

# *Floriculture*

**2<sup>nd</sup> International Flora Expo 2014**



## **Souvenir**



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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 अन्तर्राष्ट्रिय 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 १३ देखि १६ गतेसम्म दोस्रो अन्तर्राष्ट्रिय पुष्प प्रदर्शनी/मेला (2nd International Flora Expo-2014) ले नेपालमा यस व्यवसायलाई अझ बढी विकसित गरि लैजान थप सहयोग पुग्ने विश्वास लिएको छु । 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 (Floriculture Souvenir 2014) को संस्करण पुष्प व्यवसायी र यस क्षेत्रमा रुची 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,

(सुरज वैद्य)  
अध्यक्ष

मिति २०७० फागुन २७



नेपाल सरकार

# कृषि विकास मन्त्रालय



फोन नं.

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सिंहदरबार, काठमाडौं  
नेपाल।

२९ फल्गुण २०७०

पत्र संख्या:

च.नं.:

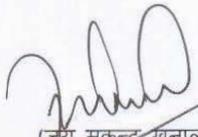
## शुभ-कामना

बढ्दो शहरीकरण बदलिदो साँस्कृतिक मान्यता तथा परिवर्तित जीवन पद्धतिसंगै एकातिर पुष्पजन्य वस्तुको माग दिनानुदिन बढ्दो क्रममा रहेको छ भने अर्कातिर कतिपय पुष्प व्यवसायीहरू आफ्नो उत्पादनलाई बजारीकरण गर्न नसकी यसको वाञ्छित प्रतिफल पाउनबाट बञ्चित रहेका छन् । यस प्रकारको असामञ्जस्यपूर्ण परिस्थितिमा सुधार ल्याउन बढ्दो मागलाई सन्तुलनमा ल्याउने गरी पुष्पजन्य वस्तुको आपूर्ति बढाउनका साथै यसको उत्पादन तथा बजारीकरण प्रविधिको प्रचार हुनु पनि उचितकै जरुरी छ । यस तथ्यांकलाई मध्य नजर गरी पुष्प व्यवसायीहरूको प्रतिनिधि संस्था फ्लोरिकल्चर एशोसिएसन नेपालले सूचनामूलक विभिन्न गतिविधिहरू समेटेर विगत वर्षमा झैं यस वर्ष पनि पुष्प विशेषांक १८ औं अंकको रूपमा प्रकाशन गर्न गइरहेकोमा खुशी लागेको छ ।

पुष्प क्षेत्रको प्रवर्द्धन गर्न फ्लोरिकल्चर एशोसिएसन नेपालले स्थापनाकाल देखि नै संगठित र व्यवस्थितरूपमा अर्थपूर्ण प्रयासहरू गर्दै आइरहेको छ । एशोसिएसनको यस प्रयासमा थप उर्जा प्रदान गर्न संस्थाबाट सञ्चालन गरिने सबै कृषकलापमा सहयोगी हात बढाउन कृषि विकास मन्त्रालय सदैव तत्पर रहेको छ । यसैकारण कृषि व्यवसायका अन्य क्षेत्रमा जस्तै यस क्षेत्रमा पनि विद्यमान रहेको निर्वाहमुखी प्रणालीमा सुधार गरी उत्पादन तथा रोजगारीको स्तर बढाउदै व्यवसायिकरूपमा सञ्चालन गर्न पुष्प प्रवर्द्धन नीति, २०६९ तयार भइ कार्यान्वयनमा समेत आइसकेको छ ।

पुष्प खेती एवं व्यवसाय प्रवर्द्धनमा यस संस्थाले निर्वाह गरिरहेको भूमिका सराहनीय छ । यस्तै प्रयासहरू मध्येको पुष्प खेती एवं व्यवसाय सम्बन्धी विविध सामग्री सहितको यो प्रकाशन व्यवसायको बजारीकरण गर्न, व्यवसायी समक्ष प्रविधि प्रसारमा थप मद्दत पुर्याउन र यस क्षेत्रमा रुचि राखेहरूका लागि आवश्यक खुराक प्रदान गर्न समेत अत्यन्त उपयोगी हुने कुरामा म विश्वस्त छु ।

अन्तयमा यस प्रकाशन एवं भृकुटी मण्डपमा यहि चैत्र १३ देखि १६ गतेसम्म हुने दोश्रो अन्तर्राष्ट्रिय पुष्प प्रदर्शनी मेला समेतको पूर्ण सफलताको लागि हार्दिक शुभकामना व्यक्त गर्दछु ।

  
(जय मुकुन्द खनाल)  
सचिव



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

Regd. No. 244/049/50

Ref.:

## सन्देश



फ्लोरिकल्चर एशोसिएसन नेपालको २२ वर्षे इतिहासमा १६ वटा राष्ट्रिय तथा १ अन्तर्राष्ट्रिय पुष्प प्रदर्शनी तथा व्यापार मेलाको सफलतापूर्वक आयोजना गरी दोस्रो अन्तर्राष्ट्रिय पुष्प प्रदर्शनी गर्न पाउनु सुखद अवसर हो। यस विच दर्जने क्षेत्रीय र विषयगत पुष्प मेलाहरू सम्पन्न भइसकेका छन्। जानकारी सहित पुष्प उत्पादनलाई आम जनमानससम्म पुऱ्याउने मेला प्रदर्शनीसंगै यस क्षेत्रमा ठूलो परिवर्तन आइसकेको छ।

सरकारको उपस्थितिबिना नै निजी क्षेत्रले गरेको दुई दशकको लगानी, उत्पादन, गुणस्तर, आयात प्रतिस्थापन र निर्यात कार्यमा नेपाली पुष्प व्यवसायले उल्लेखनीय उपलब्धी हासिल गरिसकेको छ। तैपनि अबै नेपाली बजारको मागलाई आन्तरिक उत्पादनले पुरा गर्न सकेको छैन। जबकी वार्षिक रूपमा १० देखि १५ प्रतिशत थप पुष्पजन्य वस्तुको माग बजारमा थपिने गर्दछ। यो असन्तुलनलाई आन्तरिक उत्पादनले पुरा गरी निर्यात प्रवर्द्धनका लागि एशोसिएसनले सरकार, संघसंस्था एवं उद्यमी व्यवसायीसँग बहस पैरवी गर्दै आईरहेको छ। आन्तरिक उत्पादनलाई सवल र सक्षम बनाउनु हाम्रो लक्ष्य हो। जसबाट पुँजीको उपभोग, अवसरको श्रृजना तथा साधनश्रोतको ग्रामिण स्तर सम्म पहुँच पुग्न सक्दछ।

लामो समय देखि प्रतिक्षारत “पुष्प प्रवर्द्धन नीति २०६९” नेपाल सरकारबाट स्वीकृत भइसकेको छ। सरकारका प्राथमिकता आ-आफ्नै भएतापनि पुष्प उद्योगका लागि पुर्वधारको विकास, नीतिगत व्यवस्थापन, जनशक्तिको उचित विकास र प्रविधीको हस्तान्तरणका क्षेत्रमा सरकारको लगानी हुनु नितान्त आवश्यक छ। त्यसैगरी अनुसन्धान र विकास नभई कुनै पनि उद्योगको विस्तारको परिकल्पना गर्न पनि सकिदैन।

अबका दिनमा उच्च प्रविधीयुक्त ग्रिन हाउस, थोपा तथा मिष्ट सिंचाई प्रणाली, नियन्त्रित (रोग तथा किराका लागि) प्रणाली सहितका प्रविधी यस क्षेत्रमा प्रवेश गराउनु नितान्त आवश्यक छ। हामी प्रायजसो पश्चिमा मुलुकबाट विउ तथा विरुवाहरू आयात गरी परम्परागत सेड हाउसहरूमा परम्परागत प्रविधीबाट उत्पादन गरिरहेको छौं। जसबाट हाम्रो उत्पादन कमजोर एवं अन्तर्राष्ट्रिय बजारमा प्रतिस्पर्धा क्षमता कम रहेको छ। यसको मुख्य कारण कमजोर पुर्वधारहरू नै हुन। तसर्थ अबका दिनमा नेपालको पुष्प उद्योगमा व्यापक रूपमा पुर्वधार विकासमा लगानी भित्र्याउनुपर्दछ। समय सापेक्ष प्रविधी र प्राविधीक क्षेत्रमा विश्वका नयाँ आविष्कारलाई उपयोग गर्नुपर्दछ। अनिमात्र विश्व बजारमा हाम्रो स्थान सुरक्षित रहनेछ।

अन्तमा यस अवसरमा समस्त व्यवसायी मित्रहरूलाई आर्थिक र व्यवसायीक प्रगतीको शुभकामना व्यक्त गर्न चाहन्छु। प्रत्यक्ष तथा परोक्ष रूपमा सघाउ पुऱ्याउनु हुने स्वदेशी तथा विदेशी मित्रहरूलाई हृदय देखि नै हार्दिक धन्यवाद दिन चाहन्छु। पुष्प क्षेत्रको विकास विस्तार र प्रवर्द्धनमा विगत वर्षहरूमा भै आगामी दिनहरूमा पनि यहाँहरू सबैको साथ र सहयोग रहनेछ, भन्ने पुर्ण विश्वास तथा आसा लिएको छु।

लोकनाथ गैरे  
अध्यक्ष

# सम्पादकीय

फ्लोरिकल्चर एशोसिएसन नेपालको स्थापना पश्चात् पुष्प क्षेत्रको व्यावसायिकता एवं क्षमता अभिवृद्धि गरी आम जनसमक्ष पहुँच स्थापना गर्न मेला तथा प्रदर्शनीको नियमित आयोजना गर्ने प्रवृत्ति एक परम्पराकै रूपमा स्थापित भइ सकेको छ । यसै अवसरमा पुष्प क्षेत्रसँग सम्बन्धित लेख रचनाहरू सङ्ग्रह गरी नियमित रूपमा स्मारिका प्रकाशन गर्ने क्रममा १८ औं अङ्क यहाँहरू समक्ष प्रस्तुत गर्न पाउँदा हामीलाई खुशी लागेको छ ।

पराम्परगत कृषि प्रणालीलाई समय अनुसार परिवर्तन गरी व्यावसायीकरण नगरेसम्म आशातित उपलब्धी हासिल गर्न सकिँदैन । विदेश पलायन हुन लागेका युवा जनशक्तिलाई नयाँ स्रोत र साधन सहितको उचित प्रतिफल दिनसक्ने सम्भावनाको रूपमा नेपालको कृषि उद्योगलाई रूपान्तरण गर्नु आजको आवश्यकता हो । कृषि क्षेत्रका विविध विधाहरू मध्येको एक पुष्प व्यवसायले सानो क्षेत्रफलमा उच्च लगानीबाट उच्च प्रतिफल दिई एक निर्यात योग्य उद्योगको रूपमा प्रस्तुत भई अगाडि बढि सकेको छ । यस तथ्यलाई मध्यनजर गरी पुष्प क्षेत्रका गतिविधि, लेख, रचना, प्राविधिक विषयहरू र फ्लोरिकल्चर एशोसिएसन नेपाल (FAN) का वार्षिक गतिविधिलाई समेटेर प्रकाशन गरिएको स्मारिका हाम्रो हातमा आइ पुगेको छ ।

प्रस्तुत अङ्कमा Influence of pruning on cut Rose flower; Caladium cultivation: for ornamental, medicine and export; Marigold: A flower of cultural importance in Nepal; Tuberose Cultivation in Nepal: Nitrogen Management Strategy for Superior Flowers and Improved Vase-Life; Weed infestation in containers, inside and outside green house and their control practices; Introduction to the revolutionary Plastic Mulches; आदि लेखहरू समेटेर यहाँहरू समक्ष ल्याएका छौं । FAN को आ.२०६९/७० को वार्षिक प्रतिवेदन समेत यस स्मारिकामा प्रस्तुत गर्ने क्रमलाई पनि निरन्तरता दिएका छौं

पुष्प क्षेत्रमा लाग्नु भएका उद्यमी व्यवसायीहरू, अध्ययन अनुसन्धानमा लाग्नु भएका महानुभावहरू, सरकारी तथा गैरसरकारी संघसंस्थाहरू लगायत सम्पूर्ण पुष्पप्रेमी महानुभावहरूले यसबाट थोरै भए पनि पुष्प सम्बन्धी सामग्रीहरू प्राप्त गर्नु हुनेछ र यसबाट लाभान्वित हुनु हुनेछ भन्ने आशा लिएका छौं ।

अन्त्यमा यस स्मारिका प्रकाशनमा लेख रचना पठाई सहयोग गर्नु हुने लेखकहरू, विज्ञापन दाताहरू प्रति हार्दिक धन्यवाद ज्ञापन गर्दछौं । आगामी दिनहरूमा पनि यहाँहरूको अमूल्य सुभावा, सहयोग र सद्भावको अपेक्षा गर्दछौं । प्रकाशनका क्रममा भएका कमी कमजोरी प्रति बेलैमा सचेत गराई यसको स्तर वृद्धि गर्न र समय सापेक्ष बनाउन यहाँहरूको सहयोगको सदैव हार्दिक अपेक्षा राख्दछौं ।

