepal.

Greenery in Kathmandu can be assured if only there is trained human resource, logistics and funds. I am confident if the above suggestions are considered Kathmandu would be much greener than what it is today. Let's all join hands and gift our children and their children much more greener Kathmandu than what we inherited.

Varietal trial of Marigold in different growing conditions in Ilam District

Bikash Khanal
Faculty - Department of HFM
Mahendra Ratna Multiple Campus

Marigold is one of the most important flowers in Nepal. It has religious as well as cultural importance. The most important use of this flower is during Tihar festival. During this festival marigold is used in huge quantity. This flower is used to make garland as well as in making bouquet. This flower is also used in different ceremonies like marriage and offerings as well as it is packed with the leaves of fern and mango leaves to welcome the people in different ceremonies as well as to offer the flowers to the god in different offerings.

Ilam is one of the hilly region of Nepal. The climate of Ilam is quiet favorable for production of various types of flower. Among them the most popular one are begonia, orchid, anthurium, marigold etc. A lot of researches were conducted in begonia as well as in orchid related to growth habit and habitat parameters. Nowadays there is increasing in charm of people towards the production of marigold. Trainings and field surveys were also conducted related to marigold in Ilam district. So to promote the growth of the marigold cultivation and production this research is going to be a main backbone in finding out the habit and habitat of different marigold varieties which are commonly grown in Nepal commercially. Especially people prefer to grow marigold varieties targeting the Tihar festival which occurs in October/ November.

The research is conducted to understand the varietal status of marigold in climate of Ilam as well as to find out the best growing environment of marigold flower in Ilam district focusing hilly region of Nepal.

The research was focused on testing the different varieties of marigold in the Ilam district. The research area was focused in small region but it will represent the big area i.e. hilly region of Nepal. The research prioritizes the selection as well as growing method of marigold in Ilam district of Nepal. Despite of some limitations the research work was based on different growing environments with interactions between different varieties of marigold.

In the department of horticulture and floriculture management, three varieties of marigold was grown viz. Marvel Garland, Marvel Orange and Marvel Yellow for the experiment. This experiment was conducted during August to December. These varieties were grown under three different growing conditions (viz. shade house, semi-open plastic house and open field). Shade house was a place which was covered with thatch and partial sunlight (5-6 hours) will enter in the house in the sunny day. Semi-open plastic house was the house covered with white plastic in the top and sides of the plastic house were partially open (with 15 cm all sides in the bottom for the purpose of aeration). The increment in plant height per week

was higher in the plants growing inside the plastic house compared to the plants grown in shade house and open field. Only in case of Marvel Garland and inside plastic house plant height increment was higher compared to other two varieties. Number of leaves formation per week was also higher in plants grown in plastic house and shade house compared to the open field in case of Marvel Yellow and Marvel Orange. But in case of Marvel Garland number of leaves formation per week was higher in plastic house compared to other growing conditions. Higher temperature might have positive impact in case of Marvel Garland in leaves formation process.

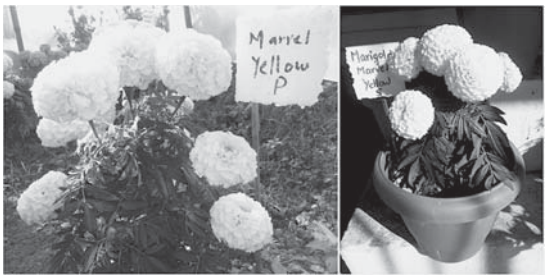


Fig 1: Flowering plants

Length of the longest leaf was higher in shade house compared to other two growing conditions. In this context lower light might have the positive impact in elongation of the leaves in the plants. Plastic house and open field plants flower were earlier compared to the plants grown under shade house in all the three varieties under study. The number of flowers per plant was found higher in the plants growing inside the plastic house compared to the plants grown in shade house and open field (Table 1).

Table 1: Yield of three different varieties of marigold grown under different conditions (in average number).

Varieties	Shade house	Plastic house	Open field
Marvel Yellow	11.16	17	9.01
Marvel Orange	9.67	15.84	8.51
Marvel garland	10.34	27.83	9.1

Post harvest life was higher in the flowers grown under plastic house compared to shade house and open field. Comparison of varieties shows that Marvel Garland has higher days of post harvest life than Marvel Yellow and Marvel Orange. In case of dry and wet experiment, wet storage conditions flowers i.e. those flowers which are sprayed with distilled water have longer days of post harvest life compared to dry storage conditions.

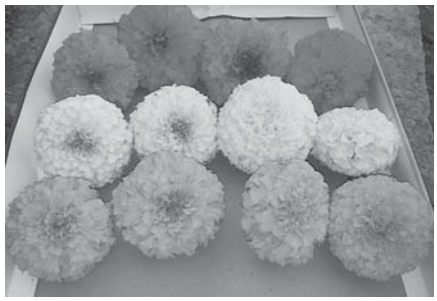


Fig 2: Harvested flowers

It could be concluded that plants growing under lower light and lower temperature condition reduces the growth as well as flowering characteristics of marigold. The overall conclusion was Marvel Garland variety grown under plastic house grows better than other two varieties. This suggests the nurserymen to grow Marvel Garland variety in plastic house in case of eastern hilly regions of Nepal. In case of post harvest techniques nurserymen could follow wet post harvest techniques rather than dry techniques to keep the picked marigold flowers for longer days.

Status of types of ornamental plants and revenue collection by selling ornamental plants in National Botanical Garden, Godavari, Lalitpur, Nepal

Dipak Lamichhane
Senior Garden Officer
National Botanical Garden
Godavari, Lalitpur, Nepal

Abstract

There are more than 120 species of Ornamental plants in National Botanical Garden, Godavari. These ornamental plants are the center of attraction to the visitors. This botanical garden creates awareness to general public and also conducts research on ornamental plants. It also sells some ornamental plants from the garden to provide access to plants to customers and generates revenue.

Key words: National Botanical Garden, Ornamental plants, Revenue collection

Background

National Botanical Garden (NBG), Godawari, Lalitpur was established in 1962 A.D. (2019 B.S.) as a Royal Botanical Garden with 82 hectares of land. It was inaugurated by Late King Mahendra Bir Bikram Shah Dev on 20th October, 1962 A.D. (Kartik 12, 2019 B.S.) under the Department of Medicinal Plants, Ministry of Forests, His Majesty's Government of Nepal (HMGN). The landscape plan of the garden was designed by British architect Mr. Geoffrey A.C. Herklots who was in Kathmandu under the British Aid to Nepal to lay and develop this Botanical Garden, Government of Nepal (Banerji, 1982).

This botanical garden has an international reputation which holds documented collections and displays of living plants with underlying scientific research, conservation and education purposes. It spreads over an area of 82 ha. of varying topography, of which about 40 ha. has been developed into various garden display areas and features. NGB is surrounded by natural evergreen forest dominated by Schima-Castanospsis and Alnus. A natural stream runs through the Garden from the mid point.

NBG is the only national-level botanical garden of the Government of Nepal - although there are 11 other botanical gardens sited in eight districts including World Peace Biodiversity Garden (WPBG) , Kaski.

It is situated about 16 km south east from central Kathmandu and comprises a natural landscape with glass houses and other buildings. At present it is under the Department of Plant Resources, Ministry of Forests and Soil Conservation having three sections i.e. Garden Development Section, Information, Production and sale Section and Conservation and Educational Garden Section. It is an internationally recognized botanical garden with revenue collection NRs. 37,40,817.00 for the fiscal year 2070/71, as well as a prominent visitor attraction receiving almost 2,77,708 visitors in the same fiscal year.

Geographical location:

Altitude: 1515 m above sea level
Longitude: 83° 56' 50" to 83° 58' 50"
Latitude: 28° 11' 40" to 28° 12' 25"

Landscapes and other infrastructures in NBG

This garden is the first botanical garden of Nepal established with the aim of serving as a center for botanical studies, a research center for ex-situ conservation of native flora, and a place of botanical education and aesthetic floral displays for the general public (Sharma, 2003).

The garden comprises following components with a special garden, the center of attraction to the visitors :

Physic garden, Terrace garden, Special garden (orchid house, cactus house, bonsai house, ornamental house, flower beds for seasonal flowers, water jet, lawns, etc.), Water Garden, Fern Garden, Japanese Style Garden, Rock Garden, Bog garden with pergola and lily pond, VVIP Plantation Site, Rose garden, Tropical House, Coronation pond, Sand garden, Lily garden, Durbar Mandir, Manasalu house, Arboretum, Cherry Plantation Area, Plant Exhibition and Information Center, Sales house, Rest houses, Green house, Shade house, etc.

Ornamental Plants of NBG

Ornamental plants including seasonal, perennial and native. The ornamental plants which are in NBG are given in the table 1 and table 2.

Table 1: Ornamental plants

S.N.	Scientific name	Nepali Name
1.	*Agapanthus africanus* Hoffm.	Nir kamal
2.	*Aloe barbadensis* Mill.	Ghiu kumara
3.	*Althaea rosea* Cav.	
4.	*Antirrhinium majus* L.	Byagute phool
5.	*Aristolochia elegans* Mast	
6.	*Azalea hybrida* Hort.	
7.	*Begonia coccinea* Hook.	
8.	*Begonia lucerna* Hort.	
9.	*Begonia metalica* G.Smith.	
10.	*Begonia semperflorens* Link&Otto	
11.	*Belamcanda chinensis* DC.	Tyangpatre
12.	*Bellia perennial* L.	Tara phool
13.	*Beloperone guttata* Brandegee	
14.	*Bergenia ciliate* (Haw.)strenb.	Pakhanved
15.	*Bougainvillea glabra* choisy	Madani phool
16.	*Bbrumfelsia calycina* Benth.	Nil jaee
17.	*Calendula officinalis* L.	Asarfi phool
18.	*Callistemen citrinus* (Curtis) Skeels	Kalki phool
19.	*Callistephus chinensis* Nees	Gyantaka phool
20.	*Camellia japonica* L.	Chiniya gurans
21.	*Campsis radicans* Seem.	
22.	*Canna hybrida* Hort	Sarbada
23.	*Cathranthus roseus* (L) G.Don	Nayantara
24.	*Celosia argentea* L.	
25.	*Centaurea cyanus* L.	Pancharangi
26.	*Cestrum elegans* (Brongn. Neumann) Schlecht.	
27.	*Cestrum nocturnum* L.	Hasina
28.	*Chenomeles japonica* Lindl.	
29.	*Chrysanthemum morifolium* Ramat	Godawari
30.	*Cineraria cruenta* Masson	
31.	*Cleome spinosa* L.	
32.	*Coleus blumei* Benth.	Sindure
33.	*Coreopsis pubescens* Ell.	
34.	*Cyclamen* sp.	
35.	*Dahlia Pinnata* Cav.	Lahure phool
36.	*Dianthus barbatum* L.	
37.	*Dianthus caryophyllus* L.	Baghmukhe phool

38.	*Digitalis purpurea* L.	
39.	*Dorotheanthus bellidiformis* N.E.Br.	
40.	*Epiphyllum oxypetalum* Haw.	
41.	*Erythrina arborescens* Roxb.	
42.	*Erythrina crista-galli* L.	Khurshani phool
43.	*Euphorbia milli* Desmoul	Kande phool
44.	*Fuschia hybrida* Voss	Krishna kali
45.	*Gardenia jasminoides*	Indrakamal
46.	*Gazania rigens* R.Br.	Gyaljan
47.	*Gerbera jamesonii* Bolus.	Jalbera
48.	*Gladiolus hybridus* Hort.	Tarware phool
49.	*Gloriosa supeba* L.	Kewari
50.	*Godetia amoena* Don	
51.	*Gompherna globosa* L.	Makhamali phool
52.	*Grevillea robusta* A.Cunn.ex R.Br.	Kangiyo phool
53.	*Hedychium thyrsiforme* Sm.	Pankha phool
54.	*Helianthus annus* L.	Suryamukhi phool
55.	*Helichrysum bracteatum* Andr.	Suryabhakti phool
56.	*Hemerocallis fulva* L.	Vaji phool
57.	*Hibiscus mutabilis* L.	Nallu phool
58.	*Hippeastrum vittatum* Herb.	Dwang phool
59.	*Holmskioldia sanguine* Retz.	
60.	*Hosta plantaginea* Aschers.	
61.	*Hydrangea macrophylla* Ser.	Hansaraj
62.	*Hymonocallis rotate* Herb.	Champa phool
63.	*Impatiens balsamina* L.	Tiuri
64.	*Impatiens sultanii* Hook.F.	
65.	*Ipomoea hederacea* Jacq.	Bhurung ko lahara
66.	*Iris tectorum* Maxim.	
67.	*Jacobinea carnea* Nichols	
68.	*Jasminium humile* L.	Jaee
69.	*Jasminium mesneyi* Hance	
70.	*Kalanchoe tomentosa*	
71.	*Kniphofia uvaria* Hook.	Ghoke phool
72.	*Lantana camara* L.	Banfada kada
73.	*Lthyrus odoratus* L.	Kerau phool
74.	*Lilium nepalense* D.Don	
75.	*Lilium tigrinum* Ker.	
76.	*Lycoris radiate* Herb.	
77.	*Magnolia grandiflora* L.	Rukh kamal
78.	*Magnolia soulangeana* Soul	Raktakamal
79.	*Mahonia napaulensis* DC.	Jamanemandro
80.	*Maranta bicolor ker.*-Gawl.	lankashani
81.	*Mirabilis jalpa* L.	Gunkesari
82.	*Narcissus* sp.	
83.	*Nigella damascene* L.	
84.	*Nyctanthes arbor-trstis* L.	Parijat
85.	*Opuntia monacantha* Haw.	Naagphani kanda
86.	*Ornithogalum thyrsoides* Jacq.	Chhyapi phool
87.	*Paeonia albiflora* Pall.	
88.	*Pelargonium zonale* Ait.	Germani phool
89.	*Petunia hybrida* Vilm	
90.	*Phlox drummondii* Hook.	Tike phool
91.	*Poinsettia pulcherrima* R.Grah.	Llupate
92.	*Polianthes tuberose* L.	Sugandharaj
93.	*Portulaca grandiflora* Hook.	Nau baje phool
94.	*Primula malacoides* Franch.	
95.	*Primula obconica* Hance.	
96.	*Primula vulgaris* Huds.	
97.	*Prunus cerasoides* D.Don.	Painyu
98.	*Pyrostegia ignea* C.Presl.	Khursani phool
99.	*Quamoclit pennata* Bojer	Jayanti
100	*Ranunculus asiaticus* L.	
101	*Rhododendron arboretum* Sm.	Lali gurans
102	*Rosa alba* L.	Gulaf
103	*Rudbeckia bicolor* Nutt	
104	*Salvia coccinea* Juss.	
105	*Salvia involucrate* Cav.	
106	*Salvia splendens* Sello	Thulo tulasi
107	*Schlumbergera truncate* (Haw.) Moran	
108	*Sedum morganianum* Walth	
109	*Sedum rubrotinctum* R.T. Clausen	
110	*Smithiantha cinnabarina*	
111	*Strelitzia Nicolai* Regel& Koern.	
112	*Strelitzia reginae* Banks	
113	*Tagetes erecta* L.	Sayapatri

114	*Tagetes patula* L.	Sayapatri
115	*Trachelospermum jasminoides* Lem.	Dudhe phool
116	*Verbena hybrida* Voss	Gainlaincha phool
117	*Viola tricolor* L.	
118	*Yucca gloriosa* L.	Ketuke phool
119	*Zephyranthes carinata* Herb.	Chulocha phool
120	*Zantedeschia aethiopica* Spreng.	Shankha phool
121	*Zinnia elegans* Jacq.	
122	*Zebrina pendula* Schnitzl.	