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नव वर्ष २०७१ को सुखद् उपलक्ष्यमा सम्पूर्ण सदस्यज्युहरू, पुष्प प्रेमी महानुभावहरू, सहयोगी संघ संस्थाहरू सबैमा सुख, शान्ति, समृद्धि एवं उत्तरोत्तर प्रगतिको लागि हार्दिक पुष्पमय शुभकामना व्यक्त गर्दछौं ।

**फ्लोरिकल्चर एशोसिएसन नेपाल**  
परिवार

**फ्लोरिकल्चर सहकारी संस्था लि.**

स्थापनाको तेस्रो वर्ष सफलताका साथ पुरा गरी चौथो वर्षमा प्रवेश गरेको उपलक्ष्यमा यस सहकारी संस्थाको उत्तरोत्तर प्रगतिको कामना साथै नव वर्ष २०७१ को हार्दिक मङ्गलमय शुभकामना व्यक्त गर्दछौं ।



**फ्लोरिकल्चर एशोसिएसन नेपाल**

**शुभ-कामना**

स्थापनाको तेस्रो वर्ष सफलताका साथ पुरा गरी चौथो वर्षमा प्रवेश गरेको उपलक्ष्यमा यस सहकारी संस्थाको उत्तरोत्तर प्रगतिको कामना साथै नव वर्ष २०७१ को हार्दिक मङ्गलमय शुभकामना व्यक्त गर्दछौं ।

**नर्सरी उप समिती परिवार**

# INFLUENCE OF PRUNING ON CUT ROSE FLOWER

## INTRODUCTION

Rose (*Rosa spp.*) is one of the important commercial cut flower in the world. Roses are symbol of beauty, fragrance and are used to convey the message of love (Arora, 2007). Rose is one of the nature's beautiful creations and is universally acclaimed as the Queen of Flower (Yadav *et al.*, 1989). Rose is the second ranked cut flower launched by Floriculture Association Nepal (FAN) for multi location trails and has become quite successful (Pun, 2004). In plains, its gives best bloom in winter while in hills it flowers best in spring. Because of the increasing trend in the consumption of rose flowers the domestic demand has increased from 125 sticks per day in 1992/93 to 4000-5000 in 2010 and in 2013, the demand of rose cut flower is 7000-9000 sticks per day in Kathmandu and about 282 ropanies land is covered under rose cultivation (FAN, 2013). Roses in Nepal are found growing from the plains to the hilly region and come to bloom in different seasons.

## ROSE PRUNING

Pruning is a major horticultural practice in rose cultivation (Edmond *et al.*, 1994). Pruning is an invigorating process calculated to produce a definite effect in the formation of shoot, flowers, fruits and root too (Gopaldaswamiengar, 1970). Pruning affects the production of cut rose flower. There are several reasons of rose pruning. Pruning allows to shape roses to desirable height and size characteristics to compliment garden. Pruning can encourage the production of large, long-stemmed flowers from hybrid teas or smaller but more abundant clusters from floribundas. Proper pruning also helps to create a healthy rose by removing the 3 -D's; dead, diseased and damaged

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canes. By thinning canes from the interior of the plant air circulation is increased. This decreases the likelihood of some common fungal ailments such as mildew. By removing dead or damaged canes one can increase the overall well-being and beauty of roses (Funk, 2008). The kind and severity of pruning of the rose depend on the kind of rose grown and the size of the flower desired. The different dates of pruning seem to have influenced flower yield and quality subsequently (Mukhopadhyay, 1990). Pruning rose plants in different dates was helpful in staggering the harvest of cut flowers. The severity of pruning has considerable influence both on vegetative growth and flower production. Depending up on the extent and level of shortening of stem, there are three types of pruning-Light, Moderate and Heavy (Dhua, 1999). Several researchers have reported increased flower production with light pruning and quality blooms with severe pruning.

Flower production is highly technical; lack of knowledge on these aspects leads to the poor quality of the produce and also increases the cost. Pruning is most important technical aspect of rose growing. Root suckers should be removed whenever they appear (Arora, 2007). Suckers or rootstock shooting out of the ground from below the basal break should be removed. Moreover, the branches appear from basal portion of grafted/budded rose plant should remove as and when shown. Rose pruning is

done to encourage new growth and bloom, remove dead wood, improve air circulation and shape the rose plant. Because most roses flower on new wood, and pruning encourages the development of healthy new growth. The rose plants should be pruned with secateurs removing all dry, diseased, damaged, weak and crisscross branches to allow the intensity as desired. After pruning cut ends should be painted with fungicide paste or pesticides will be sprayed over them in order to protect against the attack of fungus and cane boring insects. The correct way to make a cut applies to removing dead wood, deadheading and all annual pruning. Cuts must be clean, so secateurs should keep sharp.

Season of flowering, age of the shoot bearing flowers and rate of the shoot growth are important factors which will give an idea about time of pruning (Bose and Ghose, 1970). Diseased and dry wood must be cut from the base of the affected branch whenever detected. Branches which grow irregularly and affect the shape of a neat bushy plant also be removed without waiting for the proper season. Rose pruning timing is determined by the class of the rose plant and the region in which it is growing. Hybrid tea roses are the most particular about pruning. The ideal time of rose pruning is when rains are completely over and winter is approaching in open field conditions. Most of the varieties take about 60-65 days of blooming after pruning. Therefore, to secure flowers for particular occasion, pruning can be adjusted accordingly (Arora, 2007). Gopal (1978) concluded that by sequential pruning of rose, cut flowers can be produced round the year without greatly affecting yield and quality. The different

dates of pruning seem to have influenced flower yield and quality subsequently (Mukhopadhyay, 1990). 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). Rose pruning in protected cultivation system can be done any time of the year to produce flowers according to market demand. Both cutting of branches and bending of branches are practiced.

The amount of pruning depends on the characteristics we desire of our rose during the blooming season. For more abundant blooms on smaller stems we may choose a lighter pruning. The severity of pruning has considerable influence both on vegetative growth and flower production. Several researchers have reported increased flower production with light pruning and quality blooms with severe pruning (Mukhopadhyay *et.al.*, 1987). The intensity of pruning markedly influences the growth and flowering of roses. Depending upon the extent and level of shortening of stem, there are three types of pruning-Light, Moderate and Heavy (Dhara, 1999). In roses, the amount of pruning largely depends upon the types and the cultivar, health and vigour of the plant, spacing, fertility status of soil and desired flower quality and number. Pruning should be done once a year, as more frequent pruning tends to weaken the plants. However, the flower should be cut off with a sufficient amount of the stem, as this helps to keep the plant neat and ensures that the new shoot will not be weak (Pal, 1972). Pruning can be done twice in a year so as to produce flowers for flower shows or for special occasions.

## CONCLUSION

Rose is an important cut flower. Pruning is one of the important cultural practices for successful rose cultivation. Pruning is the process of removal of any part of plant which includes cutting of small and large branches, spent flower spikes and cutting of roots etc. Selection of best time and intensity of pruning is important in cut rose production. Grower should prune heavily to produce quality cut flowers whereas higher quantity of rose flowers can be achieved by light pruning. Sequential pruning can produce rose flowers at successive desired time.

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## Caladium cultivation: for ornamental, medicine and export

### Introduction

Caladium is an ornamental foliage plant grown from tubers and planted extensively in landscape. Caladium is indigenous to South and Central America and belongs to the family *Araceae*. Members of the Genus *Caladium* are vascular terrestrial monocots with tuberous underground rhizomes, elongated petioles, and usually peltate or sagittate leaves. Flowers are unisexual and naked. Staminate flowers have 3-5 stamens while pistillate flowers have 2-3 celled ovaries. They produce berry fruits with several small ovoid seeds (Ekanem et al., 2013).

The *Caladium* genus, native to the forests of Central and South America, is a branch of the Arum family (*Araceae*). There are seven *Caladium* species: *Caladium bicolor*, *Caladium humboldtii*, *Caladium lindenii*, *Caladium paradoxum*, *Caladium schomburgkii*, *Caladium steudneriifolium* and *Caladium ternatum*. *Caladium bicolor*, the species most commonly cultivated as a houseplant in North America, is sometimes further subdivided into three species: *Caladium bicolor*, *Caladium picturatum* and *Caladium marmoratum* (LHG, 2014).

As one of the 107 genus members of the 3700 species *Araceae* family, caladium are closely related to plants such as Anthurium, Arum, Zantedeschia, Colocasia and Xanthosoma. *Caladium bicolor*- have heart shaped leaves whereas *Caladium schomburgkii*-have lance shaped leaves (Gardeners HQ, 2014).

The caladium species best known to

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gardeners and houseplant enthusiasts in the United States, Canada and Europe is *Caladium bicolor*, also called elephant ear, angel wing, heart of Jesus or mother-in-law plant. This perennial plant bears elongated, heart-shaped leaves 6 to 14 inches in length. These flamboyant, thickly veined leaves are often colorful, their color depending on the variety. Green, pink, gray, white and yellow hues are common. They are borne on supple leaf stems 6 to 12 inches in length, which arise directly from subterranean tubers. Hooded green flowers resembling those of the related Jack-in-the-Pulpit plant arise on strait stems, giving way to clusters of small white berries. Caladiums are propagated through the division of their tubers, which may be cut into pieces and replanted (LHG, 2014).

Caladiums grow in open areas of the forest and on the banks of creeks and go dormant during the dry season. The

wild plants grow to 40-90 cm tall, with leaves mostly 15-45 cm long and broad (The flower expert, 2014). Caladium plants are happiest when planted in warm, shady areas. The main colors are red, pink and white, and each different type of Caladium has its own unique and exciting color combination of two or more colors. Caladium foliage grows in a variety of forms, from long and strap-like to heart shaped. Our caladiums are all **FANcy leafed types**, with heart-like leaves in bright shades that provide an extremely long season of color that few flowers can match. Caladiums also bloom, but Caladiums flowers are inconspicuous, but are grown for its colorful foliage. Caladiums are very fast growing and provide landscape with **instant** color (The flower expert, 2014). Some facts about Caladiums are:

- Caladiums are tropical plants which come in a variety of colors and combinations. They are native to the banks of the Amazon River in South America. Grown for their spectacular foliage, rather than for flowers, Caladium plants originated in hot humid South America.
- Today's hybrids are the result of widespread breeding between tropical species.
- All parts of this tropical plant are poisonous, may irritate sensitive skin, so caution is advised especially for children.
- The Caladium Rose Bud, **Caladium x hortulanum**, a spring planted tuber, are grown for their long-lasting, colorful foliage and they are used in borders and beds.

- Caladiums grow from corms and can be propagated by dividing the tubers.
- FANcy and lance-leafed varieties are the two main types of caladiums. FANcy-leafed types have large heart-shaped leaves, grow best in semishade, and may reach a height of 12 to 30 inches, depending on variety and growing conditions. The lance or strap -leafed types have narrow, elongated leaves and perform best as accent plants in borders, in hanging baskets and in patio planters.
- Miss Muffett is a dwarf caladium.
- Caladium bulbs storage: As foliage begins to die down in the fall, reduce water, dig up and air dry bulbs for a week. Store in a dry location at 55 degrees or above.

Caladiums have heart-shaped leaves that range in size from a few inches to a few feet. Caladium is a tuberous plant that comes in various shades of green, white, red and even lavender. Because of their colorful and large and decorative leaves caladium works well in annual gardens, in pots or along walkways. However, some caladium enthusiasts grow these tropical plants indoors as houseplants. As a houseplant, caladium adds color but because these plants typically go dormant in the fall, they should be stored until spring (DM, 2014).

Caladiums have many uses in the horticultural industry. Caladiums are grown from tubers; however, in the industry we commonly refer to these tubers as bulbs. Caladiums (*Caladium hortulanum*) are tropical plants that originated in the Amazon basin in

South America. They are widely used in landscapes and home gardens in the south where growing conditions are very favorable (COW, 2014).

### **Caladium Types and Cultivars**

There are two distinct types of Caladiums, based on leaf morphology, though some growers refer to a third (Dwarf) group: FANcy Leaf and Strap Leaf varieties. FANcy Leaf Caladiums have broad heart-shaped or arrowhead-shaped leaves and generally grow taller than Strap Leaf and Dwarf varieties. The petiole (stem) attachment is within the leaf blade. Strap Leaf Caladiums have a petiole (stem) attachment at the edge of the leaf blade and generally have pointed, more narrow, heart shaped leaves producing a compact plant with more leaves than FANcy leaved cultivars. Strap varieties are ideal for pot production and hanging baskets. Dwarf Caladiums comprise both FANcy and strap leaf varieties and are intermediate in size and compact in habit making them ideal for pot plant and hanging basket production (COW, 2014).

Selected varieties are *Caladium bicolor* (syn. *C. marmoratum*, *C. picturatum*, *C. hortulanum*), *Caladium humboldtii*, *Caladium lindenii*, *Caladium schomburgkii* (The flower expert, 2014).

There are many different types of caladium cultivars. However, most can be placed in one of two different and distinct classifications, FANcy leaf and lance-leaf. FANcy leaf are often the most commonly found types of caladiums with broad, heart-shaped leaves these caladium cultivars give a punch of color and foliage to any type of floral landscape. However, for additional texture lance-leaf cultivars

offer more in the form of increased foliage that is often more slender or scalloped along the edges (DM, 2014).