Source : Sharma (2003)

Table 2: Native ornamental plants

S.N.	Scientific name	Local Name	Family
1	*Aesculus indica (Colebr. Ex Cambess)* Hook	Lekhpangra	Hippocastanaceae
2	*Ardisia macrocarpa* Wall.	Damai phool	Myrsinaceae
3.	*Barleria cristata* L.	Bhende Kurro/Lariphool	Acanthaceae
4.	*Bauhinia purpurea*	Tanki	Fabaceae
5.	*Berberis aristata* DC.	Chutro	Berberidaceae
6.	*Berberis asiatica* Roxb.ex DC.	Chutro	Berberidaceae
7.	*Buddleja asiatica* Lour.	Bhimsenpati	Buddlejaceae
8.	*Castanopsis indica* (Roxb.) Miq.	Dhalekatus	Fagaceae
9.	*Holmskioldia sanguine* Retz.	Jhule Phool	Verbenaceae
10.	*Houttuynia cordata* Thunb.	Gane	Saururaceae
11.	*Impatiens bicornuta* Wall.		Balsaminaceae
12.	*Impatiens puberula* DC.		Balsaminaceae
13.	*Impatiens scabrida* DC.		Balsaminaceae
14.	*Jasminum humili* L.	Jaee	Oleaceae
15.	*Justicia adhatoda* L.	Asuro	Acanthaceae
16.	*Lagerstroemia indica* L.	Asare phool	Lythraceae
17.	*Osmanthus fragrans* Lour.	Siringe	Oleaceae
18.	*Prunus cerasoides* D.Don	Painyu	Rosaceae
19.	*Pyrus pashia* Buch.-Hum. *Ex* D.Don	Mayal	Rosaceae
20.	*Reinwardtia indica* Dumort.	Pyauli	Linaceae
21.	*Rhododendron arboreum* Sm.	Lali Gurans	Ericaceae
22.	*Rosa brunonii* Lindley	Bhainse kanda	Rosaceae
23.	*Rubus ellipticus* Smith	Ainselu	Rosaceae
24.	*Schima wallichii* (DC.) Korth	Chilaune	Theacea
25.	*Senecio laetus* Edgewoth		Asteraceae
26.	*Woodfordia fruticosa* (L.) Kurz	Dhaiyaro	Lythraceae
27.	*Zanthoxylum armatum* DC.	Timur	Rutaceae

Source: Joshi (2008)

Current Activities

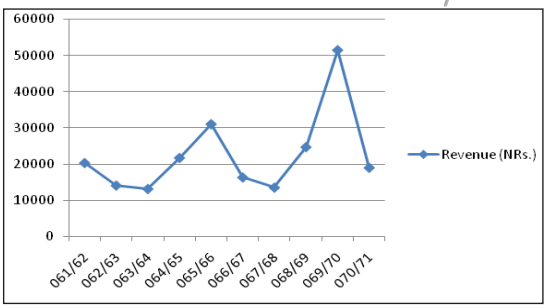
Currently, National Botanical Garden, Godavari has been involved in the study and research activities on native ornamental plants like Rhododendron sp., Lilium nepalense, Impatiens sp., Ardisia macrocarpa, F1 seeds of ornamental plants. Production, demonstration and sale of seasonal and evergreen ornamental plants also some activities conducting in this garden. Similarly, creating awareness to visitors about the importance of gardening and ornamental plants. By selling the ornamental plants garden also collecting revenue.

A comparative chart of revenue collection up to ten years by the sale of ornamental plants is given below

Table 3: Revenue collection up to 10 years by the sale of ornamental plants in NBG

S. N.	Fiscal Year	Revenue (NRs.)	
		Total	Ornamental plants selling
1	061/62	2031980	20360
2	062/63	2239428	14133
3	063/64	2534986	13200
4	064/65	2292976	21757
5	065/66	2724167	31065
6	066/67	3018614	16365
7	067/68	3241048	13555
8	068/69	3334105	24730
9	069/70	3609095	51490
10	070/71	3740817	19035
Total		**28767216**	**225690**

Source : NBG (2014)



Graph: Revenue collection up to 10 years by the sale of ornamental plants

The graph shows that the highest revenue collection was Rs. 51490 in the fiscal year 069/70 where as the lowest revenue collection was Rs. 13200 in the fiscal year 063/64.

Conclusion

Revenue collection from the sale of ornamental plants is very negligible as compared to the total revenue collection in NBG. Ornamental plants introduced in different lawns of the botanical garden attract the visitors. Because of the budget constraints and program like Production and sale of ornamental plants all the ornamental plants mentioned in the table are not in sale. Similarly, National Botanical Garden being a Government institute; its role is focused mainly in creating awareness about the garden development and the importance of ornamental plants but not in revenue collection from the sales of the ornamental plants. Garden helps to inspire the visitors of this botanical garden to buy the ornamental plants either from the sale house of this garden or from the private nurseries.

References

- Banerjee, M.L.1982. Orchids of Nepal. Bishen Singh Mahendra Pal Singh Dehra Dun, India.
- Joshi,N. 2008. Flowers of National Botanical Garden, Godavari, Nepal. DPR
- NBG, 2014. Annual report of National Botanical Garden. National Botanical Garden
- Sharma. I. 2003. Royal Botanical Garden, Godavari. IUCN

Floriculture Association Nepal (FAN) Vision of Ornamental plants 2071

INTRODUCTION

Nepal is a rich country in plant diversity. There are so many native plants of aesthetic values. But there has been no practice to domesticate these plants for floriculture development. Prosperity can be gained, if these plants could be used for ornamental purpose and commercialised in domestic as well as international market.

VISION

To become self sustaining industry with regards to production of ornamental plants and, further develop native ornamental plants at domestic and international arena.

MISSION

Minimise the import of ornamental plants through scaling up domestic production for self sustainability and explore the possibility for development of native plants, for ornamental use, for domestic and international market through the co-ordination among national and international institutions, governments, universities, entrepreneurs and other related stakeholders.

OBJECTIVE

- Scale up propagation and production of existing ornamental plants.
- Conduct research to identify native plants of aesthetic and ornamental values in coordination with local stake holders.
- Conduct research to develop marketable products at species level or hybridize to develop native plants in coordination with national and international partners.
- Develop market linkages of Nepalese ornamental plants in domestic as well as international market

PRESENT STATUS

1. Ornamental plants have the major share in Nepalese floriculture industry. Both flowering and non-flowering perennial plants are included in this sector. About 30% of share on the total turnover is covered by ornamentals in the country.
2. Nepalese market has consumption habit of imported ornamental plants. Most of the plants are imported from India (mostly from West Bengal). There is a trend to order plants of different sizes i.e. small sizes to large sizes up to 2/3 meters according to their demand from the buyer.
3. Indian suppliers supply most of the plants to the Nepalese nurserymen according to their advance order system.
4. All the plants are imported with soil content on root zone, which is against the quarantine rules and regulations in international market. This system carries many types' of diseases with the plants coming in. Septoria is one of the examples which caused a huge loss of marigold flowers in the past, and FAN in co-ordination with Floriculture Development Center (FDC) and

Horticulture Research Division (HRD) of Nepal Agriculture Research Council (NARC) came with a successful solution to control the outbreak of the disease.

5. Despite plenty of local resources, we are dependent on import of ornamental plants, resulting in loss of employment and foreign currency.
6. Due to shock to the plants in transit, climate change and improper handling of the plants high percentage of the plants are damaged and the local nurserymen have to bear huge loss annually.
7. We have international demand of Nepalese ornamental plants and there may be possibility of export.

POSSIBILITY

8. We have enough sources of plants, flora and ferns. Some of those are our indigenous and some are endemic too.
9. Local plants can sustain in the local climate and the plants grow up easily (without huge investment in growing practice, such as investment in climatic control greenhouse or other inputs) which will reduce the cost per year and may increase consumption habit of plants and flora and increase the market share. Local productions may change the traditional pattern on investment and entrepreneurship which is the indication of prosperity. It increases the employment opportunity, use of local resources (soil, fertiliser, water, climate and many of resources) and distribution of resources to the rural level.
10. It can be a source for earning foreign currency.

WAY TO LINK UP

11. Find out domestic resources of ornamental plants.
12. Identify those species which can be commercialized.
13. Analysis and verifying those products in accordance to present consumer's demand.
14. Initiate breeding program of ornamental plants
15. Replace imported plants by domestic production.

OUTPUT

16. Local production grows up.
17. Employment generation
18. Import substitution.
19. Export promotion.

STRATEGIES

20. Conduct research to enlist the Nepalese ornamental plants (Collection, identification, documentation and domestication)
21. Initiate propagation and breeding of unique ornamental plants
22. Finding detail habit of growing conditions (soil, temperature, humidity, etc.), geographical distribution and propagation techniques.
23. Find the legal status for commercialization.
24. Getting International patent right for international market.
25. Create awareness & promote the plants to local as well as international market using various techniques and activities.
26. Changing the consumer habit to support domestic production.

नेपालमा ग्लाडियलस फूलको जातिय विकास तर्फ प्रयास

डा तुलबहादुर पून
कृषि अनुसन्धान केन्द्र (बागवानी), दैलेख

ग्लाडियलस (Gladiolus grandiflora Hort)लाई नेपालीमा तरबारे फूलको नामले चिनिन्छ । यसलाई 'Sword lily' / Corn lily' पनि भनिन्छ । यो ईरिडासीय (Iridaceae) परिवारमा पर्दछ । स्यांगी जस्ता लामा लामा र तिखा टुप्पा पात हुने अनि लामा र अग्ला डांठहरुमा सेता रातो पहेंला वा रङ्गिन सुन्दर फूलफूल्ने गमला वा वगैंचामा घनकन्द(Corm) लगाइ फूल उत्पादन गरिन्छ । यसको उत्पत्ति दक्षिण अफ्रिकामा भएको मानिन्छ। यो एक महत्वपूर्ण कन्दकार (Bulbous) आलङ्कारिक वनस्पति हो । व्यवसायिक कट् फलावर बालीहरु मध्ये ग्लाडियलसले पहिलो दर्जाको स्थान ओगटेको छ। यसको विभिन्न प्रजातिहरुको हालको संख्या २५०-२६० छन । आजकाल लगाईने ग्लाडियलसको जातहरु उर्पल्लेखित उपजातिका संख्याहरु मध्ये २०-२५ उपजातिहरु बाट विकसित गरिएका हुन । नया जातमा हुन पर्ने बिशेषताहरु : बोटको कद् (Plant structure), फुलहरुको गुच्छा (Spike) को आकर्षक रङ्ग तथा गुण, साना साना फूल हरुको (Florets) आकार र स्वरुप , घनकन्द (Corn) र छाउरा (Cormel) को संख्या बृद्वि हुने क्षमता (Corm and Cormel multiplication) , विभिन्न किराहरु र रोगहरु सहने गुण र चिसो र गर्मि सहने गुण इत्यादि हुन ।व्यवसायिक स्तरमा कट् फलावर उत्पादन गर्न र सौखिनको लागि गमला (Pot culture)बेडिङ्ग वा गार्डेन प्रर्दशन (Garden display) को लागि लगाईने प्रसारण समाग्रीहरु (Propagating materials) को श्रोत घनकन्द (corm) हो । जसमा अलैङ्गिक सन्तानोत्पादन (Asexual reproduction) विधि प्रयोजन गरि फूल उत्पादन हुन्छ । तर आशासित जातहरु मध्येबाट अनुपम गुणहरुले सम्पन्न जातहरुलाई छनौट गरिन्छ। एक उत्कृष्ट जात र प्रारुप (Genotype) लाई मातृ बोट (Female parent) र अर्को उत्कृष्ट जात तथा प्रारुपलाई पितृ बोट (Male parent) को रुपमा लैङ्गिक प्रजनन् प्रकृयाबाट प्राप्त वर्णशङ्कर बीउहरुको प्रयोगबाट आउने सन्ततिहरुलाई पुस्तै पिच्छे छनौटगरि उत्कृष्ट नतिजा दिने लाईनहरु बाट मात्रै नयां जातहरुको विकास गर्न तर्फ पहल गरिन्छ । विश्वव्यापिस्तरमा उत्पादन गरिने आलङ्कारिक वनस्पतिहरु मध्ये कन्दकार र गोलो काण्ड (Bulbs and tubers or rhizome) वनस्पतिहरुले ठुलो हिस्सा ओगटेको छ ।त्यस्ता प्रकारका वनस्पतिहरुलाई संक्षेपमा कन्दकार युक्त आलङ्कारिक वनस्पतिहरु (Bulbous ornamental plants) भनिन्छ । जस्तै तरबारे फूल (Gladiolus), लाहुरे फूल (Dahalia), रुप रानी (zephyranthes), जुनकेशरी (Daffodil) फ्रिसीया (Freesia) टुलिप (Tulip), ढवाङ्ग फस्ल (Amaryllis),वेगोनिया (Begonia), सिविया (Civia), भूइचम्पा (Crinum), लिलि (lily) इत्यादि कन्दकार युक्त आलङ्कारिक वनस्पति समूह भित्र पर्दछन । यो समूहमा पर्ने वनस्पतिहरुको लैङ्गिक प्रजनन् (Sexual reproduction) प्रक्रियाबाट वर्णशङ्कर वीउ लाग्न अतिनै जटिल अवरोधको रुपमा देखा पर्दै आएको छ ।

ग्लाडियलसको जातिय सङ्कलन र मूल्याङ्कन

(Collection and Evaluation of Gladiolus Genotypes)

वि.स. २०६६ सालमा ग्लाडियलसको विभिन्न नौ थरिका जातका नामहरु: अमेरिकन विउटी,इन्टरप्रीड, जिन्जररेड, एच.एस. ८७-२२-१, क्यान्डिमेन, हवाईट प्रेास्पेरोटी, समरसन साइन, सिटानिस हाइविड र हवाईट फेन्डसिप चितवन र काठमाण्डौं बाट संकलन गरियो ।

कृषि अनुसन्धान केन्द्र (बागबानी) दैलेखमा जातिय परिक्षणको रुपमा लगाउंदा नौ जातहरु मध्ये जम्मा चार जातहरु अमेरिकन विउटी, इन्टरप्रीड, जिन्जररेड,

एच.एस. ८७-२२-१ जातका घनकन्दहरु(Corms) मात्र उम्रिन सफल भयो । तर ति उम्रिएका बोटहरुको प्रारुप (Genotype) र फूलका रङ्गहरु विभिन्न थरिका मिश्रित थिए । अत कुन जात कस्तो हुन्छ पहिचान गरि छुटट्याउन गाह्रो परेकोले बोटहरु र फूलहरुको विशेषता अनुसार विभिन्न प्रारुपहरु लाई कोड दिई क्रम संख्या दिईयो । जस्तै ए.आर.एस.डि.जि. -०१, ए.आर.एस.डि.जि. -०२, ए.आर.एस.डि.जि. -०३, ए.आर.एस.डि.जि. -०४, ए.आर.एस.डि.जि. -०५, ए.आर.एस.डि.जि.-०६ र ए.आर.एस.डि.जि. -०७, इत्यादि ।

वि.स. २०६७सालसम्ममा जम्मा चारवटा प्रारुपहरु: ए.आर.एस.डि.जि.-०१, ए.आर.एस.डि.जि.-०२, ए.आर.एस.डि.जि.-०३, ए.आर.एस.डि.जि.-०४ लाई पूर्णरुपमा शुद्धिकरण गरियो । जातिय परिक्षणको लागि प्रयाप्त हुने घनकन्दहरु (Corms) ति चार प्रारुपहरुलाई जातिय मूल्याङ्कनको लागि लगाईयो । मूल्याङ्कनबाट प्राप्त नतिजा अनुसार ए.आर.एस.डि.जि.-०१, ए.आर.एस.डि.जि.-०२ बोटको कद र फूलको साइज, रुप र रङ्गलाई अधिकांश दर्शकहरुले अति मन पराएका थिए । तर ति दुई प्रारुपका घनकन्द (Corm) र छाउरा (Cornel) को उत्पादन क्षमता अति न्यून थियो। ए.आर.एस.डि.जि.-०२ मा घनकन्द संख्या ०.९२ प्रति मातघनकन्द र छाउरा संख्या २७ प्रति मातृ घनकन्द अभिलेख रहेको थियो । जबकि ए.आर.एस.डि.जि.-०४मा घनकन्द संख्या २.० प्रति मातृ घनकन्द र छाउरा संख्या ७५ प्रति मातृ घनकन्द पाईएको थियो । त्यसको अतिरिक्त ए.आर.एस.डि.जि.-०४ प्रारुपको घनकन्दहरु र छाउराहरुमा भण्डारण क्षमता उत्कृष्ट थियो । तिनीहरुको सुषुप्त अवधि (Dormancy Period) पनि कम रहेको पाईयो । प्रतिकूल जैविक र अजैविक तत्वहरुलाई समेत केहि हद सम्म सहन सक्ने थप विशेषता देखिएको थियो ।

वि.स.२०६८ सालमा थप तिन प्रारुपहरु: ए.आर.एस.डि.जि.-०५, ए.आर.एस.डि.जि.-०६ र ए.आर.एस.डि.जि.-०७ लाई शुद्धिकरण पश्चात जातिय परिक्षणको लागि लगाई मूल्याङ्कन गरियो । प्राप्त नतिजा अनुसार धेरै जसो विशेषताहरुलाई आधार मानी तुलना गर्दा ए.आर.एस.डि.जि.-०४ नै उत्कृष्ट देखियो । त्यसको अतिरिक्त ए.आर.एस.डि.जि.-०५ समेत विभिन्न विशेषताहरुमा दोस्रो स्थान लिएको थियो ।

ग्लाडियलसको अन्तरजातिय वर्णसंकर प्रक्रिया बाट नयां जातको विकासकोलागि अग्रगति

वि.स. २०६७र २०६८ सालहरुमा ग्लाडियलसको चार प्रारुपहरु: ए.आर.एस.डि.जि.-०१, ए.आर.एस.डि.जि.-०२, ए.आर.एस.डि.जि.-०३, ए.आर.एस.डि.जि.-०४लाई उपयोग गरि प्रत्यक्ष वर्णसंकर (Direct cross) र पारस्परिक वर्णसंकर (Reciprocal cross) प्रक्रियाहरु बाट प्राप्त नतिजा अनुसार ए.आर.एस.डि.जि.-०२ ह ए.आर.एस.डि.जि.-०४को बर्णसंकर सयोजनले प्रतिकोसामा सबै भन्दा बढि बीउ संख्या ६६ अभिलेख रहेको पाईयो । जबकी ए.आर.एस.डि.जि.-०३ ह ए.आर.एस.डि.जि.-०१को बर्णसंकर सयोजनले प्रतिकोसामा बीउ संख्या २ मात्रै लागेको पाईयो ।

विभिन्न क्रसहरुबाट प्राप्त भएको वर्णसंकर बीउलाइ परिक्षणको रुपमा अवलोकन गर्दा ए.आर.एस.डि.जि.-०२ ह ए.आर.एस.डि.जि.-०४बाट प्रजनन् गरिएको बीउको अकुरोदन अन्य वर्णसंकर सयोजनबाट प्राप्त बीउको भन्दा बढि (४०.१३%)अभिलेख रहेको पाईयो ।

ति वर्णसकर बीउलाई मूल्याङ्कन गर्दा करिब ११-१२ महिना भित्रै फूलहरु फूलेको देखियो । फूल फूलि सकेको लगभग १.५-२ महिना पछि घनकन्दहरु (Corms) र छाउराहरु (Cormels) खनेर निकालियो । हाल विभिन्न अन्तरजातिय वर्णसंकर प्रक्रियाबाट प्राप्त घनकन्दहरु र छाउराहरुलाई स्पस्ट छुटिट्ने गरि परिक्षण फिल्डमा लगाइएको छ । घनकन्द र छाउराको अङ्कुरोदन, प्रथम फूल्ने समय, बोटको उचाई, फूलको रुप र रङ्ग लगाएत अन्य विशेषताहरुको अभिलेख राखिनेछ ।तदअनुसार भविष्यमा पुस्तै पिच्छे सेग्रिगेटिङ्ग लाईनहरुको मूल्याङ्कन गरि छनौट भएपछि जातिय परिक्षण गरि प्राप्त भएको विशेषताहरुको नतिजा अनुसार नयां जातहरुको उन्मोचन गरिनेछ ।

REFERENCES

- Anonymous. 2010/011. Evaluation of Promising Genotypes of Gladiolus under Mid-hill Environment of Dailekh condition.APR (ANNUAL PROGRESS REPORT) of Agriculture Research Station (Horticulture), Dailekh,Pp 8-9.
- Anonymous. 2012/013. Evaluation of Promising Genotypes of Gladiolus under Mid-hill Environment of Dailekh condition.APR (ANNUAL PROGRESS REPORT) of Agriculture Research Station (Horticulture), Dailekh,Pp 19-24.
- MISRA, R.L., KUMAR, N. AND DHIMAN, M.R., 2006, Breeding Perspective of Ornamental Bulbous Crops. In: National Symposium on Ornamental Bulbous Crops (5-6 December). Eds: K.V. Prasad, K.P. Singh, M.C. Singh, N.K. Dhadoni and S. Malik (5-6 December 2006), Pp.1-6.
- Poon,T.B.,Pokhrel, A.,Shrestha,S.Sharma, S.R., Sharma, K.R. and Dev, M.L.2012. Influence of Intervarietal and Interspecific Crosses on Seed Set of Gladiolus under Mid-hill Environments of Dailekh Condition. Nepal Journal of Sciences and Technology 13(1):17-24.
- Van Tuyl, J.M., De Jeu, M.J. 1997. Methods for overcoming interspecific crossing barriers in Bulbous Ornamental Plants. In: Pollen Biotechnology for Crop Improvement. Eds: K.R. Shivanna, V.K. Sawhney, Cambridge University Press, New York, Pp. 273-292.

पुष्प व्यवसायसँग सम्बन्धित आर्थिक ऐन नियमहरू

लोक नाथ गैरे

कुनैपनि उद्योग व्यवसायलाई नियामित र व्यवस्थित गर्नका लागि नीति, नियम तथा ऐन, र कानुनहरुको व्यवस्था गरिएको हुन्छ । पुष्प व्यवसायलाई व्यवस्थितगर्न विभिन्न ऐन नियमहरु आकर्षित हुन्छन् । ती मध्ये अर्थ मन्त्रालयसंग सम्बन्धित केहि नीति नियमहरु व्यवहारिक रुपमापुष्प व्यवसायसंग आकर्षण भएको पाईएको छ । ती बारेमा याहाँ केहीउल्लेख गर्न खोजिएको छ ।

पुष्प फार्महरुले पैठारी (आयात) गर्ने सामाग्री एवं बीउ, बिजन र बिरुवा सम्बन्धमा कानुनी व्यवस्था
नेपाल सरकारको अर्थ सम्बन्धी प्रस्तावलाई कार्यान्वयन गर्न बनेको विधेयक २०७१ बाट

दफा १४. देहायका मालवस्तुहरूमा देहाय बमोजिम भन्सार महसुल छुट हुनेछ :

(२) भन्सार महसुल एक प्रतिशत मात्र लाग्ने :

(द) कृषि, वागवानी तथा पुष्प फार्महरूले पैठारी गर्ने ग्रिन हाउस, सिँचाइ उपकरण र यस्तै अन्य यन्त्र उपकरण ।

दफा १५. नेपाल सरकारको सम्बन्धित निकायको सिफारिसमा देहायका मालवस्तुमा देहाय बमोजिम भन्सार महसुल छुट हुनेछ :-

(२) भन्सार महसुल एक प्रतिशत मात्र लाग्ने:-

(झ) कृषिजन्य उत्पादन, फलफूल, माछा आदि सुरक्षित गर्न निर्माण गरिने शित भण्डारको लागि आवश्यक पर्ने यन्त्र तथा उपकरणहरू र थर्मोकोल ।

दफा १७. भन्सार महसुल तथा कृषि सुधार शुल्क पूर्ण छुट हुने : देहायका मालवस्तुहरू पैठारी गर्दा भन्सार महसुल तथा कृषि सुधार शुल्क पूर्ण रूपमा छुट हुनेछ :-

(ख) पुष्प फार्महरूले पैठारी गर्ने फूलका विरूवा (मदर प्लान्ट्स) कलमी विरूवाहरू, फूलको गाना तथा जराहरू र फूलको बीउ बीजन ।

संबोधन गर्न खोजेको बिषय बस्तु :

उपरोक्त व्यवस्थाबाट पुष्प फार्महरुले पैठारी गरिने ग्रीनहाउस, सिंचाई उपकरण र अन्य यन्त्र उपकरणहरुमा १% मात्र भन्सार लाग्ने व्यवस्था गरिएको छ । त्यस्तै शित भण्डारका सामानहरु आयात गर्दा समेत सम्बन्धित निकायको सिफारिसमा १% मा आयात गर्न सकिने व्यवस्था गरिएको छ । बिउ, बिरुवाहरु आयात गर्दा भन्सार महसुल तथा कृषि सेवा शुल्क पुरै छुटको व्यवस्था गरिएको छ ।

मुल्य अभिबृद्धि कर सम्बन्धमा

कानुनी व्यवस्था

मूल्य अभिवृद्धि कर ऐन, २०५२

दफा ५. मूल्य अभिबृद्धि कर लाग्ने : (१) यस ऐनमा अन्यथा व्यवस्था भएकोमा बाहेक देहायका कारोवारमा मूल्य अभिबृद्धि कर लाग्नेछ :

(क) नेपाल अधिराज्यभित्र आपूर्ति भएका वस्तु वा सेवामा,

(ख) नेपाल अधिराज्यभित्र आयात गरिएको वस्तु वा सेवामा,

(ग) नेपाल अधिराज्य बाहिर निर्यात गरिएको वस्तु वा सेवामा,

(२) प्रत्येक कारोवारको कर लाग्ने मूल्यमा कर लाग्नेछ ।

(३) उपदफा (१) मा जुनसुकै कुरा लेखिएको भए तापनि अनुसूची - १ मा उल्लेखित वस्तु वा सेवाहरुको कारोवारमा कर लाग्ने छैन । साथै त्यस्तो वस्तु वा सेवाको खरिदमा पहिले लागेको कर दफा १७ बमोजिम कट्टी गर्न र दफा २४ बमोजिम फिर्ता लिन पाइने छैन ।

नेपाल सरकारको अर्थ सम्बन्धी प्रस्तावलाई कार्यान्वयन गर्न बनेको विधेयक २०७१ बाट

अनुसूची-१ (मूल्य अभिवृद्धि कर ऐन, २०५२ को दफा ५ को उपदफा (३) संग सम्बन्धित)