Species identification is from the leaf blades which possess various patterns of pink and white spots. Leaf is mostly heart, lance or arrowhead shape (Ekanem et al., 2013).

Hundreds of distinct varieties of *Caladium bicolor* have been cultivated. Such beloved cultivars include Kathleen, with salmon leaves lined with green; Gypsy Rose, with pink veins and green splotches; Marie Moir, a pale green caladium with crimson spots; Florida FANTasy, a white variety with red veins; and Postman Joyner, a deep red and green caladium. The Aaron, Carolyn Whorton and Fire Chief varieties have been developed specifically for increased sun tolerance (LHG, 2014).

Caladiums are tropical plants which typically exhibit heart-shaped leaves that vary in size according to the species. Some Caladiums have leaves that grow to an average size of 6 inches while others grow as large as 2 feet. These plants tend to thrive in warm, moist soil where the temperature does not fall below 55 degrees Fahrenheit. Caladiums come in a variety of colors and are often grown for their ornamental value. Caladium cultivars can be divided into three main categories: dwarf Caladium, FANcy-leaved Caladium and lance-leaved Caladium (Katherine, 2014). These are described as below:

### **FANcy-leaved Caladium**

FANcy-leaved Caladium cultivars have large leaves that are either heart-shaped or partially heart-shaped which are

supported by long petioles, or stalks. Caladiums belonging to this category typically grow between 12 and 30 inches high, though most grow to a maximum of 22 inches. FANcy-leaved Caladium species tend to prefer filtered sun or afternoon shade, though they also do well with morning sun. Some of the more popular FANcy-leaved Caladium types include Grey Ghost, Florida FANTasy, White Queen and Red Flash.

### **Lance-leaved Caladium**

Lance-leaved Caladium are also called strap-leaved Caladium and, along with dwarf Caladium, these varieties are often more expensive and less widely available than FANcy-leaved varieties. The reduced availability of these Caladium is due to the fact that they multiply more slowly than FANcy-leaved Caladium. Lance-leaved Caladium have narrow, elongated leaves that still retain some of the heartlike shape. These plants grow between 12 and 14 inches and are often used in hanging baskets and as borders in flower beds and gardens. Some of the more popular types of lance-leaved Caladium available include Pink Gem, White Water, Florida Sweetheart, White Wing and Rosalie.

### **Dwarf Caladium**

The plants belonging to this category look similar to FANcy-leaved varieties and have similar growing requirements. The main difference between dwarf Caladium and FANcy-leaved Caladium varieties is, of course, the size. Dwarf Caladium have heart-shaped leaves but only grow to a maximum height between 15 and 17 inches. Miss Muffett, Candidum Jr. and

Gingerland Caladium are some of the more popular types of dwarf Caladium available for cultivation.

### **Climatic Conditions**

Caladium is by nature a tropical plant but they do not tolerate full sun. For the best in both color and growth caladium plants prefer warm, moist conditions as well as protection from the direct sunlight. This generally makes caladium a great option for window boxes, potted plants shaded from the direct sunlight or a sunny region of the house. For gardeners, growing caladium from tubers make sure the ground is warm before planting. Cool soil temperatures will cause the tubers to rot prematurely. Although caladium is generally grown for their foliage, they do bloom occasionally. Trim the blooms back to preserve the plant's energy sources for longer-lasting foliage (DM, 2014).

Caladiums delight in shade, growing best under the cover of trees. When you plant pink-leaved caladiums in full sun, they may develop a brown, burnt appearance. Originating in the tropics, caladiums prefer moist soil kept at a temperature of at least 70 degrees Fahrenheit. Cool soil will cause caladium tubers to rot before they can develop their leaves. These plants also enjoy slightly acidic soil. A soil pH of between 6.0 and 6.5 is ideal. A 2- to 3-inch layer of organic mulch, such as compost or pine bark mulch, may also help caladiums retain moisture (LHG, 2014).

### **Propagation**

Caladium species are neotropical plants, primarily propagated asexually and prone to mutate in in-vitro (Ekanem et al., 2013).

Since caladium is a tuberous plant they can often be purchased in tuber form during the off season. Growers begin to start cultivation caladium tubers during February and March. These tubers are often composed of one large central tuber surrounded by smaller tubers. The more small tubers, the more foliage the plant will produce but often this will also result in smaller leaves. In general look for large tubers to produce large foliage and smaller tubers will produce smaller foliage. Many nurseries and greenhouses also offer caladium plants as potted plants. These can be transplanted like any other annual (DM, 2014).

### **Bulb Morphology**

A majority of Caladium bulbs are produced in the muck soils of Lake Placid, FL. As a way of anchoring themselves into the soil, caladiums have contractile roots, which actually pull the bulb into the soil as it grows. Muck soils are naturally softer and more spongy therefore bulbs can expand in all directions (spherically) as they grow whereas sandy soils do not readily compact therefore bulbs produced in sandy soils have a flatter base (COW, 2014).



### **Planting and Care**

Caladium bulb is best to grow from tubers, these should be buried at a depth of 5 cm in the spring. Seeds normally take one to three months to germinate at a temperature of 24 to 29 degrees Celsius (Gardeners HQ, 2014). Most *Caladium* varieties prefer fertile, moist, but well drained soils in partially or fully shaded places. Sun loving varieties abound as well (Ekanem et al., 2013).

*Growing Caladiums (The flower expert, 2014)*

- Plant the top of the bulb 1<sup>1</sup>/<sub>2</sub> to 2 inches below the surface with the eyes up.

- If the soil is sandy, mix in some peat moss to improve moisture retention.
- Mulch around the planting and keep moist throughout the season. Fertilize every six weeks with a 6-6-6 type fertilizer or slow release type fertilizer.
- Use about a teaspoon per bulb.

*Caladium Plant Care (The flower expert, 2014)*

- Indirect or bright-diffused light outdoors is best.
- Moderately moist soil is preferred.
- Water thoroughly when just the soil surface is dry to the touch. Do not allow plants to stand in water.

- When used outdoors, Caladiums prefer partial or full shade in containers or ground beds, they prefer a rich soil.
- Caladiums planted outdoors should be dug before frost and will remain dormant over the winter.

### **Harvesting and Storing**

Caladium tubers can be stored for reuse from one season to the next. However, because these are tropical plants, it is important to dig up the tubers prior to the onset of chilly weather. As temperatures drop to 65 degrees F and below, it is important to get them out of the ground before rot sets in. Wash the tubers thoroughly and dry in a warm and dry place. Try to keep drying temperatures between 70 and 80 degrees F. Once the tubers are dried, store them at approximately 70 degrees F in a dark and dry area. In the spring once the ground soil has reached 65 degrees F or more the tubers can be planted directly into the ground. Caladium plants grown indoors need winter rest as well. During the fall, allow caladium houseplants to die back. Gradually decrease water until the plant goes dry. At this time, store the plant in a dark and dry area such as a garage or ventilated closet (DM, 2014).

Caladiums are tropical plants, and bulbs must be stored at temperatures above 60°F (16°C) with a relative humidity in the neighborhood of 75%. Also, there needs to be good air exchange to prevent build-up of gases. Caladiums are particularly sensitive to the presence of ethylene gas. When storing Caladiums,

unpack them immediately upon arrival and store them in open trays with proper air circulation. Exposing bulbs to cold temperatures will cause them to sprout slowly and erratically and cold may stunt the crop (COW, 2014).

### **Common Problems**

Rot is a common problem causing caladium plants to fail. Inspect tubers for any sign of rot prior to planting. In addition to rot damage, caladium may be susceptible to root aphids and mealy bugs. Generally both of these infestations occur during tuber storage and should be addressed prior to planting. Other insects may attack the foliage including mealybugs, mites and whiteflies. However, although these pests may leave unsightly holes in the foliage, the turnover rate of caladium leaves is so abundant that the majority of pests will be gone with death and removal of infested foliage (DM, 2014).

### **Warning or Precaution:**

Caladiums may cause skin irritation, rashes and itchiness for people with sensitive skin. Eating any part of the plant may result in swelling of the mouth, swelling of the throat, indigestion and nausea. If you suspect you may be allergic to caladiums, always wear gloves when handling them. Never ingest any part of the plant (LHG, 2014).

Caladium contains oxalate crystals which can cause illness and swelling of the mouth and throat (Ekanem et al., 2013).

### **Ornamental value**

The ornamental value of caladium use

as pot or landscape plants is determined primarily by leaf characteristics. Improving leaf characteristics or generating new combinations of them has been one of the most important objectives in caladium breeding and cultivar development (Wilfret, 1993).



Caladiums also are extensively sold as potted plants in the florist trade. Traditionally potted caladiums are sold as Easter and Mother's Day crops. However, with improvements being made in bulb storage, potted caladiums may be used nearly year round. Though not used extensively at this time, cut caladium leaves have great potential for floral arrangements (COW, 2014). In addition to landscape/garden use and as potted plants, caladiums are finding their way into the interiorscapes as well. The interiorscape market is always looking for color, and caladiums with their wide array of colors fill this need.

### Medicinal value

The polyphenol content in *Caladium bicolor* was significantly higher than that of *Caladium ornamental* and *Caladium variegatum*. The leaves in the three caladium sp were significantly higher in

polyphenols than that of the stem, bulbs and root of the plants. *C. variegatum* contain the highest flavonoid followed by *C. ornamental* and *C. bicolor*. Flavonoids inhibit tumor cell growth and can activate important detoxifying enzymes. The highest carotenoid content of the leaves, stem, bulb and roots was found same in *C. variegatum* and *C. bicolor* where as lowest was in *C. ornamental*. Epidemiological studies have shown that flavonoids and carotenoids intake are inversely related to mortality from coronary heart diseases and the incidence of heart attacks. *C. variegatum* has more alkaloid, followed by *C. ornamental* and *C. bicolor*. The leaves of the caladium has more alkaloid than the bulbs, stem and roots. Alkaloids have been used as CNS stimulant, topical snasthetic in ophthalmogy, powerful pain relievers and antipuretic action. Similarly, *C. bicolor* has high cyanide content than *C. variegatum* and *C. ornamental*. The roots

posses more cyanide content than the bulb, stem and leaves respectively. The leaves of the caladium species due to the high level of flavoniod, alkaloids and saponins which could be used in modern medicine to cure cancer and other related illness (Ekanem et al., 2013).



*Caladium bicolor*, Common Name: angel wings

*Caladium bicolor* is a plant found in South and North America. There are more than 1,000 varieties of the Caladium plant which has been used as medicine for various ailments in Brazil and some Native American cultures. This plant has traditionally been used as an antiseptic, emetic, laxative and insecticide. Other uses of the plant include treatment for sore throats, constipation, wounds and catarrh. It also treats sores and toothache (M., 2014). A sick person cooks and eats the leaves and tubes of the *Caladium bicolor* to benefit from its curative power. Facial paralysis is treated by crushing the bulbs of the plants and applying on the face. In Brazil, the bulbs are heated, covered in olive oil and applied to tumors. But, a high dose of *Caladium bicolor* can be poisonous. It can cause vomiting, swelling and redness of the eyes. Diarrhea, nausea, and swelling of the mouth and tongue can also occur.

Webhomeopath (2014) describes about the medicinal value of Caladium:

This remedy has a marked action on the

genital organs, and pruritus of this region. Coldness of single parts and inclination to lie down, with aggravation on lying on left side. Slightest noise startles from sleep. *Dread from motion*. Modifies craving for tobacco. Tobacco heart. Asthmatic complaints.





*Caladium seguinum*

*Caladium seguinum* treatment for **Head** ailments: Headaches and mental states of smokers. Very forgetful, does not know about the occurrences of things. Confused headache with pain in shoulder, pressure in eyes and forehead; extremely sensitive to noise, throbbing in ear.

*Caladium seguinum* treatment for **Stomach** ailments: Gnawing in orifice of stomach, which prevents deep breathing and eructations. Eructations. *Stomach feels full of dry food; sensation of fluttering.* Acrid vomiting, thirstless and tolerates only warm drinks. Sighing respiration.

*Caladium seguinum* treatment for **Male** ailments: *Pruritus.* Glans very red. Organs seem larger, puffed, relaxed, cold, sweating; skin of scrotum thick. Erections when half-asleep; cease when fully awake. *Impotency;* relaxation of penis during excitement. No emission and no orgasm during embrace.

*Caladium seguinum* treatment for **Female** ailments: *Pruritus of vulva (Ambr;*

*Kreos)* and vagina during pregnancy (Hydrogen peroxyd 1: 12 locally). Voluptuousness. Cramp pains in uterus at night.

*Caladium seguinum* treatment for **Skin** ailments: Sweet sweat attracts flies. Insect bites burn and itch intensely. Itching rash alternates with asthma. *Burning sensation* and erysipelatous inflammation.

*Caladium seguinum* treatment for **Respiratory** ailments: Larynx seems constricted. Breathing impeded. Catarrhal asthma; mucus not readily raised. Patient afraid to go to sleep.

*Caladium seguinum* treatment for **Modalities** ailments: *Better,* after sweat, after sleeping in daytime. *Worse,* motion.

*Caladium seguinum* treatment for **Relationship** ailments: Incompatible: *Arum triph.*

*Caladium seguinum* treatment for **Compare** ailments: *Capsic; Phosph; Caust; Selen; Lyc. Ikshugandha* (sexual weakness, emissions, prostatic enlargement).

## Marketing & Export

*Caladium* bulbs are sold in various size grades based on the diameter of the bulb. The bulbs are categorized into the following traditional sizes (COW, 2014)

- No. 4: to ¾" (2.0 cm)
- No. 3: ¾ to 1" (2.0 – 2.5 cm)
- No. 2: 1" to 1 ½" (2.5 – 4.0 cm)
- No. 1: 1 ½" to 2 ½" (4.0 – 6.5 cm)
- Jumbo: 2 ½" to 3 ½" (6.5 – 9.0 cm)
- Mammoth: 3 ½" to 4 ½" (9.0 – 11.5 cm)
- Super Mammoth: 4 ½" Up (> 11.5 cm)



Recently a market has been developing for No. 3 (seed stock size) bulbs. This size is suitable for 4 ½" pots and under. The size of the No. 3 bulbs is less than 1 inch. The standard industry box dimensions are 11" (20 cm) H X 18" (45 cm) W X 14" (35 cm) D or 0.5 cubic feet or 0.15 cubic meters. Boxes on average weigh 30 lbs or 13.5 Kg, however individual boxes must be weighted to get exact weight at time of shipping. Prices tend to be FOB (COW, 2014).

Bodi Brikchya Nursery is continuously involved in production and marketing of Caladium bulb in Chitwan District. There are more than 17 varieties of Caladium hybrids under production. Annual production of Caladium bulb in the farm is about 150 Thousand bulbs, out of which

most of them are exported to India and Japan. Sometimes Caladium leaves are used in floral arrangement, but due to less awareness and inhabit of using the leaves in floral arrangements, there is no demand of Caladium leaves in Nepal. Although there is high demand of Caladium bulbs in international market, only 50000 bulbs and 10000 bulbs per year are being exported to India and Japan respectively. It is mainly due to low volume and single grower of Caladium bulb production in Nepal (personal communication Yogesh Pradhan, 2014).

There is need of increment of Caladium growers and bulbs production for export promotion of the commodity. It is also a thought and marketing issue of Caladium leaves for the floral arrangements.

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## Marigold: A flower of cultural importance in Nepal

### Introduction and Importance:

Nepal is an agricultural country. Floriculture is one of basic component for the development of the agriculture. To promote the floriculture farming from subsistence to sustainable proper knowledge of agricultural practices is indispensable. Nowadays, there is high demand of flowers in national as well as international market. Nepal also imports huge amount of flowers from India during the different seasons. The flower comes from Kolkota, Darjeeling, Kalingpong and Sikkim which reaches to the Kathmandu valley and other parts of Nepal especially during Dashain and Tihar. The demand for Marigold flowers during Dashain and Tihar is very high (Koirala, 1990).

Marigold is one of the most commonly grown flowers for garden decoration and extensively used as loose flowers for making garlands for religious and social functions. It has gained popularity amongst the gardeners on account of its easy culture and wide adaptability. Its habit of free flowering, short duration to produce marketable flowers, wide spectrum of attractive colours, shape, size and good keeping quality has attracted the attention of flower growers. Marigolds are ideal for loose flowers, especially for making garlands. They can be planted in the beds for mass display or grown in pots. The French Marigolds are suitable for hanging basket and edging. The large yellow to orange flower heads is exploited or manufacturing food colors through pigment extraction. The plant has

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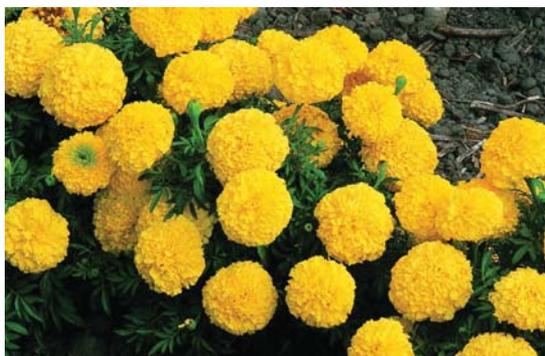
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aromatic foliage and is used for extraction of essential oil and perfumes. The flowers and foliage also have pharmaceutical properties and medicinal principles. This flower is packed with the leaves of fern and mango leaves to welcome the people in different ceremonies as well as to offer the flowers to the god in different offerings (Gaenzle et al., 2005).

### Classification

Marigold which belongs to family Composite has many species. The important among them are *Tagetes erecta*, *T. patula*, *T. lucida*, *T. lacera* and *T. lemmonii* of which *T. erecta* and *T. patula* are mostly used for large scale commercial production.

**Variety:** Most of the varieties are planted for garden decoration. The important varieties are:



Species	Variety
<i>Tagetes erecta</i> (African marigold)	Golden Age, Gold coin, African Yellow
<i>Tagetes patula</i> (French marigold)	Red Brocade, Rusty Red, Valencia

### Soil

A wide range of soil with good drainage is suitable for cultivation of marigold. African marigold prefers rich moist sandy loam soil and French marigold prefers light soil. A soil that is deep fertile, friable and well drained having good water holding capacity, and neutral pH of 7-7.5 is most desirable for its cultivation.

### Climate

Marigold requires mild climate for luxuriant growth and profuse flowering. It ceases to grow at high temperature thereby flower quantity and quality is adversely affected. During severe winter including frost, plants and flower are killed and blackened. However, plants if allowed to over winter, sprout during spring season and produce some flowers. Sowing and planting is carried out during rainy, winter and summer season (Ploeg, 2002). Hence, flowers of marigold can be had almost throughout the year.

### Preparation of soil

Land should be well prepared by ploughing it 2-3 times and 50 metric tonnes of well rotten FYM /ha should be well mixed. Beds of convenient size are made to facilitate irrigation and other cultural operations.

### Propagation

There are two common methods of propagation of marigold 1. By seeds, 2. By cuttings. Crop raised from seeds is tall, vigorous and heavy bloomer; thus it is preferred over cuttings (Salamon, *et al.*, (2006).

### Nursery rising

Seeds of marigold can be sown in pots, seed boxes or on flat or raised nursery beds. Nursery beds of 3x1 m size are thoroughly prepared and mixed with 10 kg of well rotten FYM/m<sup>2</sup>. Before sowing the seeds, B.H.C. should be dusted on outer side of nursery beds to avoid removal of seeds by ants. Seeds can be sown preferably in lines or by broadcast method. In case of broadcasting care should be taken for proper distribution of seeds so as to have healthy seedlings. Seeds should be covered with light soil or sand and watering should be done with rose cane.

### Sowing time

Marigold crop can be raised three times a year; rainy, winter and summer season. Sowing and planting times for each season are as given below:

Season	Sowing time	Transplanting time
Rainy Winter Summer	End of June to 1 <sup>st</sup> week of July Mid of September First week of January (Under glass house or plastic)	First fortnight of August Mid of October First week of February

### Cutting

This method is commonly followed for maintaining purity of varieties. Normally, the presence of adventitious roots along the stem helps in establishment of cuttings. About 10 cm long cutting taken from shoot tips which are not flowered are planted in sand to strike roots easily and plants thus raised are used for bedding and pot planting.

### Transplanting of seedlings and irrigation

One month old seedlings with 3-4 leaves are used for transplanting. Very old seedlings are not desirable because they have lost their juvenile phase in the nursery itself. Seedling should be transplanted in well prepared land in the evening especially during rainy season and summer season to avoid transplanting shock. Transplant the seedlings at a spacing of 20x20 cm for French marigold and 40x30 cm for African marigold. After transplanting, a light irrigation is essential. At all stages of vegetative growth and during flowering period sufficient amount of moisture in soil is essential. Moisture stress at any stage of growth and development may hamper the normal growth and productivity of flowers (Singh, *et al.*, 2003). The frequency and quantity of water mainly depends upon soil and climatic condition. In summer, frequent irrigation at the interval of 4-5 days is required.

### Weeding and hoeing

Weeds are a problem in marigold especially in rainy season crop. After transplanting of seedlings in the field,

weeds grow faster than marigold in initial stage and cover large area in a few days. It has been observed that 3-4 times weeding are required during the entire growth period. If these weeds are not removed in time, a great loss would occur in terms of growth and productivity of marigold.

### Pinching of marigold plants

In tall varieties of marigold emergence of side branches and their flowering is influenced by the presence of apical dominance. By production of terminal flower bud, side buds become free from correlative inhibition of apical dominance and these buds develop into branches to produce flowers. If the terminal portion of shoot is removed early, emergence of side branches starts earlier and more number of flowers of good quality and uniform size are produced. Result of studies on pinching revealed that pinching the plant after 40 days of transplanting enabled the plants to yield more flowers. However, the plants remain dwarf and flowering delayed in comparison to late pinching (50-60 days).

### Manure and Fertilizers

Apart from organic manures, a total dosage of NPK @250:60:60kg /ha is recommended for the crop. Apply a basal dose of fertilizer @112.5kg N, 60kg P<sub>2</sub>O<sub>5</sub>, and 60kg K<sub>2</sub>O/ha at the time of bed preparation. The remaining N is top dressed at the time of pinching.

### Harvesting

Marigold flower should be plucked when they attain the full size depending upon the variety. Plucking of flower should be done

either in the morning or evening. Field should be irrigated before so that flower keep well of longer period after plucking. Plucking is done by hand because flower stalk is hollow structure which breaks easily when twisted between thumb and finger. Productivity of plant is increased by regular plucking of flower (Crnobarac, 2008).

French marigold starts flowering 1 to 3 months after transplanting while African marigold 2 to 4 months after transplanting of seedlings. For Garland stalk less fully opened flowers (loose flowers) are picked, white for vase decoration also fully opened flowers with stalk are plucked. Loose flowers are packed in a bamboo basket, while flowers with stalk are bunched in bundles and transported to market. From one plant near about 100 to 150 flowers are obtained. Blooming duration is near about 3 months.

#### Packaging

Marigold flowers are primarily used for making garlands and hence plucked flower are collected in gunny bags or bamboo

baskets for carrying to the market. For local market marigold flowers are taken into gunny bags whereas for distant market bamboo baskets are used.

#### Yield of flowers

Flower yield depends upon season of planting and cultural practices adopted (Ram, et al 2000). On an average a fresh flower yield of 200-225q/ha during rainy season, 150-175q/ha in winter season, and 100-120q/ha in summer can be obtained.

#### Seed production

Marigold is a cross pollinated crop, hence proper isolation distance of 1-1.5 km should be given amongst varieties. However, natural cross pollination amongst species is absent. The seed crop is ready in about six months. Seed production studies carried out revealed that seed yield of 312-375 kg /ha in *T. erecta* and 1000-1250 kg/ha in *T. patula* could be obtained.

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## Tuberose Cultivation in Nepal: Nitrogen Management Strategy for Superior Flowers and Improved Vase-Life

### Introduction

Tuberose (*Polianthes tuberosa* Linn.), a native of Mexico belonging to the family Amarylidaceae; produces attractive, elegant and fragrant white flowers. The flowers have excellent keeping quality and stand long transportation. It occupies a very special position among the ornamental bulbous plants because of its prettiness, elegance and fragrance. It has good economic potential for loose/cut flower trade and essential oil industry. The natural flower oil of tuberose is one of the most expensive of the perfumer's raw materials. Tuberose is grown for garden decoration in pots, beds and borders. The flowers are used in wedding ceremonies, garlands, decoration and various traditional rituals. The bulbs are considered as diuretic and emetic. Bulb paste mixed with butter and turmeric is used for removing acne or pimples and roots are used as soap substitutes.

Tuberose is one of the most important cut flowers in Nepalese cut flower market. Demand of tuberose has increased from 1000-1500 sticks/day in the year 1995 to 4000-6000 in the year 2012 (FAN 2012). There is still a gap between demand and national production. Nepal is seeking the international market for Nepalese tuberose. However, international markets need high quality products. Now it is high time for us to produce quality tuberose in commercial scale for both domestic and international markets. To meet the international market standards, there is

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need of developing new technology for cultivation of high quality tuberose.

In recent years there is steep growth of demand of tuberose spikes in Nepalese flower markets. To fulfill the national demand, the production, productivity as well as the quality of tuberose should be improved. Tuberose is a new crop for Nepalese farmers and very few information is available for this particular crop under the agro-ecological condition of Nepal, which demands a series of researches in various aspects of its cultivation.

Tuberose is a new crop for Nepalese floriculturists. The important problems faced by commercial growers of tuberose are low yield and inferior quality of cut flower. Traditionally, cultivated tuberose has short spike length and fetches lower price in market. Due to lack of sufficient knowledge and appropriate technology, Nepalese farmers are unable to produce the quality tuberose. Productivity of cut flower is low as compared to other countries.