कर छुट हुने वस्तु तथा सेवाहरु

समूह : १ आधारभूत कृषि उत्पादनहरु

०६०१		निष्कृय, उम्रन लागेको वा फूलेको गानो, गांठो, गांठेजरा, धनकन्द (कौर्म), क्राउन (रुखको जरा र स्तंभ जोडिने बिन्दु स्थल), राइजोम (मूलजरो), चिकोरी विरुवा र शीर्षक १२.१२ को जराहरुबाहेक अन्य जराहरु ।
	०६०१.१०.००	निष्कृय गांनो, गांठो, गांठे जरा, धनकन्द (कौर्म), क्राउन र मूलजरा
	०६०१.२०.००	उम्रन लागेको वा फूलेको गांनो, गांठो, गांठे जरा, धनकन्द (कौर्म), क्राउन, मूलजरा, चिकोरी विरुवा र जराहरु
०६०२		अन्य जीवित विरुवा (जरा सहित), कलमीहरु, च्याऊ र स्पाउन (च्याउ निस्किने सेतो त्यान्द्रो)
	०६०२.१०.००	जरा नभएको कलमीहरु
	०६०२.२०.००	खान हुने फल वा काष्ठफल (नट) का कलमी गरेका वा नगरेका रुख, बुटा र झाङ
	०६०२.३०.००	रोडोडेन्ड्रन्स (गुराँस) र अजालिया, कलमी गरेको वा नगरेका
	०६०२.४०.००	कलमी गरेको वा नगरेको गुलाफ
	०६०२.९०.००	अन्य
०६०३		सजावट प्रयोजनको लागि वा फूलको गुच्छा बनाउनको लागि उपयुक्त टिपेको फूलको कोपिला वा टिपेको फूल, ताजा, सुकेको, रंगाएको, धोएको, संसेचित (इम्प्रिग्नेटेड्) वा अन्य प्रकारले तयार गरेको । -ताजा:
	०६०३.११.००	गुलाफहरु
		कार्नेसनहरु
		अर्किडहरु
		--क्रिसानथेममहरु
		कुमुदिनी (लिली) हरु (लिलियम जातहरु)
		अन्य
०६०४		गुच्छा वा गुलदस्ता बनाउने वा सजावटको लागि उपयुक्त हुने किसिमका ताजा, सुकेको, रंगाएको, धोएको, संसेचित वा अन्य किसिमले तयार गरेको रुखको पालुवा, हाँगाबिँगा र अन्य भागहरु (फूल र कोपिला बाहेक) बालवृक्ष, झ्याङ्गाडी र अन्य बोट विरुवाहरु भ्याउ, सुनाखरी र घांसहरु ।
	०६०४.२०.००	ताजा:
	०६०४.९०.००	अन्य

संबोधन गर्न खोजेको बिषय :

मुल्य अभिबृद्धि कर ऐन २०५२ को दफा ५ को उपदफा ३ ले व्यवस्था गरेको अनुसूची १ मा उल्लेख भएका बस्तुहरुमा मुल्य अभिबृद्धि कर पूर्णरुपमा नलाग्ने व्यवस्था गरेको छ । अनुसूची १ : प्रत्येक बर्षको आर्थिक बिधेयकमा संसोधन भईरहन्छ । आ.ब. २०७१/०७२ को व्यवस्था अनुसार फूलसंग सम्बन्धित जरा भएका वा नभएका सबै फूलहरुमा मुल्य अभिबृद्धि कर नलाग्ने व्यवस्था गरिएको छ ।

सार्वजनिक खरिद नियमावली सम्बन्धमा

कानुनी व्यवस्था :

सार्वजनिक खरिद नियमावली, २०६४

दफा१९. स्थायी लेखा नम्बर र मूल्य अभिवृद्धि कर दर्ता प्रमाणपत्र प्राप्त गरेकासँग खरिद गर्नु पर्ने:

(१) सार्वजनिक निकायले कुनै खरिद गर्दा आन्तरिक राजश्व कार्यालयबाट स्थायी लेखा नम्बर र मूल्य अभिवृद्धि कर दर्ता प्रमाणपत्र प्राप्त गरेका व्यक्ति, फर्म, संस्था वा कम्पनीबाट मात्र खरिद गर्नु पर्नेछ ।

(२) उपनियम (१) मा जुनसुकै कुरा लेखिएको भए तापनि देहायको अवस्थामा मूल्य अभिवृद्धि कर दर्ता प्रमाण पत्र प्राप्त नगरेका व्यक्ति, फर्म, संस्था वा कम्पनीबाट समेत खरिद गर्न सकिनेछ :-

(ख) मूल्य अभिवृद्धि कर नलाग्ने मालसामान, परामर्श सेवा वा अन्य सेवा खरिद गर्दा, (तेस्रो संशोधन)

सम्बोधन गर्न खोजेको बिषय:

सार्वजनिक खरिद नियमावली २०६४ को दफा १९ को उपदफा २(ख) मा भएको व्यवस्था अनुसार जुन बस्तुहरुमा मु.अ.क. लाग्दै ती बस्तुहरुको टेण्डर कोटेशन वा अन्य खरिद सम्बन्धि कार्य गर्दा मु.अ.क. दर्ता प्रमाण पत्रको आवश्यकता पर्दैन । मुल्य अभिबृद्धि कर ऐनको अनुसूची १ मा फूलहरु र सो संग सम्बन्धित बस्तुहरुमा कर नलाग्ने स्पष्ट उल्लेख गरिएकोले सो सम्बन्धि बस्तुहरुको कारोबर गर्दा वा सरकारी खरिद सम्बन्धि कार्यमा संलग्न रहदा मु.अ.करमा दर्ता भईरहनु नपर्ने व्यवस्था गरिएको छ ।

सन्दर्भ सामाग्री :

१. आर्थिक बिधेयक २०७१ (नेपाल सरकारको अर्थ सम्बन्धी प्रस्तावलाई कार्यान्वयन गर्न बनेको विधेयक २०७१)

२. मुल्य अभिबृद्धि कर ऐन, २०५२

३. सार्वजनिक खरिद नियमावली २०६४

नेपालमा पुष्प तथा पुष्प-जन्य वस्तुको उत्पादन, निकासी संभावना, आयात प्रतिस्थापनको व्यवसाय

डा. सुमनकुमार रेग्मी

१. परिचय

आय आर्जन वा पेशा व्यवसायका उदेश्यले व्यावसायिक रुपमा विभिन्न फूल तथा फूलजन्य विरुवाहरु तथा वस्तुहरुको आधुनीक तरिकाले उत्पादन,व्यवस्थापन र विक्री वितरण गर्नु नै पुष्प व्यवसायका कृयाकलापहरु हुन। तुलनात्मक रुपमा यस व्यवसायबाट अन्य व्यवसायभन्दा बढी आय आर्जन गर्न सकिन्छ। नेपालमा पुष्प व्यवसायबाट व्यवसायीहरुलाई आय आर्जन मात्र नभई यसबाट भारत लगायत अन्य देशहरु र अन्य स्थानबाट आफ्नै जिल्लामा आयात हुँदै आएका फूल र विरुवाहरुलाई पनि यसले प्रतिस्थापना गर्न सक्ने भएकोले यी व्यवसायहरु अझ बढी महत्वपूर्ण भईआएको छ। फूलसम्बन्धी वस्तुहरुलाई एचएसकोड ०६०१ देखि ०६०४ सम्मका अंकहरुले जनाउँने गरिएको छ।नेपालमा फूलको माग प्रति बर्ष बार्षिक १० प्रतिशतका दरले बढदै गएको फूल उत्पादन व्यवसायीहरुले बताउँदै आएका छन्। अन्तर्राष्ट्रिय बजारीकरणमा चार समुहका एचएस कोड ०६०२ ९९७०, ०६०२९९९१-९, ०६०३१०-०६०३९० र ०६०४१०-०६०४९९ का फूलसम्बन्धी वस्तुहरु बढी मात्रामा मागमा रहेका छन् ।

२. फूल खेती र उत्पादन

नेपालमा २०५१ सालदेखि व्यवसायिक रुपमा पुष्पको खेती हुँदै आएको देखिन्छ । पुष्प व्यवसाय व्यवसायिक रुपमा चल्ने भएपछी नेपाली पुष्प उद्यमी र किसान पनि फूलजन्य वस्तुका व्यापार र खेतीतर्फ विस्तारै एवं आकर्षित बन्दै गएका छन। पुष्पको व्यवसायिक तवरले नेपालमा ४ हजारभन्दा बढी परिवारले रोजगारी पाएका छन।यसले ४१ हजार भन्दा बढी मानिसलाई प्रत्यक्ष तथा अप्रत्यक्ष रोजगारी उपलब्ध भएको छ ।

काठमाण्डौ उपत्यका र आसपासका जिल्लाहरु नुवाकोट, मकवानपुर, र चितवन फूल उत्पादनका लागि छनौट गरिएका देखिन्छन। देशमा पुष्प खेती ३८ जिल्लामा लगभग ६ सय ५० फर्म-कम्पनीहरुबाट १ सय ३७ हेक्टर क्षेत्रफलमा पुष्प व्यवसाय हुँदै आएको अनुमान छ । काठमाण्डौ उपत्यका नजिकका गाबिसमा मात्र हैन् नेपालका विभिन्न भागमा समेत पुष्प व्यवसाय गर्नेहरुको संख्या दिन प्रतिदिन बढदै गएको छ ।

नेपालमा यो व्यवसाय सोखपूर्ण तवरले खेती हुँदै आएको छ। व्यावसायिक रुपमा किसानहरुलाई आकर्षित गर्ने उदेश्यले पुष्पको खेती व्यापक रुपमा विस्तार गरे अर्बौं रुपैंयाको फूलजन्य वस्तुहरु विदेशी बजारमा निर्यात गर्न सकिने सम्भावना छ। देशमा बार्षिक रु. १ अर्ब १५ करोडको फूलजन्य वस्तुहरु कारोबार हुने गरेको छ ।

सामुदायिक वन र र त्यसै खेर गइरहेका भूमी एवम् प्रत्येक घर-घरमा कौसीमा पनि पुष्पको खेती गरी विदेशी मुद्रा आर्जनको भरपर्दो आधार बनाउन सकिन्छ । नेपालमा पाइने गुनकेशरी, सयपत्री, लालीगुराँस जस्ता बिरुवालाई विदेशी प्रबीधी भित्राएर विकसित नयाँ जातमा उन्नत फूलको उत्पादन गर्न सकिन्छ ।

नेपालमा पुष्प व्यवसायमा अरु नगदे बालीभन्दा अत्यधीक प्रतिफल आउनुका कारण र यसको लागि खेतीयोग्य जमिनमा कमी नभएको कारण पुष्प व्यवसायको भविष्य उज्जवल देखिन्छ। नेपालमा

भौगोलिक एवम् हावापानी विविधताका कारण बाय-डाईभर्सिटी सम्भव भएकाले पुष्प व्यवसाय नेपालको निकासी वस्तुका लागि अनुकूल देखिन्छ ।

नेपालमा भौगोलिक एवम् हावपानी बिवीधताका कारण बाय-डाईभरसीटी सम्भव भएकाले पुष्प व्यवसाय नेपालको निकासी वस्तुका लागि अनुकुल देखिन्छ । नेपालमा ६ हजार ५ सय जातीका फुल विरुवा र ३ सय ८० जातीका अर्किड विरुवा उपलब्ध छन । साथै अरु अनुसन्धान गरेमा फूल विरुवाको उत्पादन र निकासीमा बिवीधता ल्याउन सकिन्छ । नेपालमा ५० भन्दा बढी कट फल्यावर र १ सय भन्दा बढी बल्ब भेरायटी नगदी खेती गरिएका छन । नेपालको वर्तमान अवस्थामा परम्परागत र नयाँ अन्वेषक गरिएका फूल, पुष्प बल्ब, टयूबर र ञ्हीजोम्स, अर्नामेन्टल विरुवा र अर्किडका उत्पादन गरेमा निकासी सम्भवनै देखिन्छ । पूर्वी नेपालमा ईपीफीटीक जातका फूलमा धनी देखिन्छ । पश्चिम नेपालमा टेरेस्ट्रीयल जातका फूल र मध्य नेपालमा दुबै जातका फूल पाईन्छन ।

ईपीफीटीक जातका बढी आकर्षण र रङीन देखिन्छन र यस्ता फूल अरु फूल ठूला देखिन्छन । नेपालमा नगदे खेतीका लागि सम्भव भएकामा अर्किडमा सीमोपोडीयल र मोनोपोडीयल छन । नेपालमा निकासी संभावना देखिएका फूल र विरुवामा सीजनल, अर्नामेन्टल, श्रवस र क्लाईमबरस, कट फलावरस, बल्बस, टीसु कल्चर, फोलिएज मुख्य छन । नेपाल उत्पादन र निकासी संभावना भएका सिजनल फूल र विरुवामा मेरीगोल्ड, जीन्नीया, डाहलीया, पेटुनीया, प्यानजी, भरबेना, अन्टीर्रहीनुम, क्यालसीओल्यारीया, सीनेच्यारेरीया, सेलोसीया र रीउनन्यूकोलस मुख्य छन ।

त्यस्तै नेपालमा उत्पादन र निकासी संभावना देखिएका नफूल्ने अर्नामेन्टल विरुवामा साईकास, टुपीडीयनथुस, फोनीक्स, एरीका पाल्म, नोलीना, फीलोड्रोन,ड्राकाईना, धुपी, नोलीना, फीलोड्रोन, फीकस, एरकुरीया कुकी मुख्य छन । त्यस्तै नेपालमा उत्पादन र निकासी संभावना देखिएका श्रबस र क्लाईम्बरसमा रोज, बोगनभेलीया, ब्लिडीङ हार्ट, बेगोनीया, भेनिष्ट आदि मुख्य छन । त्यस्तै नेपालबाट निकासी संभावना भएका कट-फल्यावरहरुमा ग्लाडीयस, रोज, कारनेशन, जरबेरा, टयूबरोज, साईडीबियम, अर्किड, किश्सानथेमम आदि अन्य अर्किड छन ।

नेपालबाट निकासी संभावना भएका बल्बसहरुमा ग्लाडीओलस, जेफायरेन्थस, होमानथस, पोलीयानथा, लिकोलीसयउरा,युकारीस ग्रान्डीफउरा, अकीमेनस, कुकुर्मा आदि देखिएका छन। निकासी संभावना भएका टीसु-कल्चरमा बनाना, ब्याम्बो, अर्किड, क्रिस्थामम मुख्य छन भने निकासी संभावना भएका फोलियजमा कुरीलो, फेर्नस, नेफ्रोलेपीस, कोर्डीफोला, प्युलमोसस, जुनीपर र ठुजा मुख्य छन ।

३. फूलको प्रयोग,सजावट तथा प्रशोधन

अचेल सामाजिक र साँस्कृतिक परिवेशमा पुष्प व्यवसायको महत्व बढदै गएको छ किनभने आजकल धार्मीक कार्य, चाडपर्व, घर सजावट, विभिन्न सामाजिक समारोहमा फूलको अत्यधिक माग र जिवनस्तरका ढाँचामा आएको परिवर्तनले यसको माग बढदै गएको छ । फूललाई वातानुकुलित कन्टेनरमा सुहाँउदो तापक्रममा राख्न जरुरी छ । माग बमोजीमको गुणस्तर, ग्रेडीङ र संवेष्ठन आवश्यक छ । प्रशोधन र छनौट पछी सुहाँउदो संवेष्ठनमा प्याकीङ गरिन्छ ।