### Importance and uses

Tuberose has high economic potential for cut flowers trade and essential oil industry (Alan *et al.*, 2007). It is used for artistic garlands, floral ornamentals, bouquets and buttonholes and also for extraction of perfume (Sadhu and Bose, 1973). The long spikes of flowers are

excellent for cut flowers and people like their sweet fragrance (De Hertogh and Le Nard, 1993). Flowers of tuberose are very good source of essential oils which is used in the production of cosmetic and perfumery products (Hussain, 1986).

The Flowers are the source of the tuberose oil and remains today one of the most expensive of the perfumer's raw material. The most common constituents of tuberose concrete are geraniol, nerol, benzyl alcohol, methyl benzoate, methyl silicate, ethylol, benzyl benzoate, methyl anthranilate etc. The bulbs are considered diuretic and emetic. They are rubbed with turmeric and butter and applied as a paste over red pimples of infants. Dried tuberose bulb in the powdered form is used as a remedy for gonorrhoea (Peter, 2008).

### Important Cultivars

There are three groups of cultivars as follows

- Single: Flower is pure white and has only a single row of corolla segments. Common cultivars are Sringer, Culcutta Single, Mexican Single and Suvarna Rekha etc.
- Semi-double: Similar to double but with only 2 to 3 rows of corolla segments.
- Double: Flowers are white, tinged with pinkish red. Petals are in several whorls. Common cultivars are Suvasini, Culcutta Double and Pearl etc.

The growers commonly use the two well-known tuberose varieties Single Mexican and The Double Pearl. The former is preferred for its enticing fragrance, while

the Double Pearl is preferred in flower arrangements due to the density of the flowers on its spikes.

### Field Study for identifying effective Nitrogen Management Practice

A field experiment was conducted at farmer's field in Chitwan. The experimental site is located at 20 km west from the district headquarter, Bharatpur.

Sub-tropical climate is prevalent in the study site. The maximum temperature during winter season rises up to 27°C (end of February) whereas during the hottest months (May-June) it reaches up to 42°C. Rainy season starts from June and lasts up to October. June-July receives the highest amount of rainfall (up to 150 mm/day). The relative humidity (RH) commences rising up from May (Average 50%) and reaches to maximum (100%) in December and January.

Field was prepared by thorough ploughing and leveling. Bulbs of average size and weight (2-2.5cm diameter and 15.5-17.7gm weight) were used for the experiment.

Full dose of phosphorus (200kg/ha) and potassium (200 kg/ha) was applied at time of planting. Nitrogen 200kg/ha was splitted in different doses to identify the appropriate splitting time and frequency. Urea (46% N), SSP (16%P<sub>2</sub>O<sub>5</sub>) and MOP (60%K<sub>2</sub>O) were used as source of NPK.

In the study, different flower parameters, vase-life characteristics and economic feasibility were recorded and analyzed.

## Results of the Experiment

Regarding the phenological characteristics (the earliest spike initiation and the earliest maturity), three equal splits of Nitrogen at planting, 30 days after planting and 50 days after planting was found best. However, if farmers want to produce a late crop, the second and third dose of Nitrogen should be applied at 50 days after planting and 70 days after planting. This means the flowers mature and open late if Nitrogen is applied late in the crop period.

Regarding the cut flower characters, three equal parts of Nitrogen applied at, planting, 50 days after planting and 70 days after planting produces the most superior flowers in terms of longer, broader and heaviest spike. These spikes fetch maximum price in the market due to its attractive size and development. For commercial production of Tuberose for

local market, this management practice is best.

If someone wants to produce flowers with longer vase life, three equal splits of Nitrogen, at planting, 30 days after planting and 50 days after planting should be applied. The flower characters are slightly inferior but have very long vase life. In international markets, vase-life is also very important parameter and if someone wants to produce Tuberose for international markets, this management practice is appropriate.

In conclusion, three equal splits of 200 kg nitrogen; 33% at planting, 33% at 50 DAP and 33% at 70 DAP, can be considered appropriate for the national market. For the international market, where vase life is also a very important parameter, three equal splits of nitrogen 200kg; 33% at planting, 33% at 30 DAP and 33% at 50 DAP, is appropriate.

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## Weed infestation in containers, inside and outside green house grown flowers and their control practices

### Introduction

The growth and vigor of nursery flower stock can be reduced when weeds are allowed to grow in the container for any length of time. Slow-growing flower crops that do not cover the container quickly are particularly vulnerable to weed infestations. Managing weeds in container nurseries involves eliminating weeds and their seed and preventing the introduction of new weed seeds into the flower nursery. Although soil mixes are usually weed-free at planting, weed seeds can be blown in from other areas or may be brought in with the liner (transplant). Frequently, pre-emergent herbicides are applied to the potting mix surface in gallon or larger containers to prevent establishment of these weed seeds. Mulches may also be applied after canning or after weeding. After container plants are established, pre-emergent herbicides are applied one or more times per year for weed management. Hand-pulling of weeds that have escaped the herbicide treatments is necessary to prevent them from setting seed and reestablishing a weed population (Cross and Skrotch, 1992).

Most weeds in a container flower nursery come from contaminated liners; plants growing in, between, or near pots; potting mix (if it is stored uncovered where weed seed can blow in); irrigation water; vehicles; equipment; movement of soil; birds; and windborne seeds. Transplants produced in the nursery or purchased

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Figure 1 Container grown flower

from others should be free of weeds and weed seed (Penny and Neal, 2000). Move gallon-size plants into larger, weed-free containers. Use of pre-emergent herbicides in and between the containers can reduce contamination or reinfestation but care must be taken that herbicides are not carried in water runoff.

### Different types of weeds in container grown flower plants and with their control practices

Though the success of the container grown flower business depends upon the type of the container but the business can be promoted by controlling the weed infestation. About 70% loss occurs due to weed infestation if care and management practices are not involved on time. All the annual, biennial and perennial flowers

can be easily grown on container. The miniature plant termed as Fbonsai" are also grown on the container for beautifying the environment. In order to inflate the container flower business the following weeds have to be managed on time.

### 1. Bittercress:

Hairy bittercress, lesser-seeded bittercress, popweed is a small winter annual but will germinate almost any time in container-grown ornamental production areas. It grows upright when the seed stalk starts to form and is easy to hand-weed, but as a seedling it is very difficult to remove easily. It produces hundreds of seed per plant, and when the capsule matures it expels the seed some distance from the original plant. Remove this weed before it flowers to reduce seed production and new infestations. Because it is easily missed with weeding, bittercress is almost always present if an herbicide is not used. Herbicides that are effective against bittercress are those that contain oxadiazon, oxyfluorfen, or isoxaben (Norcini, 1998). Sanitation is also important to reduce the spread of this weed. Because the seed of this weed adheres to soil on the outside of the pots, wash pots before reuse or if moving from an infested area. The seeds are also easily carried in irrigation water. Avoid overwatering or allowing water to runoff from an infested area to a clean one.



Figure 2 Bittercress

**2. Common groundsel:** Common groundsel is probably the most difficult weed to control in container nurseries in California. It is a hardy weed that grows rapidly and is tolerant to many pre-emergent herbicides. This weed germinates anytime during the year in container-grown nurseries, whereas in the field it usually germinates in fall and early winter. It grows in an upright manner and has a vigorous root system that makes it difficult to hand-weed. Pre-



Figure 3 Common Groundsel

emergent herbicides suppress the rooting, making the weed easier to pull. Also, because the seedling is smaller after the use of a pre-emergent herbicide, competition with the desirable plant is not very significant. Remove this weed before it flowers, however, because its seeds are easily spread by wind. Pre-emergent herbicide combinations

containing oxyfluorfen or isoxaben have given good control (Norcini *et al.*, 2004).

### 3. Creeping woodsorrel:

Creeping woodsorrel is a perennial plant that grows in a prostrate manner and forms roots along its stems where nodes contact the soil. It is a prolific seed producer. When its seed pods mature, they burst open and forcefully expel seeds, which may land 10 feet or more from the plant. Because the seeds are rough, they adhere to clothing or the surfaces of machinery and are easily dispersed. The primary method of managing creeping woodsorrel is to hand-pull established plants before they set seed, being careful to remove as much of the creeping roots as possible, and to control germinating seeds with mulch or preemergent herbicides such as pendimethalin, oryzalin, oxadiazon, oxyfluorfen, or isoxaben (Case *et al.*, 2005).



Figure 4 Creeping woodsorrel



Figure 5 Creeping woodcorrel

**2.4. Cudweed:** Cudweed is an annual that germinates in fall and grows through the winter and spring. It is a whitish, hairy plant that has small inconspicuous flower heads. Herbicide combinations containing oxyfluorfen have been effective in controlling the seedlings of this weed as they germinate (Case *et al.*, 2005).



Figure 6 Cudweed

**2.5. Liverwort:** Liverworts are nonvascular, primitive plants that reproduce vegetatively and through spores. Their flat leaf-like structure is called a thallus and their root-like structure is a rhizoid.



Figure 7 Liverwort

These plants can form dense colonies in ornamental containers resulting in crop damage and reduced marketability. Pre-emergent herbicides containing flumioxazin, oxyfluorfen, or oxyfluorfen in combination with napropamide, oryzalin, oxadiazon, or pendimethalin provide good control of this weed (Fausey, 2003). These products may not be used on every ornamental species so check the label carefully before application. At this time there are no selective post-emergent herbicides available.

**2.6. Pearlwort:** Pearlwort is a low-growing winter annual that roots on the stems and forms moss like mats in the container. It reproduces by seed. If oxadiazon has been used repeatedly without rotation to other herbicides it becomes a dominant weed in the nursery. A pre-emergent application of oryzalin, pendimethalin, or isoxaben will give control.



Figure 8 Pearlwort

**2.7. Spurge:** Prostrate or spotted, and creeping spurge are low-growing annuals that grow rapidly and quickly produce seed. They are more easily removed when older but by then the seeds have usually been produced and fall off the plant into the container when the weed is removed. Mulching reduces establishment. The pre-emergent herbicides isoxaben, pendimethalin, oryzalin, oxadiazon, and oxyfluorfen will control spurge.



Figure 9 Spurge

**2.8. Willow herb:** There are at least two species of willow herb found in nursery containers, *Epilobium paniculatum* and *E. ciliatum*. Willowherb seeds profusely and the seed blows in the wind. Pre-emergent herbicides that have been effective in controlling germinating seeds include oxadiazon and oxyfluorfen (Myerscough and Whitehead, 1996).



Figure 10 Willow herb

### 3. Weed control inside green house grown flower

It is difficult to control weeds in greenhouses grown flowers because greenhouse-grown plants are generally sensitive to herbicides and weeds are often hard to reach and there are no registered pre-emergent herbicides. Only a few weed species commonly present problems in greenhouses, and they are all closely associated with high moisture and nutrients; they also spread rapidly if they are allowed to become established. The most common weeds in and around greenhouses grown flowers include annual bluegrass, lesser-seeded bitter cress, creeping wood sorrel, pearl wort, common chickweed, moss and liverwort. Others that may be present include cudweed, sow thistle, willow herb, fireweed, cheese weed, and prostrate and spotted spurge. Controlling these weeds inside the greenhouse will also help reduce the reservoir of insects and diseases that are often associated with weeds.



Figure 11 Green house grown flowers

#### 3.1. Liverwort and Mosses: Liverwort and mosses can be found in many greenhouses

where plants are highly irrigated. Their presence is exacerbated when there is high nitrogen in the upper soil surface, such as by top-dressing. These types of plants reproduce vegetatively and by spores and are easily spread throughout a greenhouse. They can compete with the crop for water and nutrients and also create a barrier on the potting media surface that restricts water movement into the container resulting in increased runoff. Decreasing the amount of water applied and avoiding top-dressing, as well as inspecting plants before they come into the greenhouse, can reduce the impact of liverwort and mosses (Fausey, 2003).



Figure 12 mosses



Figure 13 sowthistle



Figure 14 Fire weed



Figure 15 Cheese weed

**3.1.1. Cultural Control:** Sanitation is the best method for weed control. Weeds may be brought into the greenhouse in potting mix or with cuttings, bulbs, or other plant material, or on dirty pots and tools. If weeds do get in, they should never be allowed to flower and seed. This is especially true of creeping woodsorrel (oxalis) and bittercress. Maintain trash cans in the greenhouse for weeds that are pulled during maintenance, so they can be readily removed before flowering. Hand-weed frequently (daily or weekly) so no weeds go to seed. If the floors are concrete, regularly wash or sweep away soil that drops to the floor so that weeds will not establish or seed. When crops are rotated clean weeds out of the greenhouse. Irrigate with water that is free of weed seeds or fungal spores. If using raised or self-contained beds, sterilize

soil before planting by either steaming or solarizing. There are no pre-emergent herbicides currently available for use in greenhouses. Many of these herbicides are quite volatile at greenhouse temperatures and can move and/or accumulate in greenhouses to toxic levels for crop plants. Even though some herbicides may be labeled for use in a crop, it must specifically indicate to be used in greenhouses to be legal and safe.

On the greenhouse floor and under the benches, a post-emergent herbicide treatment can be used to reduce weed populations and to keep the weeds from flowering and seeding. Try to have good drainage and level the gravel or soil under the benches to reduce water collecting in low areas. Wet areas increase the chance of mosses and liverwort infestation. Air movement at the floor level will help dry off the floor and will also reduce the chance of infestations of weeds that favor wet areas. After a crop has been harvested, remove any weeds to keep them from seeding so new seeds will not be added to the seed bank in the soil.

#### 4. Weed control outside green house

Control weeds outside the greenhouse to help prevent movement of their seeds into the greenhouse. Weed control in the area around the greenhouse will also reduce the chances that insect and disease pests that may live and reproduce on weeds will move into the greenhouse and attack our flowers. If insects such as aphids, thrips, leafhoppers, whiteflies, or lygus bugs are abundant on the weeds outside the greenhouse, it may be desirable to control them before the weeds are removed, or these insects may move into the greenhouse when the weed host dies.

Weeds outside the greenhouse can be controlled by mowing or cultivation where feasible and with herbicides. Care must be used when applying an herbicide so that it does not get in the greenhouse by drift or

runoff. Pre-emergent herbicides can be used if the soil slopes away from the greenhouse so no water or soil that may contain an herbicide gets into the greenhouse. Vents in the greenhouse and FANs should be closed or shut off while herbicide applications are being made so that the herbicide will not be drawn into the greenhouse. Also volatile herbicides (such as oxyfluorfen) should not be used around the outside of a greenhouse.

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## Introduction to the revolutionary Plastic Mulches

Mulching is an agricultural cropping technique that involves placing organic or synthetic materials on the soil around plants to provide a more favorable environment for growth and production.

Plastic mulches have been used by commercial growers since the early 1960s, with black and clear plastics being the most popular. Tomatoes, peppers, eggplants, vine crops and okra generally respond well to these plastics. Plastic mulches normally are used in conjunction with drip irrigation to maintain optimum soil moisture and for improved stand establishment.

### Advantages of Plastic Mulch

#### 1. Earlier crops.

Plastic mulch raises the soil temperature in the planting bed which promotes faster crop development and earlier yields. Black plastic mulch with perfect contact with soil can result in 2 to 7 days earlier harvest while Al-OR sun selector mulch can result in a 10-14 day earlier harvest.

#### 2. Moisture conservation:

Water loss due to evaporation is reduced under plastic mulch. As a result, more uniform soil moisture is maintained and irrigation frequency may be reduced. Mulching is *not* a substitute for irrigation. One of the biggest mistakes made by growers who use mulches for the first time, in a greenhouse or outdoor in the open field, is that they often do not take into consideration that they will need less water. If they keep on following the

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usual pattern of irrigation and fertigation as if there were no mulch, they will find the plants standing in puddles after one or two irrigations and the plants will be stunted or worse than that.

The readjustment to the new regime is performed best with the aid of tensiometers which measure the negative pressure buildup in the soil as the plants consume more and more of the irrigation soil water. Otherwise an experienced farmer can make an intelligent estimate of the amount of irrigation reduction he needs by trying a new regime and feeling the soil with his fingers.

#### 3. Weed control.

Since black plastic mulch and other colored mulches prevents light from reaching the soil, growth of annual and most perennial weeds can be prevented. Weeds generally cannot survive under the mulch. Since there is no weeds in and around the target plant all the nutrients applied by fertigation is available for the main plant. Hence the growth of the plant is better.

#### 4. Improved quality.

Plastic mulches help prevent fruit crops like strawberry from touching the soil. This reduces the incidence of fruit rots and keeps fruit cleaner.

### **5. Reduced soil compaction and root pruning.**

Better weed control results in less cultivation and less root pruning. Undisturbed beds also remain more friable with less compaction. Weeds between beds can be controlled with directed herbicides or by mechanical means.

### **6. Reduction in fertilizer losses.**

Flood and furrow irrigation techniques tend to leach nitrogen and other water soluble nutrients below the root zone. Since plastic mulch techniques generally include drip irrigation, nutrient loss is kept to a minimum. Nutrients can be injected into the drip system and accurately delivered to the root zone as needed.

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### **7. Insect control.**

In some cases, reflective silver/Black plastic mulches help repel aphids and other insects that damage plants and are vectors of viral diseases. Yellow/Brown mulch can help in reducing the white fly attack during the early stage of planting.



*Pic -1 Yellow Mulch in Chilli Crop*

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### **8. Increased yield:**

Production under mulch is higher due the advantages mentioned above.



*Pic-2 , Use of Mulch in Strawberry*

## Types of Plastic Mulch

Most commercial plastic mulches are made of either linear, low-density polyethylene or high-density polyethylene. High-density polyethylene is lighter and stronger than the same thickness of low-density polyethylene. Most plastic mulches for vegetable cultivation vary in thickness from 15 Microns ( 1 Microns = 1000<sup>th</sup> part of a millimeter) to 30 Microns and it may be smooth or embossed. Even at very low thicknesses this plastic does not degrade for 9-12 months in field conditions. Plastic mulches are mainly of two types embossed and none embossed.

The pattern on **embossed plastics** helps reduce contraction and expansion of the mulch. It is more resistant to wind fatigue and cracking. Embossed mulch also provides a better contact between the soils and plastic hence the transfer of incident solar energy to the soil is better in case of embossed mulch. Plastic comes in rolls 1000 to 1500 mtrs long (depending on the thickness) and are 3 to 6.8 feet wide.

## Coloured Mulch

### What Does Colored Mulch Do?

Mulch's color affects the temperatures below and above the mulch through the absorption, transmission and reflection of solar energy. This affects the micro environment surrounding the plants. The degree of contact (thermal contact resistance) between the mulch and the soil also affects soil warming.

Plants have been found to be most sensitive to blue, red and far red (near infrared). The reason we see green is because that is the wavelength of light the plant is throwing away. By manipulating these colors (wavelengths), different

growth patterns can be enhanced or retarded. There have been tests on mulches of red, orange, yellow, blue, green, white, aluminum, black, and clear on peppers, cotton, soybeans, southern peas, turnips, potatoes, and tomatoes.

Colored mulch mimics the reflective patterns of the green leaves. The plant will sense the increased ratio of far-red to red light as though it is reflected from the nearby plants, when in fact it is just the colored mulch. The colored mulch "tricks" the plant into putting more energy into shoots to outgrow other plants. Some colored mulch even "tricks" the plant into producing more and better tasting fruit. Crops seem to have "preferred colors"; Red colored mulch reflects wavelengths of light that enhance the top growth of tomatoes increasing harvest by 10% to 15% over black. Cucumber with a red mulch had increased yields of 18%. Silver aided peppers with increased yields of 22%. Squashes produced 14% more with blue or red. Pale blue or white has been found to enhance root growth and increased the production of potatoes by 15%. Japanese research on carnations with reflective mulch gave a 33% to 107% increase of flowers cut.

### Black Mulch

Black plastic mulch is the most popular color used in commercial vegetable production, especially for weed control. As a blackbody absorber, this plastic absorbs most incident solar radiation, including visible, infrared and ultraviolet light. Much of the thermal energy, however, is lost to the atmosphere through convection and re-radiation. Transferring of thermal energy to the soil can be optimized by maximizing mulch contact with the soil. Soil temperatures under black plastic during the daytime can be as much as 5°F

higher at a 2-inch depth and 3°F higher at a 4-inch depth than bare soil at the same depths.

### Clear Mulch

Soil temperatures during the daytime under clear plastic can reach 8-14°F higher at the 2-inch depth and 6-14°F higher at the 4-inch depth than bare soil at the same depths due to a greater (85 to 95%) solar radiation transmittance. Clear plastic absorbs very little solar radiation. Water droplets that condense on the underside of clear plastic allow solar light (short-wave radiation) in, but block outgoing, long-wave infrared radiation (heat). This heat normally is lost to the atmosphere from bare soil. Incoming solar radiation, however, makes weeds a major problem under clear plastic unless controlled with a herbicide or fumigant.



*Pic-3 Use of Clear Mulch in Ground Nut*

Solarizing or disinfecting of the soil has been used in some areas to reduce soilborne diseases and some weeds. To achieve sufficiently high temperatures for solarization, the soil must remain covered for several weeks during the hot part of the summer. Good soil moisture will improve thermal conduction of heat into the soil profile

### White and black.

Co-extruded white on black plastic mulch helps cool the soil (white) while controlling weeds (black). **This is a bi-colour mulch where in white side of the mulch is facing outside.** Light is reflected back into the atmosphere or the plant canopy from a white side of the plastic mulch, resulting in slightly cooler (-2°F at 1-inch depth) soil temperatures. White plastic mulches can be used to establish crops in the summer, when a reduced soil temperature might be beneficial. The light reflected back into the plant canopy with white mulches also can be helpful for some greenhouse crops that have limited light.

### Silver Black

Reflective silver or aluminum mulches also give cooler soil temperatures. They tend to

repel aphids, which can serve as vectors for various viral diseases.

### **Red/ Brown.**

Red plastic mulch has been shown to increase tomato yields and quality in some trials and reduce the severity of early blight in others. It also has been shown to increase yields of honeydews, muskmelons and zucchini. In addition, it has been shown to significantly increase soil temperatures.

Tomatoes that were grown over red plastic had larger shoots and smaller roots than plants grown over other colored plastic such as white or black. Since the plastic keeps the soil moist and protected,

a slightly smaller root would not harm the plant. For tomatoes, using the red colored mulch gave a 20% increase in the first harvest of tomatoes. This is important to farmers because the first fruit of the season can bring in the most money. For all crops, the key is the amount of far-red light that is reflected. In plastic mulch plots, the plant senses an increase of far-red light and will put more energy into the shoot and less into the root. Therefore, if the fruit is produced in the shoot, it will usually be larger.

### **Other colors.**

Yellow, orange, blue and gray plastic mulches also have been evaluated. The

different radiations patterns that are reflected back into the canopies of various crops from these mulches affect plant growth and development in different ways. Some colors like yellow attract certain insects like green pea aphids and cucumber beetles. Such mulches might be used in a field to grow "trap crops" to pull insects away from other crops. Blue-colored mulches have been shown to increase zucchini and honeydew yields. More research needs to be conducted to determine the effects of these colors on plant growth, yields, earliness and pest resistance.



*Pic -3 Mulching in Egg Plant.*

### **Wavelength-selective mulches AI-OR Brown/Green.**

These mulches selectively absorb photo-synthetically active radiation (PAR), while transmitting solar infrared radiation. Also called infrared-transmitting (IRT) mulches, they help control weeds and exhibit improved soil-warming characteristics, although generally not as well as clear plastic but much more than black mulch. Colors range from green to brown.

It is obvious that mulching can do wonders in modern agriculture and this is a tool for the 2<sup>nd</sup> green revolution into India.

## Two Decades of Floriculture journey in Nepal

### Introduction:

Floriculture in Nepal began some seven decades ago but formal floriculture business began only in the early nineties of the last century. The formation of Floriculture Association Nepal (FAN) in 1992 resulted in more organized business, data recording, introduction and multi location trial of new crops, setting up wholesale outlet of cut flowers and formation of floriculture cooperative. Recently, FAN was successful in getting the government to approve Floriculture Policy. The private sector is looking forward for the positive changes this policy shall bring to propel significant

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growth in the industry. In this juncture it is important to look back at what different government agencies have done towards development of floriculture in Nepal.

### Floriculture in Nepal at a glance:

The status of floriculture in Nepal is very encouraging. The industry is steadily growing over the years and in 2012 the share of different products of floriculture was as shown below (Table 1). The total annual turnover reached new height of Rs. 105.32 crores.

Table 1: Floriculture Industry Data: overall 2011-12

S/No	Description	Amount (Rs in crores)
1	Seasonal Flowers and Seeds	16.56
2	Ornamental Plants	32.0
3	Cut flowers and foliage	16.0
4	Landscaping and gardening	12.0
5	Loose Flowers	4.5
6	Input Supplies (Silpouline, Materials and Equipments)	7.5
7	Others (carpet grass, bulbs, rhizomes, tuber, tissue culture plantlets etc)	5.80
8	EXPORT	10.96
9	TOTAL	105.32
10	IMPORT	4.0

Source: FAN, 2013

The growth of floriculture sector in last two decades has been good. It began with annual turnover of Rs. 1.8 crores in 1994 to Rs. 105.32 crores in 2012 (Table 2). However, the growth of different product and services of floriculture is not similar. There are some products that are growing at a much faster rate than others. The faster growing products

may result into many new opportunities. The products that have made tremendous growth are Seasonal flowers and seeds, ornamental plants, cut flowers and foliages, landscaping and gardening. The products such as loose flowers have also grown over years but not at the scale as others. The new in-put product such as Silpouline, materials and equipment is growing very steadily. The export is also increasing steadily whereas the import has been slowed down. The support of the government should be in those areas that is already bearing positive results. The role of research and extension agencies of the government can work closely with private sector a so as to improve product and make it more competitive.