४..बजार व्यवस्था

सरकारले आ.ब. सन २०१४-१५ मा चोभारमा फलफूल र फूलका लागि एउटा मेगा अर्थात ठूलो बजार निर्माण गर्ने भएको छ । विश्व बैंकको सहयोगमा कृषि मन्त्रालयले चोभारमा २३ रोपनी जग्गामा नयाँ अनतर्राष्ट्रिय स्तरको थोक बजार खोल्ने तयारी गरेबाट फूल क्षेत्रको विकास हुने नै छ । यस बृहत बजारको कार्यक्रमले नेपालको फूल

सहित फलफूलको आन्तरीक तथा बाह्य बजारको स्तरोन्नती गर्ने नै छ । देशभरका यस क्षेत्रको किसानहरुलाई सहयोग गर्ने उदेश्य उच्च स्तरको थोक बजारले राखेको छ ।

नेपालमा फूल व्यवसायको विकास र निर्यात गर्ने उदेश्यले बेलाबेलामा अन्तर्राष्ट्रियस्तरको पुष्प प्रदर्शनी हुने गरेको छ । मेलामा व्यावसायिक स्टल, सूचनाको स्टल, अन्तर्राष्टिय स्टल राखिने गरिएका छन । मेलामा भारतमा विकास भएका प्रविधिहरु राखिएका देखिन्छन । मेलामा नेपालका विभिन्न जिल्लाका सहभागी व्यवसायीहरुले मौसमी फूल, आंलकारिक बोटबिरुवा, कट फ्लावर, ड्राइफ्लावर, सुनाखरी, कम्पोष्ट मल, फूलका बल्ब, बीउ, कृषि औंजार, उपकरण, प्याकेजीङ सामाग्री, सूक्ष्म तथा थोपा सिँचाई प्रविधि र विषादी बिक्रीका लागि राखिने गरिएका छन। नेपालमा हुने गरेका यस्ता मेलामा भारत, बंगलादेश, जापान, हल्याण्ड, अमेरीका आदिको सहभागिता हुने गरेको छ । यस्ता मेलामा रु.१ अर्ब भन्दा बढीको कारोबार हुने गरेको देखिएको छ ।

नेपालमा पुष्प व्यवसाय हालका दशकमा आन्तरिकस्तरमा विकास भईरहेको छ। तर बाह्य क्षेत्रमा प्रतिस्पर्धा गर्न निकै कठिनाई देखिन्छ । फुल क्षेत्रको विकास गर्न नेपालको स्थिती भारतको दार्जीलीङ, जम्मु-काश्मिर र मलेशीयाको केमरुन, चीनको युनानभन्दा कम देखिदैन ।

नेपालमा उत्पादन गरिएका फूल तथा विरुवाहरु नेपाल भित्र मात्र नभई भारत नजदिक सहरहरु र विदेशमा समेत उचित मूल्यमा बिक्री गर्न सकिन्छ । त्यसर्थ पुष्प व्यवसायको बजार प्रचुर मात्रामा छ । पुष्प व्यवसायको उत्पादनको बजारीकरणको लागि व्यवसायीले बजार प्रबर्द्धन गर्न प्रचार-प्रसार तथा मुख्य ग्राहकहरुसंग भने प्रत्यक्ष सम्पर्क गर्न जरुरी छ ।

ग्राहकको चाहाना तथा बजारको माग अनुसार साना उद्यमी तथा व्यवसायीहरुले विभिन्न किसिमका मौषमी फूलहरु तथा आलंकारिक विरुवाहरु उत्पादन तथा बिक्री गर्न सक्दछन्। फूल तथा यसका विरुवाहरु उत्पादन गर्न उद्यमीहरुले आफ्नो व्यवसाय गर्ने स्थानको माटो, हावापानी तथा मौसमको अनुकूलता र उत्पादन गरिने फूलको बजार क्रेताको माग आदिलाई विशेष ध्यान दिनुपर्दछ ।

विश्वस्तरमा प्रति व्यक्ति फूल बढी खपत गर्ने देशहरुमा नर्वे, स्विजरलैण्ड, डेनमार्क, स्वेडेन, जरमनी, अष्ट्रिया, ईटाली, बेल्जीयम, हल्याण्ड, फ्रान्स, जापान, ग्रिक, यू.के, अमेरीका, स्पेन मुख्य छन् । फूलसम्बन्धी वस्तु आयात गर्ने देशहरुमा जरमनी, फ्रन्स, यू.के, निदरल्याण्ड, अमेरीका, ईटाली, बेल्जीयम, डेनमार्क, क्यानडा, जापान, स्विजरल्याण्ड, अष्ट्रिया, स्वेडेन, नर्वे मुख्य छन् ।

५. नेपालबाट फूलको निकासी संभावना

नेपालबाट बर्षको ३ करोड १५ लाखको फूलको निर्यात हुने गर्दछ भने बाह्य देशहरुबाट नेपालमा ३ करोड ६९ लाखका फूल आयात गर्ने गरिन्छ । आन्तरीक फूलको कारोबार भने रु.१ अर्बको भन्दा बढीको देखिन्छ । दशैं,तिहार र प्रणय दिवसका बेला नेपालको आन्तरीक उत्पादनले नपुग्ने भएकाले भारतको कोलकाताबाट सयपत्री फूल आयात गर्ने गरिएको देखिन्छ। भ्यालेन्टाईन दिवसमा बैंङलोर र पुनाबाट रातो गुलाब आयात गर्ने गरिन्छ ।

नेपालमा हरेक बर्ष भ्यालेन्टाईन डे अर्थात प्रणय दिवसका अवसरमा १ करोड भन्दा बढीको गुलाफ फूलको बिक्री हुने गरेको छ। हरेक बर्ष यस्ता दिवसमा गुलाफको माग बढदै गएकाले यस्को विदेशबाट हरेक बर्ष १० प्रतिशतका दरले आयात बढदैछ। नेपालमा प्रणय दिवसको महत्व पछिल्ला बर्षमा बढदै गएकाले गुलाफको मागमा पनि ह्वात बृद्धि हुँदै आएको देखिन्छ। हरेकबर्ष प्रणय दिवस पनि मनाईने गरिन्छ। यस दिवसमा नव-युवायुवतीहरु आईलभयू भन्दै गुलाफ दिई प्रेम साटासाट गर्दछन्।नेपाल फूलको उत्पादनमा

आत्मनिर्भर हुँदै गएको भनिए पनि तिहार र प्रणय दिवसमा आवश्यक पर्ने फूल आन्तरीक बजारले आपूर्ति गर्न सक्दैन। यस्ता अवसरमा ९० प्रतिशत माग बाह्य श्रोतबाट आपूर्ति गर्ने गरिन्छ। नेपालमा आउने अधिंकाश गुलाफ भारत र हलैण्डबाट आपूर्ति हुने गर्दछ।

हाम्रो देशमा पुष्प व्यवसायमा आत्मनिर्भर भए पनि यस क्षेत्रमा निर्यातमुखी बन्न अझै समय लाग्न सक्दछ। समय-समयमा हुने पुष्प व्यापार मेलाले यो व्यवसायलाई अझै अधि बढाउन सहयोग पुगेको छ। हाम्रो देशबाट पुष्पको गाना र टिस्युकल्चर पनि निर्यात भएको छ।

अफ्रिकी देशहरुले सस्तोमा अमेरीका र युरोपमा पुष्प निर्यात गरिआएका छन। नेपालको पुष्प बजार अमेरीका र जापानमा समेत बृद्धि हुँदै गएको छ। नेपालको पुष्प क्वारेन्टाईन लगायत अवरोधहरुले भारत र युरोपमा निर्यात गर्न सजिलो भएको देखिदैन। नेपाली कटफ्लावरको माग मध्यपुर्व, युरोप र भारतमा समेत बढदै छ।

नेपालको निकासी-जन्य वस्तुका निकासी बढाउन फुल-वस्तुका निकासी बढाउन आवश्यक छ। यस्को लागि पुष्प व्यवसायको विकास हुन जरुरी छ। नेपालमा पुष्प व्यवसाय उद्योग फस्टाउदै छ। तर यस्का निकासी अझ प्रारमभिक अवस्थामा नै छ। यस क्षेत्रको विकासको लागि एवम् यस्को वर्तमान अवस्थाबाट उभो लाग्न संभावित उत्पादक र वजार पहिल्याउन आवश्यक छ ।

६. समस्या तथा सुझाव

नेपालका अन्वेशक, पुष्पउत्पादक, र व्यवसायीहरु फूलको विकासमा अगाडी आईरहेका देखिन्छन। तर यस क्षेत्रको उत्पादन र निकासीका लागि उपयुक्त वातावरण बनाउन अझ आवश्यक देखिन्छ। वास्तवमा यस क्षेत्रको विकासमा व्यापार तथा कर विनीयम अप्ठेरो भएको बताईन्छ। यस क्षेत्रको विकासको लागि निकासी विकासको अवरोध फुकाउन आवश्यक छ ।

यस क्षेत्रको निकासी विकासको लागि बढी लागत खर्च, उन्नत प्रबिधि खेतिको कमी, हवाइ एवम् सुरक्षित ढुवानीको अभाव आदि देखिन्छन। नेपालमा यस क्षेत्रको व्यावहारिक रणनितीका लागि सानो स्तरका उत्पादक तथा व्यावसायीहरुलाई प्रोत्साहन दिन आवश्यक देखिन्छ ।

पुष्प व्यबसायमा कट फलावरसहित बल्ब, अर्नामेन्टल, प्लान्ट, पटेट प्लान्ट आदि समेटिनु पर्दछ। नेपालले डच बल्ब उद्योगबाट पाढ सिक्नु पर्दछ। नेपालमा यस क्षेत्रको विकासको लागि उपयुक्त निकासी बजार र बजारीकरण नमुनाको अभ्यास आवश्यक छ। निकासीमा देखिएका अवरोधहरुलाई कम गर्न आवश्यक छ। यस क्षेत्रको उद्योगको लागि सम्बन्धीत भ्यालुचेन संगठनबिच सम्बन्ध आवश्यक छ। यस्तो कार्यको लागि फूल उत्पादक, निकासी प्रबर्द्धन संगठन, दिर्घकालिन निकासीसंग सम्बन्ध, यस क्षेत्रको तालिम र प्रबिधि हस्तान्तरणको जालोविच घनिष्ट सम्बन्ध कायम गर्न आव्रयक छ ।

यस क्षेत्रमा लागेका उत्पादक, सेवाप्रदायक र अन्य सम्बन्धीतहरुलाई अन्तर्राष्ट्रिय फूल बजारका स्थानहरु, फूलहरुसम्बन्धी निकायहरु र फूल लिलाम हुने स्थानका भ्रमण कार्यक्रममा संलग्न गराउनु पर्दछ। अन्तर्राष्ट्रिय फूल विज्ञहरुलाई आमन्त्रण गरी नेपालको हावापानी र नेपालमा पाईने फूलका किसिमहरुका बारेमा अध्ययन गराईनु पर्दछ ।

काठमाण्डौको अन्तर्राष्ट्रिय विमानस्थलमा फूलहरुलाई भण्डारण गर्न वातानुकुलित चिस्यानगृहको व्यवस्था गरेमा नेपालको फूल निकासी बढने संभावना देखिन्छ। फूलको निकासी बढाउन पुष्प व्यवसायमा लागेकालाई पुष्प खेती सुबिधालगायत अनुदान दिन आवश्यक छ ।

यस क्षेत्रमा लागेका उद्यमीहरु पुष्प व्यवसायको विकासको लागि ग्रिनहाउस, उपयुक्त विरुवा, स्वस्थ व्यवस्थापन, र आधुनीक पोस्ट हार्भेस्टिङ विधीहरुमा लगानी गर्न ततपर छन। तर उनीहरुले सरकारबाट

उपयुक्त पुष्प नीति, वातावरण र केहि आर्थिक सहयोगको अपेक्षा गरेका देखिन्छन ।

नेपालको निकासीजन्य वस्तुको निकासी बढाउन फूलसम्बन्धी निकासी बढाउन आवश्यक छ । यस्को लागि पुष्प व्यवसायको विकास हुन जरुरी छ। नेपालमा पुष्प व्यवसाय व्यवसाय फस्टाउँदै छ। तर यस्को निकासी अझ प्रारम्भिक अवस्थामा नै छ। यस क्षेत्रको विकासको लागि एवम् यस्को वर्तमान अवस्थाबाट माथि लाग्न सम्भावित उत्पादक र बजार पहिल्याउन आवश्यक छ। नेपालमा पष्प व्यवसाय हालका दशकमा आन्तरीकस्तरमा विकास भईरहेको छ। तर बाह्य क्षेत्रमा प्रतिष्पर्धा गर्न निकै कठिनाई देखिन्छ। नेपालमा फूल क्षेत्रको विकास गर्न नेपालको फूलको चाँहिने स्थिति भारतको दार्जिलिङ, जम्मु-काश्मीर र मलेशीयाको केमरुन, चीनको युनानभन्दा कम देखिदैन ।

नेपालमा अन्वेषक पुष्प उत्पादक र व्यवसायीहरु फुलको विकासमा अगाडी आईरहेका छन। तर यस क्षेत्रको उत्पादन र निकासीका लागि उपयुक्त वातावरण वनाउन आवश्यक देखिन्छ। वास्तवमा यस क्षेत्रको विकासमा व्याापार तथा कर विनीयम अप्ठेरो छन भनिन्छ। यस क्षेत्रको उन्नतीको लागि निकासी विकासको अवरोध हटाउन आवश्यक छ । यस क्षेत्रको निकासी विकासको लागि बढी लागत खर्च, उन्नत प्रबिधीको खेतीको कमी, हवाई सुरक्षित ढुवाईको अभाव आदि देखिन्छन। नेपालमा यस क्षेत्रको दिगो विकासको लागि आवश्यक पहल भएको देखिदैन ।

नेपालमा यस क्षेत्रको व्यवहारीक रणनीतिका लागि सानोस्तरका उत्पादक तथा व्यवसायीहरुलाई प्रोत्साहन दिन आवश्यक देखिन्छ। पुष्प व्यवसायमा कट फलावर सहित बल्ब, अर्नामेन्टल प्लान्ट, पटेट प्लान्टआदि समेटीनु पर्दछ। नेपालले डच बल्ब उद्योगबाट पाठ सिक्न सक्दछ ।

नेपालमा गुणस्तरीय फुलको विकासको लागि अति उपयुक्त कृषि-प्रबीधीका बिधीहरु अपानाउन आवश्यक छ। नेपालमा यस क्षेत्रको विकासको लागि उपयुक्त निकासी वजार र बजारीकरण नमुनाको अभ्यास आवश्यक छ। यस क्षेत्रको विकासको लागि निकासी कृयाकलापका बाधाहरु हटाउन आवश्यक छ। यस क्षेत्रगत उद्योगको लागि सम्बन्धीत भ्यालुचेन संगठनहरुविच सम्बन्ध आवश्यक छ। यस्तो कार्यको लागि फुल उत्पादकहरु, निकासी प्रबर्द्धन संगठन, दिर्घकालीन निकासीसंग सम्बन्धी सम्बन्ध, यस क्षेत्रको तालीम र प्रबीधी हस्तान्तरणको जालोविच घनिष्ट सम्बन्ध कायम गर्न आवश्यक छ ।

यस क्षेत्रमा लागेका उत्पादक, सेवा प्रदायक र अन्य सम्बन्धीतहरुलाई अन्तराष्ट्रिय फूल बजारका स्थानहरु, फूल सम्बन्धी निकायहरु र फूल लिलाम हुने स्थानका भ्रमण कार्यकममा संलग्न गराउनु पर्दछ। अन्तर्राष्ट्रिय फूल विज्ञलाइ आमन्त्रण गरि नेपालको हावापानी र यहाँ पाईने फूलको किसीमहरुका बारेमा अध्ययन गराईनु पर्दछ ।

काठमाण्डौको अन्तर्राष्ट्रिय विमानस्थलमा फूललाई भण्डारण गर्न वातानुकुलित चीसानगृहको व्यवस्था गरेमा नेपालको फूल निकासी बढने संभावना देखिन्छ। पुलको निकासी बढाउन पुष्प व्यवसाायमा लागेकालाई पुष्प खेति सुबिधा लगायत अनुदान दिन आवश्यक छ। नेपालमा पुष्प व्यवसायमा अरु नगदे बाली भन्दा अत्यधीक प्रतिफल आउनका कारण र यस्को लागि खेतीयोग्य जमीनमा कमी नभएको कारण पुष्प व्यवसायको भविष्य उज्जवल देखिन्छ । नेपालमा पुष्प व्यवसायको प्रचुर सम्भावना हुँदा-हुँदै पनि आवश्यक जानकारी, प्रचार-प्रसारको कमीले गर्दा यो व्यवसाय ओझेलमा पर्न गएको देखिन्छ । तै पनि परम्परागत कृषि प्रणालीबाट परिवर्तन गरि, फूल उत्पादन व्यवसायको क्षेत्रमा प्रवेश गरी, उच्च प्रतिफल दिने व्यवसायको शुरुवात गर्नु नै पुष्प क्षेत्रको महत्व हो ।

यस क्षेत्रमा लागेका उद्यमीहरु पुष्प व्यवसायको विकासको लागि ग्रिनहाउस, उपयुक्त विरुवा स्वास्थ व्यवस्थापन र आधुनीक पोष्ट-हार्भेष्टिङ बिधीहरुमा

लगानी गर्न तत्पर छन । तर उनीहरुले सरकारबाट उपयुक्त पुष्प नीति बातावरण र केही आर्थिक सहयोगको अपेक्षित छन ।

७. नेपालमा केहि छनौट फुल उत्पादनकर्ता, व्यापारीहरु तथा अरु सम्बन्धितको नाम

केन्द्रका केन्द्रीय कायालयहरु र सम्बन्धित जिल्लाका घरेलु तथा साना उद्योग विकास समिति वा कार्यालय

- ❖ केन्द्रका केन्दीय कृषि कायालर्यहरु र सम्बन्धित जिल्ला कृषि विकास कार्यालय
  - ♦ उद्योग बाणिज्य महासंध र यस अन्तर्गतको जिल्ला उद्योग बाणिव्य संघ
  - ♦ सम्बन्धित जिल्लाका कृषि विकास बैंकको शाखा कार्यालयहरु
  - ♦ नेपाल पुष्प व्यवसायी संघ र यस्ता अन्य संघहरु

८. विदेशस्थित फुल वस्तुका छनौट गरिएका आयातकर्ताहरु

- अलाईड कम्पनी लिमिटेड, सिबा २८६-०१, फोन: ०४७६-३५१४४१
- बानकोकु ट्रेडीङ लीमीटेड, चो-कु-१-कोम,टोकीयो-१०३, फोन: ०३-३२४१४०२१
- क्रियट कम्पनी लीमीटेड, योसीनो, फुकीशीमा-कु, ओशाका ५५३, फोन: ०६-४४६-६६५१
- डैची सिडस कम्पनी, होटेल ओकुरा, मीनाटो-कु १०५, टोकीयो, फोन: ०३-३५८४-४२३३
- जापान कट फलावर ईमपोर्टरस एसोसीयसन, ओटा-कु, टोकीयो १४३
- जापान एक्सटर्नल ट्रेड अर्गनाईजेशन, ओमरी -मीनामी, ओटा-कु, टोकीयो १४३
- जापान फलावर प्रोमोसन सेन्टर चुहुकु,टोकीयो १०३

९. सन्दर्भ सामाग्री

घरेलु तथा साना उद्योग विकास समिति (२०७०), घरेलु उद्योग दर्पण, काठमाण्डौं ।

- व्यापार प्रबर्द्धन केन्द्र(१९९५). कट फलावर मार्केट ईन जापान, काठमाण्डौं ।
- व्यापार तथा निकासी केन्द्रका नेपाल बेदेशीक व्यापार तथ्यांक, ललीतपुर ।
- लेखकका पूर्व प्रकाशीत फूलसम्बन्धी लेखहरु ।
- फूलसम्बन्धी अन्य सम्बन्धीत प्रकाशनहरु ।
- फूल मेलाबाट संकलीत प्रकाशनहरु र कार्डहरु ।

लेखक व्यापार तथा निकासी प्रबर्द्धन केन्द्रका पूर्व नायब-कार्यकारी निर्देशक ।

फ्लोरिकल्चर एशोसिएसन नेपाल

आ.व.२०७०/७१ को वार्षिक प्रतिवेदन र आ.ब. २०७१/७२ को नीति तथा कार्यक्रम

सर्वप्रथम म आजको यस गरिमामय २२ औ वार्षिक साधारण सभामा उपस्थित हुनु भएका सम्पूर्ण आदरणिय सदस्य महानुभावज्यूहरुलाई कार्यकारिणी समिति र मेरो व्यक्तिगत तर्फबाट हार्दिक स्वागत तथा अभिवादन व्यक्त गर्दछु। साथै फ्लोरिकल्चर एशोसियसन नेपालले आ.व.२०७०/७१ अवधिमा सम्पन्न गरेका कार्यक्रम र गतिविधिहरु तथा आ.व. २०७१/७२ का लागि नीति तथा कार्यक्रमहरुका साथै अन्य वस्तु स्थितिको सम्वन्धमा संक्षेपमा प्रतिवेदन प्रस्तुत गर्ने अनुमति चाहन्छु।

१. पुष्प व्यवसायको बर्तमान स्थिति

आदरणीय सदस्य महानुभावज्यूहरु नेपालमा सन् १९५० बाट सामान्य स्तरमा सुरु भएको पुष्प व्यवसाय शहरीकरणको विकाश तथा विस्तार संग संगै पुष्प व्यवसायको केन्द्र काठमाण्डौं मात्र नभएर पोखरा, नारायणघाट, हेटौंडा, विराटनगर, धरान, धनगढी लगायतका सहरहरुमा फैलदो स्थितिमा छ । आ.ब. २०६९/७० सम्म आई पुग्दा हाल ३८ जिल्लामा लगभग ६५० पुष्प फर्म/नर्सरीहरु बिस्तार भईसकेको छ । लगभग १३७ हेक्टर क्षेत्रफलमा पुष्प व्यवसाय भईरहेको र ४१,००० भन्दा बढि व्यक्ति प्रत्यक्ष तथा अप्रत्यक्ष रुपमा आश्रित र रोजगारी उपलब्ध गराई रहेको यस व्यवसायले आ.ब. २०६९/७० मा सिजनल फूल बिरुवा तर्फ रु १९.५४ करोड, आलंकारिक वोट बिरुवा तर्फ रु. ३७.१५ करोड, कट फ्लावर्स तर्फ रु १८.४२ करोड, ल्याण्ड स्केप तथा गार्डेनिङ्ग तर्फ रु १४.४५ करोड, खुल्ला फूल तर्फ रु.६.०४ करोड, सामग्री आपुर्ति ९क्लउगतक कगउउथि० तर्फ रु.९.३२ करोड, अन्य (कार्पेट ग्रास, बल्ब, राईजम टयुवर टिष्यूकल्चर आदि) तर्फ रु ७.५० करोड, र निर्यात तर्फ रु ३.१५ करोड गरि जम्मा १ अर्व १५.५७ करोड भन्दा बढिको कारोबार गर्न सफल भएको छ । समग्रमा भन्नु पर्दा फ्लोरिकल्चरको राष्ट्रिय स्थिति विस्तार तथा विकाश उन्मुख नै देखिन्छ तर तिव्र गति र गुणात्मक रुपमा विकास, विस्तार तथा प्रवर्द्धन हाम्रो राष्ट्रिय आवश्यकता हो ।

२. कार्यक्रम तथा गतिविधिहरू :

आदरणीय सदस्य महानुभावज्यूहरु अव म FAN ले आ.व. २०७०/७१ मा गरेका गतिविधि र कार्यक्रमहरुको संक्षेपमा विवरण पेश गर्ने अनुमति चाहन्छु।

२.१. २१ औं बार्षिक साधारण सभा

फ्लोरिकल्चर एशोसिएसन नेपालको २१ औं बार्षिक साधारण सभा २०७० भाद्र १४ गते शुक्रबारका दिन होटल अर्किड त्रिपुरेश्वरमा सम्पन्न गरिएको थियो । उद्घाटन सत्रको प्रमुख अतिथीको रुपमा पाल्नु भएका नेपाल उद्योग बाणिज्य महासंघका उपाध्यक्ष श्री प्रदिप जंग पाण्डे ज्यूबाट पानसमा दिप प्रज्वलन गरि समउद्घाटन गरिएको थियो । अतिथिको रुपमा पुष्प बिकास केन्द्रका केन्द्र प्रमुख श्री उमानाथ भण्डारी, जिल्ला कृषि बिकास कार्यालय, काठमाण्डौका कार्यालय प्रमुख शरद चन्द्र श्रेष्ठ, कृषि व्यवसाय प्रबर्द्धन कार्यक्रम प्रमुख रोजलिन महर्जन, फलफूल बिकास निर्देशानलयको बरिष्ठ फलफूल बिकास अधिकृत द्रोण काफ्ले, PACT का निर्देशक श्री गजेन्द्र कुमार श्रेष्ठ तथा FAN को भुतपुर्व अध्यक्षज्यूहरुको उपस्थिति रहेको थियो । साथै बन्द सत्रमा FAN महासचिबले प्रस्तुत गर्नु भएको FAN ले आ.ब २०६९/७० मा गरेका कार्य प्रगती बिबरण को बार्षिक प्रतिबेदन तथा आ.ब.२०७०/७१ को नीति तथा कार्यक्रम माथि छलफल तथा अनुमोदन गरिएको थियो । त्यस्तै FAN कोपाध्यक्षले प्रस्तुत गर्नु भएको आ.ब.२०६९/७० को आय, व्यय बिबरण, आ.ब. २०७०/७१ को अनुमानित बजेट र आ. बर्ष २०७०/७१ को लागि लेखापरिक्षकको नियुक्ती तथा पारिश्रमिक तोक्ने प्रस्ताव माथि छलफल तथा अनुमोदन गरि सम्पन्न भएको थियो ।

२.२. संस्थागत बैठक, छलफल तथा भेला

यस अवधिमा विभिन्न नीति निर्माण तथा कार्यक्रम तय गर्नका लागि प्रत्येक महिनाको पहिलो बुधवार कार्य

कारिणी समितिको बैठक बस्ने निर्णय बमोजिम जम्मा ११ पटक नियमित तथा ४ पटक आकस्मिक बैठक सम्पन्न गर्नुका साथै अन्य विविध महत्वपूर्ण बिषय बस्तु माथि ८ पटक परामर्श बैठक, ५ पटक मेला सम्वन्धि बैठक, १ पटक कट फूलावर उत्पादकहरुको भेला, ३ पटक कट फूलावर उत्पादक उप समितिको बैठक, ३ पटक कट फूलावर रिटेल उप समितिको बैठक तथा ५ पटक नर्सरी उप समितिको बैठक सम्पन्न भएका थिए।

२.३.सदस्य संख्या

यस आ.ब.मा २१ जना नयाँ सदस्यहरुले प्रबेश गरि यस संस्थाको साधारण सदस्य संख्या आ.ब.२०७०/७१ को अन्त सम्ममा जम्मा ५०३ जना पुगेको छ।

२.४ मेला तथा प्रदर्शनीको आयोजना :

FAN ले पुष्प व्यवसायको बिकास बिस्तार तथा व्यवसयिक प्रर्वद्धनका लागि २०५१ सालबाट निरन्तर रुपमा पुष्प व्यापार मेलार प्रदर्शनीको आयोजना गर्दै आएकोमा गत बर्ष पनि निरन्तरता दिईएको थियो। FAN ले हालसम्म १६ वटा राष्ट्रिय, २ अन्तराष्ट्रिय, ३ वटा कृषि उद्यम केन्द्रले आयोजना गरेको एग्रो एक्पो, फूलोरिकल्चर सहकारी संस्था लिमिटेडसंग मिलेर २ वटा लालुपाते फूलको प्रदर्शनी तथा ४ वटा क्षेत्रीय स्तरको पुष्प प्रदर्शनी पोखरामा संचालन गरि सकेको छ भने त्यस्तै नेपाल सरकारका सम्बन्धित बिभाग (बनस्पती बिभाग तथा कृषि बिभाग) संग मिलेर १६ वटा गोदावरी फूलको प्रदर्शनी समेत संचालन भईसकेको छ। यसरी पुष्प व्यवसायको व्यवसायीक प्रबर्द्धनका लागि जम्मा ४३ वटा मेला/प्रर्दशनी सम्पन्न भइसकेका छन्। यस संस्थाले यस्तै बिभिन्न संघ संस्थाहरुले आयोजना गरेको मेला प्रदर्शनीहरुमा समेत सहभागिता जनाउदै पुष्प व्यवसायको व्यवसायीक प्रबर्द्धनमा महत्वपुर्ण भुमिका निभाउदै आईरहेको छ।