**Table 2: Growth of different products of floriculture (Rs in crores)**

S/No	Description	1993/94 (crores)	2005/06 (crores)	2008/09 (crores)	2011/12 (crores)
1	Seasonal Flowers and Seeds	0.30	2.5	6.0	16.56
2	Ornamental Plants	0.26	10.0	16.0	32.0
3	Cut flowers and foliage	0.22	2.0	3.5	16.0
4	Landscaping and gardening		2.5	10.0	12.0
5	Loose Flowers	0.32	2.0	3.0	4.5
6	Input Supplies (Silpouline, Materials and Equipments)		2.0	3.0	7.5
7	Others (carpet grass, bulbs, rhizomes, tuber, tissue culture plantlets etc		2.0	5.0	5.80
8	EXPORT			6.0	10.96
9	TOTAL	1.8 (1.1 in ktm valley)	23.0	56.0	105.32
10	IMPORT			3.5	4.0

### Industry:

Floriculture in Nepal is led by Floriculture Association Nepal (FAN), a commodity association of Federation of Nepalese Chambers of Commerce and Industry (FNCCI). This is the representative of the industry and should be given full credit for the development of floriculture in Nepal. In the initial years, Agro Enterprises Center/FNCCI supported FAN with financial support from United States Agency for International Development (USAID). In last few years, FAN is working more closely with Ministry of Agriculture Development and finally with efforts for several years Floriculture Policy became a reality in 2013. This Policy shall be the guiding factor for development of floriculture

industry in Nepal. This Policy has clearly spelt the role of all stakeholders; private sector, extension and research agencies of government. FAN had a lonely journey so far but with the government approving Floriculture Policy, the private sector is very excited and hope the journey shall be more interesting and fruitful. The industry realistically needs support from government to graduate to the next level and the coming of the policy at this critical juncture is a clear indication that the government is totally committed for floriculture development in Nepal

#### **Extension Agency:**

The department of agriculture (DOA), Harihar Bhawan, Lalitpur is the government agency responsible for technology dissemination to farmers. The DOA's Directorate of Fruits, Kirtipur, Kathmandu serves as the link between DOA and Floriculture Development Center (FDC) located at Godavari, Lalitpur. Besides, other DOA units such as Agribusiness Division or District Agriculture Development Office (DADO) also contribute towards floriculture development.

#### **a. Floriculture Development Center:**

The government's frontal agency for floriculture development is FDC. This was established in 2006 and is responsible for training farmers and also government staff. It also gives technical support to DADOs floriculture programs as and when required in addition to maintaining demonstration plots and conducting flower trials.

**b. Agribusiness Promotion Program:** This program has been supporting FAN for organizing floriculture expo annually in Kathmandu since 2006. In addition it also supports FAN to organize annual Chrysanthemum and Poinsettia shows. In 2007, it also published an extension booklet on Business plan for rose cut flower production.

#### **c. District Agriculture Development Office:**

Although, flowers and ornamental plants are commercially produced in 36 districts yet many districts do not have any program for flower farmers. Recently, some urban districts are incorporating floriculture in their annual district program. This fiscal year floriculture program is incorporated in four districts of central Nepal (Kathmandu, Bhaktapur, Kavare and Chitwan).

In addition to government agencies, several NGOs/INGOS were also involved in dissemination of floriculture technology in the community.

#### **Research Agency:**

The Horticulture Research Division (HRD) of Nepal Agriculture Research Council (NARC) has been conducting floriculture research since late 1990s. Research is mainly in production technology of Gladiolus, Carnation, Marigold and Cymbidium. Recently, Agriculture Research Station (ARS), Dailekh is conducting breeding research in Gladiolus. The number of research as well as funding is very low for floriculture.

Prior to 2006, Department of Plant Resources did several researches in floricultural crops. Research was mainly in micro propagation of several flowers such as orchids, carnation, rose, gladiolus etc.

### **Education Agency:**

The research of floriculture crops particularly production technology development began in Nepal from Institute of Agriculture and Animal Science (IAAS), Rampur during early 1990s. Research has been conducted in several flower crops such as Orchids, Gladiolus, Rose, Gerbera, Tuberosa, Marigold and Carnation. This campus has become campus of Faculty of Agriculture, Agriculture and Forestry University, Rampur campus. In addition to this campus there are several agriculture colleges where floriculture research is yet to begin. Some of the agriculture colleges of Nepal are as follows:

Paklihawa Campus, Tribhuvan University

Lamjung Campus, Tribhuvan University

Agriculture College, Baitadi, Tribhuvan University

Agriculture College, Dang, Tribhuvan University

Himalayan College of Agriculture Science and Technology, Kathmandu, Prubaanchal University

Nepal PolyTech, Bharatpur, Purbanchal University)

Mahindra Ratna Campus, Ilam, Tribhuvan University

In addition to above, Junior Technical Assistant (JTA) and Junior Technician (JT) courses in Horticulture are conducted in several Technical Schools across the country

### **Way forward:**

The Floriculture Policy has clearly spelled the role of different stakeholders in this sector. I think effective implementation of this policy shall largely address the current communication gaps and hopefully make the system more effective. In some cases, the policy has to be more open so as to include larger participation. For example in case of research, while the policy states NARC and Agriculture and Forestry University, it should also be open to other agriculture colleges and universities so that floriculture research gets wider coverage.

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# अन्तर्राष्ट्रिय पुष्प बजारमा FAN को पाइला

कुमार कसजू श्रेष्ठ

उपाध्यक्ष, फ्लोरिकल्चर एशोसिएसन नेपाल

पुष्प व्यवसायको व्यावसायिक इतिहास त्यति धेरै लामो छैन तापनि परम्परागत रूपमा पुष्पको प्रयोग आदिम कालदेखि नै भइ रहेको पाइन्छ। देवी देवताको मठमन्दिरमा चढाउने देखि पशुपंक्षीको पूजासम्ममा फूलको प्रयोग भएको पाइन्छ। प्रचुर सम्भावना बोकेको पुष्प खेतीलाई व्यावसायीकरण गर्ने सुरुवात फ्लोरिकल्चर एशोसिएसन नेपाल गठन भएपछि मात्र भएको देखिन्छ। यस व्यवसायको उज्ज्वल भविष्य देखेर नै हाम्रा अग्रजहरूले सङ्गठित भएर अगाडी बढेको हुनु पर्दछ।

हामी प्राकृतिक स्रोत साधनले सम्पन्न छौं। हाम्रो उन्नति प्रकृति प्रदत्त सम्पदाको अधिकतम उपयोगबाट उत्पादन बढाउनु र ती उत्पादनलाई राष्ट्रिय तथा अन्तर्राष्ट्रिय बजारमा बिस्तार गरेर मात्र सम्भव छ। हाम्रो प्रकृति र प्राकृतिक सम्पदाको गीत गाएर मात्र उन्नति र प्रगतीको कल्पना गर्न सकिँदैन। हामीसँग जे छ त्यसलाई सही सदुपयोग गरेर नै रोजगारीको सिर्जना एवं आर्थिक समुन्नति अनि साभ्ना पहिचान बनाउन सकिन्छ। तसर्थ पुष्प व्यवसायलाई आधुनिक प्रविधिको प्रयोगसँगै उदाउँदो र फस्टाउँदो क्षेत्रको रूपमा अगाडी बढाउन आजको आवश्यकता हो। यसको समुचित विकासको लागि निजी सार्वजनिक साभ्नेदारी सिद्धान्तबाट अगाडी बढ्नु पर्ने हुन्छ। सरकारको तर्फबाट गर्नु पर्ने र निजी क्षेत्रले गर्नु पर्ने कामको पहिचान गरी अगाडी बढ्न सके पुष्प उद्योगको नाटकीय परिवर्तनको फड्को मार्न सक्ने कुरामा दुई मत छैन।

यसै सन्दर्भमा फ्लोरिकल्चर एशोसिएसनले प्रविधिको विकास र हस्तारणको लागि अन्तर्राष्ट्रिय क्षेत्रसँग सम्बन्ध बिस्तार गर्ने कार्य विगत वर्षहरू देखि नै निरन्तरता दिँदै आइ रहेको छ। विभिन्न अन्तर्राष्ट्रिय गतिविधीहरू सञ्चालन गर्दै तथा अन्तर्राष्ट्रिय स्तरमा भएमा गतिविधीहरूमा

सहभागिता जनाउँदै आइ रहेको छ। सन् १९९२ मा फ्लोरिकल्चर एशोसिएसन गठन हुँदैदेखि अन्तर्राष्ट्रिय संघ संस्थाहरूसँग सहकार्य गर्दै अगाडी बढेको FAN का ऐतिहासिक दस्तावेजहरूमा सुरक्षित रहेको छ।

FAN ले सन् २००१ अप्रिल २५-२९ मा प्रथम अन्तर्राष्ट्रिय पुष्प मेला आयोजना गरेको थियो भने उक्त मेलाको अवसरमा नेपालमा पुष्प व्यवसायको सम्भावना नामक १ दिने कार्यशाला गोष्ठी आयोजना गरेको थियो सो कार्यक्रममा नेपालको तर्फबाट डा. देवभक्त शाक्यले कार्यपत्र प्रस्तुत गर्नु भएको थियो भने भारतको तर्फबाट डा. एस.एस.सिन्धु, साइद जाफर नाकभी र डा. दक्षिणी एम. नरेन्द्रले आफ्नो कार्यपत्र प्रस्तुत गर्नु भएको थियो। त्यस यता विभिन्न समयमा पुष्प व्यवसायलाई सहयोग पुग्ने खालका अन्तर्राष्ट्रिय गतिविधी सञ्चालन हुँदै आइ रहेको छ।

फ्लोरिकल्चर एसोसिएसन नेपालको संस्थागत रूपमा नै समन्वय गर्न सजिलोको लागि सन् २००८ मा तत्कालीन महासचिवको अगुवाईमा अन्तर्राष्ट्रिय सम्बन्ध विस्तार विभाग नै गठन गरेको थियो।

त्यसै गरी सन् २००८ जनवरी मा “Young Leadership Development in Agriculture” सम्बन्धी कार्यक्रममा सहभागी हुन नेपालका विभिन्न वस्तुगत उद्योगका १८ जना युवा उद्यमीहरूलाई जापानको टोकुसिमा सहरमा पठाइएकोमा फ्लोरिकल्चर क्षेत्रबाट तत्कालिन कार्यकारिणी समितीका सदस्य दिलीप वादेलाई पठाइएको थियो। सो कार्यक्रम १ महिनासम्म चलेको थियो।

त्यस्तै सन् २००९ मा “एक गाउँ एक



*View of the Everest Floriculture greenhouses situated in the Kathmandu valley. Their appearance is striking as they are the only modern greenhouses in the area.*

Uko Reindersद्वारा लिखित "Growing Roses at the roof of the world" लेखबाट साभार, न्यूजिल्याण्डबाट प्रकाशित Flowertech, Volume 12, 2009

उत्पादन" सम्बन्धी कार्यक्रम अन्तर्गत "Orchid production and marketing" सम्बन्धी तालिम नेपालस्थित जापान सहयोग नियोग जाइकाको सहयोगमा जापानको नागोया शहरमा आयोजना भएकोमा फ्लोरिकल्चर एशोसिएसन नेपालको तर्फबाट अर्किड उत्पादक श्री कविराज राई र भरतकान्त राईलाई सिफारिस गरी सहभागिताको लागि पठाइएको थियो। सो तालिम १८ फेब्रुअरी देखि मार्च १३, २००९ सम्म चलेको थियो।

अन्तर्राष्ट्रिय सम्बन्ध विस्तार गर्ने क्रममा उद्योग वाणिज्य महासङ्घको पहलमा सन् २०१० जनवरी ७ मा चीनको कुन्मिङमा "Floriculture development in Asia" नामक ३ दिने कार्यशाला गोष्ठीमा नेपालको तर्फबाट FAN का तत्कालिन सल्लाहाकार डा. उमेद पुनलाई Country paper प्रस्तुत गर्ने जिम्मेवारी दिइ पठाइएको थियो। उक्त कार्यशालामा नेपाल लगायत, भारत, दक्षिण कोरिया, लाओस, फिलिपिन्स, श्रीलङ्का, थाइल्याण्ड, भियतनाम, बङ्गलादेश र चीनका पुष्प वैज्ञानिकहरूको सहभागिता रहेको थियो।

नेपाल उद्योग वाणिज्य महासङ्घबाट मनोनित भई ३१ अगस्टदेखि २० सेप्टेम्बर २०११ सम्म चीन सरकार वाणिज्य मन्त्रालय,

Fuzhou Agriculture and Forestry University को आयोजनामा चीनको Fuzhou मा भएको विकासोन्मुख राष्ट्रको लागि औद्योगिक सेमिनारमा नेपालबाट FAN का तत्कालिन अध्यक्ष अरुण क्षेत्रीले सहभागिता जनाउनु भएको थियो। सो कार्यशालामा विश्वका २३ वटा मुलुकले सहभागिता जनाएको थियो।

त्यसै गरी सन् २०१२ मार्च ३ मा भारतको नयाँ दिल्लीमा भएको Asian Horti Congres मा नेपालको तर्फबाट श्री लोक नाथ गैरेले नेपालको पुष्प व्यवसायको वर्तमान अवस्था, सम्भावना र चुनौती सम्बन्धमा कार्यपत्र प्रस्तुत गर्नु भएको थियो साथै उक्त कार्यशाला पश्चात नेदरल्याण्डका व्यवसायीहरूसँग रात्रीभोजमा समेत सहभागी भई नेपालमा लगानी विस्तारको सम्भावना सम्बन्धमा छलफल गरेको थियो।