FAN ले आ.ब २०७०/७१ मा गरेको मेला तथा प्रदर्शनीको आयोजना निम्नानुसार रहेका छन्।

२.४.१ सातौ गोदावरी फूलको प्रतिगोगितात्मक प्रदर्शनी २०७०

पुष्प व्यवसायलाई प्रबर्द्धन गर्ने, प्रतियोगितात्मक भावनाको बिकास गरी गुणस्तरिय फूल बिरुवा उत्पादनमा टेवा पुऱ्याउने, गोदावरी फूलको प्रचार प्रसार गर्ने र प्रभावकारी बजार व्यवस्थापन गर्ने उदेश्य सहित कृषि व्यवसाय प्रबर्द्धन कार्यक्रम/कृषि बिभाग मुख्य आयोजक तथा फूलोरिकल्चर एशोसिसन नेपाल सह आयोजकको रुपमा रहि गरिदै आएको गोदावरी फूलको प्रतियोगितात्मक प्रदर्शनी गत बर्ष पनि २०७० कार्तिक ८ देखि १० गते सम्म "गोदावरी फूलको खेती, गरौ आर्थिक सम्बृद्धि" भन्ने मुल नाराका साथ सातौ राष्ट्रिय गोदावरी पुष्प प्रतियोगितात्मक प्रदर्शनी २०७० भव्यता र सफलताका साथ जाउलखेल फुटबल ग्राउण्डमा सम्पन्न गरिएको थियो।

२.४.२ क्षेत्रिय दोस्रो गोदावरी पुष्पको प्रतियोगितात्मक प्रदर्शनी

फूलोरिकल्चर एशोसिएसन नेपाल, कास्कि जिल्ला समितिको आयोजनामा २०७० कार्तिक १४-१७ गतेसम्म पोखरामा "क्षेत्रिय दोस्रो गोदावरी पुष्पको प्रतियोगितात्मक प्रदर्शनी " को भव्यता र सफलताका साथ सम्पन्न गरिएको थियो। उक्त मेलामा पश्चिमाञ्चल क्षेत्रका नर्सरी व्यवसायीहरुद्वारा उत्पादित गोदावरी पुष बिच प्रतिस्पर्धा गराई निम्न नर्सरीहरुले प्रथम, द्वतिया, तृतिया तथा सान्त्वना पुरस्कार प्राप्त गर्न सफल भएका छन्।

पुरस्कृत नर्सरीहरु

प्रथम : गार्डेन नर्सरी
द्वितिय : सृजना नर्सरी
तृतिय : हिमालयन नर्सरी
सान्त्वना : पुष्पाञ्जली नर्सरी

२.४.३ **2nd International Flora Expo 2014 :**

सन २००१ मा प्रथम पटक अन्तराष्ट्रिय पुष्प प्रदर्शनी मेला गरेको FAN ले बिकासको बिभिन्न चरण पार गर्दै एक दशक पछि "Prosperity through floriculture in Nepal & beyond" भन्ने मूल नाराका साथ २०७० चैत्र १३ देखि १६ गतेसम्म भृकुटिमण्डप प्रदर्शनी हल, काठमाण्डौमा 2nd Internationa Flora Expo 2014 को सफता पुर्वक सम्पन्न गरिएको थियो। यस मेलाको मुख्य आयोजक फ्लोरिकल्चर एशोसिएसन नेपाल (FAN) तथा सह आयोजक व्यवसायीक कृषि तथा व्यापार आयोजना (PACT) र कृषि व्यवसाय प्रबर्द्धन कार्यक्रम/कृषि बिभाग रहेको थियो । साथै मेला कार्यक्रम संचालनमा व्यापार तथा निकासी प्रबर्द्धन केन्द्रऽत्भएत्रु० र काडमाण्डौ महानगरपालिका वातवरण बिभागले सहयोग रहेको थियो ।

३. शोभिनियर तथा क्यालेन्डर प्रकाशन

FAN ले हरेक बर्ष प्रकाशन गर्दै आएको पुष्प बिशेषङ्क यस बर्ष पनि १८ औ अंकको रुपमा 2nd International Flora Expo 2014 को अवसर पारि फूलोरिकल्चरसंग सम्बन्धित विभिन्न लेख रचनाहरु संलग्न गरि १२०० प्रति पुष्प बिशेषाङ्क प्रकाशन गरि बितरण गरिएको थियो साथै सोहि अवसरमा नर्सरी उप समितिको सक्रिय पहलमा संस्थाको नाममा वि. सं. २०७१ को रंगिन क्यालेन्डर १००० प्रति प्रकाशन गरि वितरण गरिएको थियो ।

४. एक दिने वर्कसपको आयोजना

पुष्प व्यवसायको सर्बाङ्गीन बिकास बिस्तार र प्रबर्द्धनका लागि नीजि क्षेत्र, सरकारी क्षेत्र तथा अनुसन्धान बिश्वबिद्यायलको स्पष्ट भुमिका पहिचाहन सहित साझा कार्ययोजना तयार गर्नका लागि दिशानिर्देश गर्ने उद्देश्य सहित दोस्रो अन्तराष्ट्रिय पुष्प मेला आयोजनाकै अवसरमा मिति २०७० चैत्र १४ गते PACT / FAN को संयुक्त आयोजनामा ट्रेड टावर, थापाथलीमा "Floriculture Development in Nepal: Prospects and Challenges" बिषयक एक दिने कार्यशालाको समेत आयोजना गरिएको थियो । सो कार्यशालामा राष्ट्रिय ३ वटा र अन्तराष्ट्रिय ३ वटा गरि जम्मा ६ वटा कार्यपत्र प्रस्तुत गरिएको थियो । कार्यशालामा पुष्प बिशेषज्ञहरु, नेपाल सरकारका उच्च पदास्थ पदाधिकारीहरु, अनुसन्धान कर्ताहरु, बन बिज्ञान बिश्व बिद्यालयको डिन तथा प्राध्यापकहरु, बिद्यार्थीहरु तथा बिदेशी राष्ट्रका पुष्प व्यवसायीहरु सहित करिब ११० जनाको सहभागिता रहेको थियो ।

५. तालिम

आ.ब.२०७०/७१ निम्न तालिम सम्पन्न गरिएको थियो ।

५.१ नेतृत्व बिकास तालिम

फूलोरिकल्चर एशोसिएसन नेपालको आयोजनामा FAN को कार्यकारी समितिका कार्यकारी पदाधिकारीहरु, उपसमितिका कार्यकारी सदस्यहरुको क्षमता बिकासका लागि दुई दिने नेतृत्व बिकास अभिमुखिकरण तालिम २०७० साउन ३ र ४ गते रक हाउस क्याफे, रातोपुलमा संचालन गरिएको थियो। यस तालिममा FAN कार्यकारी समिती तथा उपसमितीका सदस्यहरु सहित १६ जनाको सहभागिता रहेको थियो । नेतृत्व बिकास सम्बन्धि लामो समय देखि सकृय रुपमा लागिपरेको बरिष्ट तालिम बिज्ञ श्री बच्चुराम बस्नेतज्यूले तालिम प्रदान गर्नु भएको थियो।

५.२ सिजनल फूलको बीउ तथा बेर्ना उत्पादन अभिमुखिकरण तालिम (पोखरा)

कास्कि पोखराका पुष्प व्यवसायीहरुको माग बमोजिम २०७१ आषाढ २१ गते एक दिने सिजनल फूलको बेर्ना उत्पादन तथा व्यवस्थापन सम्बन्धि तालिम पोखरामा संचालन गरिएको थियो । तालिम प्रदान गर्न केन्द्रबाट कोषाध्यक्ष श्री मीन बहादुर तामाङ्ग र का.स. राजेश भक्त श्रेष्ठलाई पठाएको थियो। तालिममा कास्की जिल्लाका पुष्प व्यवसायीहरुको सहभागिता रहेको थियो।

६. PACT उप आयोजना सम्पन्न

नेपालमा कट फलावरको राष्ट्रिय तथा अन्तराष्ट्रिय बजार प्रवर्द्धन गर्नका लागि PACT को आर्थिक र FAN को आर्थिक प्राबिधिक सहयोगमा सावण १, २०६९ बाट संचालन गरिएको उप आयोजना २०७१ आषाढमा

सम्पन्न भएको छ । प्याकको २६ लाख ७२ हजार र फ्यानको १३ लाख ४९ हजार रुपैयाँ गरि कुल ४० लाख २१ हजार बजेट रहेको उक्त उप उपआयोजनाले मुख्यत कट फलाबरमा देखिने पोष्ट हार्भेष्ट क्षति न्यूनिकरण, व्यवसायीक कार्नेशन फूलको कास्कि र तनहुमा परिक्षण उत्पादन, कट फ्लाबरको बजार बिकासका लागि काभ्रे, कास्की, चितवन र कैलालीमा खुद्रा पसल स्थापना, काठमाण्डौ प्लाजा ग्लोवल फ्लोरामा कुलिङ्ग च्याम्बरको स्थापना, काठमाण्डौमा अन्तराष्ट्रिय पुष्प प्रदर्शनी, ललितपुर र पोखरामा क्षेत्रिय पुष्प मेलाको आयोजना, पुस्तिका प्रकासन, कट फ्लावर फार्मको नियमित अनुगमन र उत्पादक बिच अन्तक्रिया र फूल निर्यातका लागि खाडी मुलुकको संभाब्यता अध्ययन गर्ने लगायतका योजना रहेकोमा ती सम्पुर्ण कार्यक्रमहरु सफलतापुर्वक गरि उप-आयोजना सम्पन्न गरिएको छ ।

७. फ्लोरिकल्चर कल्याण कोष :

FAN सदस्यहरुको जिवन कालमा भैपरि आउने व्यक्तिगत दुर्घटना तथा रोग व्याधिबाट हुन सक्ने क्षतिलाई आर्थिक रुपमा सहयोग पुऱ्याउने मूल उद्देश्य स्थापना भएको फ्लोरिकल्चर कल्याण कोषमा आ.ब.२०६९/७० मा ८३ जना सदस्य रहेकोमा यस आ.ब. २०७०/७१ मा १७ जना सदस्य थप भई कोषको सदस्य संख्या १०० जना पुगेको छ । दुर्घटना अथवा कालगतिले जीवन गुमाउने सदस्यहरुका परिवारलाई राहत उपलब्ध गराउने, गम्भिर बिरामी भई लामो समयसम्म अस्पतालमा बस्नु पर्ने सदस्यहरुलाई सहयोग प्रदान गर्ने तथा दुर्घटनाबाट सदस्यहरुलाई पर्ने क्षती, अंगभंगको अवस्थामा उपचार सहयोग गर्ने कार्यहरुको लागि यो कोष खडा गरि संचालनमा रहेको छ। हालसम्म यो कोषमा रु .१,७७,० ९५.६३ दाखिला हुनु आएको छ।

८. पुष्प प्रबर्द्धन नीति २०६९ को कार्यन्वयन कार्ययोजना

फ्यानद्वारा २०६४ सालमा मस्यौदा तयार गरी कृषि बिकास मन्त्रालयमा पेश भएको पुष्प नीति परिमार्जित भइ २०६९ मंसिर २९ गतेको प्रधानमन्त्री तथा मन्त्री परिषदको निर्णयानुसार पुष्प प्रबर्द्धन नीति २०६९ को रुपमा पारित भई आएको पुष्प प्रबर्द्धन नीतिको कार्यन्वयनका लागि नीति अन्तर्गत कार्यनीति तथा रणनीतिको कार्यन्वयनका लागि कार्ययोजना तय भई यस आर्थिक बर्ष २०७१/७२ बाट लागु हुदैछ । यस नीतिको सफल कार्यन्वयनबाट पुष्प व्यवसायको बिकास, बिस्तार र प्रबर्द्धनको लागि नया ढोकाहरु खुल्ने अपेक्षा गरिएको छ ।

९. अन्य गतिविधिहरू

- बंगलादेशी पुष्प व्यवसायीहरुको प्रतिनीधी मण्डलसंग अन्तरकृया तथा स्थलगत अवलोकन गराइएको
- PUM वाट पाल्नु भएका पुष्प विशेषज्ञसंग एक दिने अन्तरकृया गरिएको साथै नेदरल्याण्डबाट आउनु भएका पुष्प विशेषज्ञसंग पनि छलफल गरिएको
- TEPC संग मिलेर पोखरामा एक दिने गोष्ठि सम्पन्न गरिएको
- विभिन्न सरकारी तथा गैर सरकारी निकाय संघ संस्थाद्धारा आयोजना गरिएको विभिन्न सभा सम्मेलन तथा भेटघाट समारोहहरुमा सक्रिय रुपमा सहभागी भई FAN को उपस्थिति देखाउनुको साथै पुष्प व्यवसाय सम्बन्धि आबश्यक लविङ्ग गरिएको
- नेपाल उद्योग वाणिज्य महासंघले महासंघको बस्तुगत परिषदको सदस्यमा FAN का अध्यक्ष श्री लोक नाथ गैरेज्यूलाई मिति २०७१/२/७ मा मनोनयन गरी सो परिषद अन्तर्गत कृषि तथा वन हेर्नका लागि महत्वपूर्ण जिम्मेवारी प्रदान गरेको ।
- नेपाल उद्योग वाणिज्य महासंघ/कृषि उद्यम केन्द्रको संचालक समितिको सदस्यमा FAN का अध्यक्ष श्री लोक नाथ गैरेज्यूलाई मिति २०७१/३/९ मा मनोनयन गरिएको ।

१०. भावी नीति तथा कार्यक्रमहरू (आ.ब. २०७१/७२ का लागि) :

आदरणीय सदस्य महानुभावज्यूहरु अब म आ.ब. २०७१/७२ का लागि नीति तथा कार्यक्रमहरुको संक्षेपमा विवरण पेश गर्ने अनुमति चाहन्छु ।

१०.१ पुष्प व्यवसायको आधुनिकिकरण सहितको विकास गर्ने सम्बन्धमा देहायका नीतिहरु अवलम्बन गरिने छ :

(क) पुष्प फार्म तथा नर्सरीहरुलाई आधुनिक प्रविधि युक्त भौतिक संरचानको निर्माण गराई उत्पादन तथा उत्पादकत्व वढाउन उत्प्रेरित गरिनेछ।

(ख) राष्ट्रिय, स्थानीय तथा रैथाने पुष्प तथा पुष्पजन्य बस्तुको उत्पादन र प्रयोगलाई प्रोत्साहन गर्नुका साथै आयातित कट फ्लावर तथा आलंकारिक बोट विरुवाहरुको खरिद विक्री तथा प्रयोगलाई निरुत्साहित गर्ने नीति अवलम्बन गरिनेछ।

(ग) पुष्प तथा पुष्पजन्य बस्तुको आयात प्रतिस्थापन तथा निर्यात बृद्धि गर्नका लागि आवश्यक नीतिगत व्यवस्था मिलाउन पहल गरिनेछ।

(घ) पुष्प नीतिको अक्षरस कार्यान्वयन गराउनका लागि आवश्यक गतिविधि तथा नीतिगत व्यवस्था मिलाइ आवश्यकतानुसार विभिन्न क्रियाकलापहरु संचालन गरिनेछ।

(ङ) पुष्प व्यवसायीहरुको उधमशिलता तथा व्यावसायिकता विकाशका साथै दक्षता र क्षमता अभिवृद्धिका लागि आवश्यक विषयगत निम्न, मध्यम तथा उच्च स्तरिय तालीमहरुको व्यवस्था मिलाइनेछ।

(च) नर्सरी ब्यावसायीहरु, कट–फ्लावर उत्पादक तथा खुद्रा बिक्रेताहरु, होलसेलरहरु, अर्किड व्यवसायीहरु तथा पुष्प व्यवसायसंग सरोकारवाला सम्वन्धित सबैसँग आवश्यकतानुसार विविध प्रकारका अन्तरक्रिया, सुझाव संकलन, सभा, सम्मेलन गोष्ठी तथा सचेतना विकास कार्यक्रमहरुको आयोजना गरिनेछ।

(छ) संघको संगठन विस्तार, विभिन्न समिति तथा उप समितिहरुको क्षमता विकास तथा सशक्तिकरण र सचिवालयको थप ब्यवसायिकरण तथा आधुनिकिकरणमा जोड दिदै लगिनेछ।

(ज) कट फ्लावरहरुको स्तर निर्धारणका लागी वैज्ञानीक मापदण्डहरुको निर्माण गरि प्रयोगमा ल्याईनेछ

(झ) FAN द्धारा वितरण गर्ने सुविधा सिफारिस तथा सहयोगको वितरणमा वैज्ञानीकता तथा समानुपातिकताका लागी पुष्प ब्यावसायीहरुको वर्गीकरण गर्न SMART मापदण्ड निर्धारण गरिनेछ

(ञ) पुष्प तथा पुष्पजन्य बस्तुसंग सम्वन्धित क्षेत्रको दिगो विकासका लागि दीर्घकालीन योजना तर्जुमा गरिनेछन्।

(ट) भौतिक संरचना सहितको बृहत पुष्प बजार निर्माण तथा बिकासका लागि पहल गरिनेछ।

१०.२ पुष्प व्यवसायको व्यवसायिकरण सहितको विस्तार गर्ने सम्बन्धमा देहायका नीतिहरु अवलम्बन गरिने छ :

(क) आयात प्रतिस्थापनका लागि सम्भाव्य वाली पहिचानका साथै पकेट क्षेत्र निर्धारणका लागि आवश्यक गतिविधिलाई वढावा दिइनेछ।

(ख) पुष्प व्यवसाय सम्बन्धि तथ्याक संकलन एवं विश्लेषण गरी सरोकारवालालाई समसामयिक जानकारी उपलव्ध गराउने प्रयोजनका लागि पुष्प सूचना केन्द्रको स्थापना गरी कृयाशिल बनाइनेछ।

(ग) फ्लोरिकल्चर सहकारी संस्था लिमिटेडसंग समान उद्देश्य प्राप्तिका लागि विषेश रुपमा आर्थिक, तथा प्राविधिक सहकार्यलाई प्राथमिकताका साथ अघि बढाईनेछ।

(घ) पुष्प तथा पुष्पजन्य बस्तुको उत्पादनको विविधिकरणमा जोड दिनुका साथै सम्पूर्ण पुष्प तथा पुष्पजन्य पदाथैको उत्पादन बढाउने कार्यलाई प्राथमिकताका साथ अघि बढाईनेछ।

(ङ) आवश्यकतानुसार राष्ट्रिय तथा अन्तराष्ट्रिय स्तरमा सम्वन्ध विस्तारका लागि विभिन्न सहभागिता मुलक तथा अवलोकन अध्ययन भ्रमण गरिनेछ।

(च) सदस्य वृद्धि तथा नविकरण, जिल्ला कार्य समितिहरु गठन, सचिवालयको दैनिक कार्य सम्पादनका लागि आवश्यक थप शिर्जनात्मक कार्यलाई निरन्तरता दिईनछ।

(छ) पुष्प वाली विमा गराउनका लागि सम्बन्धित निकायमा पहल गरिनेछ।

(ज) पुष्प ब्यावसायका लागी आवश्यक सम्पूर्ण

सामाग्रीहरुको आपूर्ति सरल तथा सहज बनाउनका लागी सम्बन्धित सबैसँग पहल गरिनेछ।

(ट) पुष्प क्षेत्रका राष्ट्रिय तथा अन्तराष्ट्रिय प्राविधिकहरुको उपलब्धतालाई सहज बनाउने प्रयास गरिनेछ

(ठ) फ्लोरिकल्चर कल्याण कोषलाई बृद्धि गर्नका लागि आवश्यक थप कार्यक्रम तथा नीतिगत व्यवस्था मिलाइनेछ।

(द) FAN को कार्य प्रणालीलाई पुन संरचना गरिनेछ।

१०.३ पुष्प व्यवसायको विशिष्टीकरण सहितको प्रवर्द्धन गर्ने सम्बन्धमा देहायका नीतिहरु अवलम्बन गरिने छ :

(क) FAN स्थापना दिन कार्त्तिक ३० गतेलाई बार्षिक उत्सवको रुपमा मनाउने परम्पराको थालनि गरिनेछ।

(ख) सम्वन्धित सरोकारवाला सवै संग घनिभुत रुपमा अन्तरकृया तथा छलफल गरि उपयुक्त समयलाई पुष्प दिवस घोषणा गरि सोको आधिकारिकताका लागि पहल गरिनेछ।

(ग) गोदावरी फूलको मेला, लालुपाते फूलको मेला, कट फूलावर प्रदर्शनी, अर्किड फूलको प्रदर्शनी, फूलोरा एक्स्पो लगायतका पुष्प मेला तथा प्रदर्शनीहरुको आयोजना गरिनेछ। साथै जिल्ला कार्य समितिहरु तथा जिल्ला उधोग बाणिज्य संघहरुसंग समन्वयन गरि क्षेत्रिय पुष्प मेला महोत्सवहरुको आयोजना गरिने तथा सहभागिता जनाइनेछ।

(घ) पुष्प तथा पुष्पजन्य उत्पादनहरुको प्रयोगमा ब्यापकताका लागी विभिन्न सञ्चार माध्यमहरुबाट जनचेतना जागूती अभियान सञ्चालनमा ल्याईनेछ।

(ङ) नीजि तथा सरकारी संध, संस्था, बैक तथा अन्य निकायहरुसंगको सहकार्यलाई घनिभूत रुपमा अघि बढाउनुका साथै उक्त निकायहरुमा पुष्पजन्य उत्पादन उपयोग गर्ने वातावरण श्रृजना गर्न पहल अघि बढाइनेछ।

(च) क्यालेन्डर, शोभिनियर, डाइरेक्टरी तथा अन्य प्रकाशन गरिनेछ।

११. समस्या, चुनौती तथा अवसरहरू

११.१ **समस्या** :

- पुष्प व्यवसायिक क्षेत्रको दीर्घकालीन योजनाको अभावमा योजनावद्ध विकास आशातित रूपमा हुन नसकेको अवस्था छ।
- पुष्प व्यवसायिक क्षेत्रका सरकारी निकायहरूको विद्यमान अपर्याप्त संगठन संरचना, दक्ष तथा आवश्यक जनशक्तिको कमी र न्यून साधन श्रोतका कारण यस क्षेत्रको समायानुकूल प्रवर्द्धन हुन नसकेको अवस्था छ।
- पुष्प व्यवसायिक संघ तथा संस्थाहरूमा उद्यमशीलताको अभाव हुनुको साथै व्यवसायिक नेतृत्व विकासमा पहल हुन सकेको छैन।
- एकातर्फ सवै पुष्प व्यवसायिक संस्थाहरू संवन्धित संघमा आवद्ध भई नसेकेको र अर्को तर्फ ब्यवसायिक क्षमताको अभाव एवं कमजोर भौतिक तथा आर्थिक स्थितिका कारण संवन्धित संघले आफ्नो सदस्य संस्थाहरूको प्रवर्द्धनमा प्रभावकारी भूमिका निर्वाह गर्न नसकेको अवस्था छ।
- पुष्प व्यवसायिक संस्थाहरूको आवश्यकता बमोजिम व्यवसायिक शिक्षा, सूचना र तालीमको अपर्याप्ताले उक्त संस्थाहरूको ब्यवस्थापकीय ज्ञान र दक्षता सुदृढ हुन नसकेको अवस्था छ।
- सरकारी निकाय तथा यस क्षेत्रका अभियन्ताहरू वीच आपसी समन्वय र सहकार्यको कमी रहेको अवस्था छ।
- पुष्प व्यवसायिक क्षेत्रसंग सम्बन्धित प्रबिधी र प्राबिधिज्ञहरुको उपलब्धता सिमित रहेको अवस्था छ।
- अनुसन्धान तथा बिकाशमा सरकारको लगानी नहुनु तथा यस क्षेत्रका लागि अत्यावश्यक भौतिक संरचनाहरुको विकास गर्न नसकेको अवस्था छ।
- राजनैतिक अस्थिरता, प्राकृतिक प्रतिकुलता, काठमाण्डौंमा पानी र जग्गाको सीमितता तथा दक्ष कामदारहरुको पलायनता रोक्न नसकेको अवस्था छ।

- गुणस्तरीय मल, विषादि, औजार तथा विउ विजनहरुको अभावको दिर्घकालिन समाधान गर्न नसकेको अवस्था छ ।

११.२ **चुनौती**

- पुष्प प्रवर्द्धन नीतिको प्रभावकारी कार्यान्वयन र दीर्घकालीन पुष्प व्यवसायिक योजना तर्जुमा गरी सम्बन्धित निकायहरूको प्रभावकारीता अभिवृद्धि गर्ने ।
- सरकारी तथा निजि स्तरका बैक तथा वित्तिय संस्थाहरुबाट प्रयाप्त मात्रामा लगानि गराउने ।
- आयात प्रतिस्थापन तथा निर्यात प्रवर्द्धन गर्नका लागि गुणस्तरिय उत्पादनको परिणात्मक विकासका साथै वस्तुमा विविधिकरण गराउने ।
- पूर्वाधारहरूको विकासबाट पुष्प व्यवसायिक संस्थाहरूको उत्पादन र वजार प्रणाली वीच सामन्जस्यता कायम गरी उत्पादक र उपभोक्ताहरूलाई पारस्परिक लाभ उपलब्ध गराउने ।
- पुँजी र प्रविधिको पर्याप्त व्यवस्था गरी पुष्प व्यवसायिक उद्योगहरू स्थापना मार्फत रोजगारीको सृजना र गरिवी न्यूनिकरण गर्ने ।
- पुष्प व्यवसायिक उद्यमहरूको स्थापनामा अन्य सरकारी निकायको भूमिका सशक्त पार्नुका साथै सम्वद्ध कानूनहरू अनुकुल बनाइ पुष्प व्यवसायिक क्षेत्रको लगानीमा विस्तार गर्ने ।

११.३ **अवसर**

- देश भित्र र बाहिर क्रमिक रुपमा पुष्प व्यवसायिक उत्पादनहरुको बजार बढनु ।
- नेपाल सरकारबाट पुष्प प्रबर्द्धन नीति २०६९ पारित भई आ.ब. २०७१/७२ का लागि थोरै भए पनि बजेट छुटिनु ।
- नेपाल सरकार तथा अन्य राष्ट्रिय तथा अन्तराष्ट्रिय निकायहरुको पुष्प व्यवसाय प्रति चासो र सकारात्मक धारणाको विकास हुनु ।

१२. कृतज्ञता ज्ञापन तथा धन्यवाद :

अन्त्यमा सम्पूर्ण आदरणीय सदस्य महानुभावज्यूहरुले FAN प्रति देखाउनु भएको सहयोग, सद्भाव र विश्वासको निमित्त हार्दिक कृतज्ञता तथा धन्यवाद ज्ञापन गर्न चाहन्छु । त्यसै गरी FAN को प्रगतिमा सहयोग पुऱ्याउनु हुने सम्पूर्ण सरकारी निकायहरु, नेपाल उद्योग वाणिज्य महासंघ, फ्लोरिकल्चर सहकारी संस्था लिमिटेड लगायत अन्य सहयोगी संघ संस्था प्रति आभार ब्यक्त गर्दछु। विशेषत FAN बाट सञ्चालित कार्यक्रमहरुमा सक्रिय सहभागी सदस्य महानुभावहरु प्रति कार्यकारिणी समिति र मेरो ब्यक्तिगत तर्फबाट आभार प्रकट गर्दछु । साथै FAN परिवारको रुपमा FAN को उन्नति र प्रगतिमा सदैव इमान्दार, लगनशील र आफ्नो जिम्मेवारी प्रति प्रतिवद्ध रहि योगदान दिनुहुने सम्पूर्ण कर्मचारी वर्गमा यस अवसरमा कार्य समितिको तर्फबाट र मेरो ब्यक्तिगत तर्फबाट समेत विशेष रुपमा धन्यवाद दिदैं भावी दिनहरुमा समेत योगदान तथा भूमिका रहनेछ भन्ने विश्वास लिदै विदा हुन्छु ।

धन्यवाद ।।।

दिलिप बादे
महासचिव
कार्य कारिणी समिति

Taishan™ Muscle

Supplied exclusively through The Standard Nursery

PanAmerican Seed®
www.panamseed.com