अन्तर्राष्ट्रिय सम्बन्धलाई अझ प्रगाढ बनाउन सन् २०१२ मा दक्षिण कोरियाको राजधानी सोलमा भएको International Horticulture Korea २०१२ मा नेपालबाट FAN का तत्कालिन उपाध्यक्ष र भूतपूर्व उपाध्यक्ष नेपालको उत्पादन सहित सहभागी हुनु भएको थियो। नेपालबाट कार्नेसन, जर्बेरा, ग्लाडिओलस र लिमोनियम प्रदर्शनीको लागि



(सन २०१२ मा दक्षिण कोरियाको अन्तर्राष्ट्रिय मेलामा प्रदर्शित नेपालको स्टल)

लागि उपस्थित रहेको थियो ।

फ्लोरिकल्चर एसोसिएसन नेपालले व्यवसायिक कृषि तथा व्यापार आयोजना मा सन् २०१२ मा पेश भएको “Strengthening National and International Market of Major Cut Flowers of Nepal” नामक परियोजना प्रस्ताव गरे देखिनै अन्तर्राष्ट्रिय मेला गर्नुपर्दछ भन्ने हाम्रो

राखिएको थियो । उक्त प्रदर्शनीमा ४० राष्ट्रका १५० भन्दा बढी फर्म/कम्पनीहरूको सहभागीता रहेको थियो ।

यसैगरि सिक्किमको संसारा गार्डेनमा २०१३ मा आयोजना भएको International Flower show Sikkim मा नेपाल बाट स्वयंम्भु गार्डेन सर्भिस तथा प्लान्ट नर्सरीले ल्याण्डस्केपको स्टलमा सहभागीता जनाएको थियो उक्त अवसरमा FAN कार्यकारिणी समितीका सदस्यहरू पनि अवलोकनका

प्रयास भण्डै २ वर्ष पछाडी आएर सफल भएको छ । यस्ता मेला प्रदर्शनी राष्ट्रिय तथा अन्तर्राष्ट्रिय जमघटले निश्चय नै पुष्प व्यवसायको विकासमा सहयोग पुग्ने छ । आगामी दिनहरूमा पनि यस्तो कार्यक्रमको आयोजना गर्दै विश्व पुष्प बजारमा भएको प्रगतिका साथै नेपाली पुष्प बजारलाई विश्व सामु चिनाउने गहन जिम्मेवारी रहेको छ । अनि व्यवसायको भविष्य पनि यसै सँग जोडिएको छ ।

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## फ्लोरिकल्चर एशोसिएसन नेपाल

### को आ.व.२०६५/७० को वार्षिक प्रतिवेदन र आ.व. २०७०/७१ को नीति तथा कार्यक्रम

#### १. पुष्प व्यवसायको बर्तमान स्थिति

नेपालमा सन् १९५० बाट सामान्य स्तरमा सुरु भएको पुष्प व्यवसाय आ.व. २०६९/७० सम्म आई पुग्दा हाल ३६ जिल्लामा लगभग ६३५ पुष्प फर्म/नर्सरीहरू बिस्तार भईसकेको छ। लगभग १२० हेक्टर क्षेत्रफलमा पुष्प व्यवसाय भईरहेको र ५ हजार प्रत्यक्ष रोजगारीमा सम्मिलित माथि २० हजार आश्रित र १५ हजार अप्रत्यक्ष रोजगारी गरि ४०,००० भन्दा बढि व्यक्ति प्रत्यक्ष तथा अप्रत्यक्ष रूपमा आश्रित र रोजगारी उपलब्ध गराई रहेको यस व्यवसायले आ.व. २०६९/७० मा सिजनल फूल बिरुवा तर्फ रु १६.५६ करोड, आलंकारिक वोट बिरुवा तर्फ रु ३२ करोड, बल्बहरू र राइजम तर्फ रु ५.८० करोड, कट फ्लोअर्स तर्फ रु १६ करोड, ल्याण्ड स्केप तथा गार्डेनिङ. तर्फ रु १२ करोड, सामग्री आपूर्ती (Input Supply) तर्फ रु ५.८० करोड, आयात तर्फ रु ३ करोड र निर्यात तर्फ १०.९६ करोड गरि जम्मा १०५.३२ करोड भन्दा बढिको कारोबार गर्न सफल भएको छ। शहरीकरणको विकाश तथा विस्तार सँग सँगै पुष्प व्यवसायको केन्द्र काठमाडौंमात्र नभएर पोखरा, नारायणघाट, हेटौंडा, विराटनगर, धरान, धनगढी लगायतका सहरहरूमा फैलदो स्थितिमा छ। साथै हाल आएर भारत, चीन, खाडी मुलुकहरू, अमेरिका, जापान तथा युरोपियन देशहरूमा पुष्पजन्य वस्तुहरू निर्यात हुन थालेको छ। समग्रमा भन्नु पर्दा फ्लोरिकल्चरको राष्ट्रिय स्थिति विस्तार तथा विकाश उन्मुख नै देखिन्छ तर तिव्र गति र गुणात्मक रूपमा विकास, विस्तार तथा प्रवर्द्धन फ्लोरिकल्चरको राष्ट्रिय आवश्यकता हो। यहि आवश्यकतालाई दिगो रूपमा परिपूर्ति गर्नका लागि फ्लोरिकल्चर एशोसिएसन नेपाल सदैव अग्रसर रहेको छ।

#### २. कार्यक्रम तथा गतिविधिहरू :

FAN ले आ.व. २०६९/७० मा गरेका गतिविधि र कार्यक्रमहरूको विवरण निम्नानुसार छन्।

##### क) २० औं वार्षिक साधारण सभा

फ्लोरिकल्चर एशोसिएसन नेपालको २० औं वार्षिक

साधारण सभा गत वर्ष २०६९ भाद्र २२ गते शुक्रबारका दिन होटल अर्किड त्रिपुरेश्वरमा सम्पन्न भएको थियो। उद्घाटन सत्रको प्रमुख अतिथीको रूपमा पाल्नु भएका नेपाल उद्योग बाणिज्य महासंघका उपाध्यक्ष श्री प्रदिप जंग पाण्डे ज्यूबाट पानसमा दिप प्रज्वलन गरि समउद्घाटन गरिएको थियो। साथै उक्त सभामा यस संस्थाका भुतपुर्व अध्यक्ष श्री अरुण क्षेत्रीज्यूको गत २०६९ साउन २० गते असामायीक निधन भएकोमा निजको आत्मको चिर शान्तीको कामना सहित १ मिनेट मौन धारण गरि हार्दिक श्रद्धान्जली अर्पण गरिएको थियो। अतिथिको रूपमा PACT का बरिष्ठ अनुगमन तथा मुल्याङ्कन अधिकृत टिका राम शर्मा जिल्ला कृषि विकास कार्यालय, काठमाण्डौका कार्यालय प्रमुख अच्युत प्रसाद ढकाल, कृषि व्यवसाय प्रवर्द्धन कार्यक्रम प्रमुख रोजलिन महर्जन तथा FAN को भुतपुर्व अध्यक्षज्यूहरूको उपस्थिति रहेको थियो।

साथै बन्द सत्रमा FAN महासचिबले प्रस्तुत गर्न भएको FAN ले आ.व २०६८/६९ मा गरेका कार्य प्रगती बिबरण को वार्षिक प्रतिवेदन तथा आ.व.२०६९/७० को नीति तथा कार्यक्रम माथि छलफल तथा अनुमोदन गरिएको थियो। त्यस्तै FAN कोपाध्यक्षले प्रस्तुत गर्न भएको आ.व.२०६८/६९ को आय, व्यय बिबरण, आ.व. २०६९/७० को अनुमानित बजेट र आ. वर्ष २०६९/७० को लागि लेखापरिक्षकको नियुक्ती तथा पारिश्रमिक तोक्ने प्रस्ताव माथि छलफल तथा अनुमोदन गरि सम्पन्न भएको थियो।

सोहि २० औं वार्षिक साधारण सभाले आ.व.२०६९/७० देखि २०७१/७२ सम्म तीन वर्षे कार्यकालका लागि FAN को कार्यकारिणी समितिको चयन निर्वाचनद्वारा सम्पन्न गरेको थियो। FAN को अध्यक्ष पदमा श्री लोक नाथ गैरेज्यू निर्बिरोध निर्वाचित हुनु भएको थियो भने उपाध्यक्ष, महासचिब तथा कोषाध्यक्षको पदमा निम्नानुसार प्रतिस्पर्धिको निम्नानुसारका मत प्राप्त गरि बढि मत प्राप्त गर्ने उमेदवारलाई विजयी घोषणा गरिएको भएको थियो।

उपाध्यक्ष पदमा	मत	महासचिव पदमा	मत	कोषाध्यक्ष पदमा	मत
कुमार कसजु श्रेष्ठ	८१	सागर लाल मुल्मी	२९	मीन ब. तामाङ्ग	७६
रामजी प्रसाद तिमल्सिना	५५	दिलिप बादे	१११	शिव खड्का	६४

**२० औं वार्षिक साधारण सभाद्वारा नव निर्वाचित FAN कार्यकारिणी समितिका पदाधिकारीहरू:**

श्री लोक नाथ गैरे	अध्यक्ष	निर्बिरोध निर्वाचित
श्री कुमार कसजु श्रेष्ठ	उपाध्यक्ष	निर्वाचित
श्री दिलिप बादे	महासचिव	निर्वाचित
श्री मीन बहादुर तामाङ्ग	कोषाध्यक्ष	निर्वाचित
श्री राजेश भक्त श्रेष्ठ	सदस्य	निर्बिरोध निर्वाचित
श्री हरि राम श्रेष्ठ	सदस्य	निर्बिरोध निर्वाचित
श्री रुद्र कुमार सुनुवार	सदस्य	निर्बिरोध निर्वाचित
श्री संजिब कार्की	सदस्य	निर्बिरोध निर्वाचित
श्री भोजराज तिमल्सिना	सदस्य	निर्बिरोध निर्वाचित
श्री प्रबिन्द्र महर्जन	सदस्य	मनोनित
श्री सिताराम पन्त	सदस्य	मनोनित

निर्वाचित पदाधिकारीहरूलाई निर्वाचन अधिकृत मणिक रत्न शाक्यज्यूले पद तथा गोपनीयताको सपथ ग्रहण गराउनु भएको थियो । वार्षिक सधारण सभाको म्यान्डेट अनुसार दुई जना का. सदस्य पदमा श्री सिताराम पन्त र श्री प्रबिन्द्र महर्जनलाई मनोनित गरि कार्यभार सुम्पिएको छ ।

**ख) FAN उप समिति र जिल्ला कार्य समिति गठन तथा पुनरगठन**

FAN द्वारा पुष्प व्यवसायको राष्ट्रिय तथा अन्तर्राष्ट्रिय स्तरमा विकास विस्तार तथा प्रवर्द्धनका साथै FAN को आन्तरिक कार्य सम्पादनलाई चुस्त, दुरुस्त, समय सापेक्ष र व्यवस्थित गर्नका लागि निम्नानुसारको उप समिति तथा जिल्ला समितिहरूको गठन गरि जिम्मेवारी बाँडफाँड गरिएको छ ।

**FAN तर्सरी उपसमिती**

संयोजक	: रुद्र कुमार सुनुवार
सह संयोजक	: रामजी कुँवर
सचिव	: विशाल खडका
सदस्य	: रमेश महर्जन
सदस्य	: सिताराम लामिछाने
सदस्य	: राम बहादुर तामाङ्ग
सदस्य	: दुर्गा सापकोटा
सदस्य	: राजाराम सिंह थापा
सदस्य	: केशब राज शर्मा पौडेल

**FAN कट फ्लावर उत्पादक उपसमिती**

संयोजक	: भोजराज तिमिल्सिना
सह संयोजक	: विश्व मनी पोख्रेल
सचिव	: सुशिल खड्का
सदस्य	: ज्ञानेन्द्र थापा
सदस्य	: आत्मराम न्यौपाने
सदस्य	: पाण्डप श्रेष्ठ
सदस्य	: हेम बहादुर सुनुवार

**FAN कट फ्लावर रिटेलर उपसमिती**

संयोजक	: सिताराम पन्त
सह संयोजक	: पदम बहादुर खडका
सचिव	: राजु तामाङ्ग
सदस्य	: श्वेता प्रधान जोशी
सदस्य	: काजिमान तामाङ्ग
सदस्य	: सुर्य घले
सदस्य	: दिपेश भट्टराई
सदस्य	: शेर बाहादुर थापा
सदस्य	: तपन सामन्त

त्यसै गरि चितवान जिल्लाको पुष्प व्यवसायिहरूको भेलाले गत बर्ष निम्नानुसारको ७ सदस्यीय चितवान जिल्ला कार्य समितिको गठन गरेको थियो ।

अध्यक्ष	- प्रकाश पन्त
उपाध्यक्ष	- नारायण शर्मा
सचिव	- दाताराम घिमिरे
कोषाध्यक्ष	- जिवनाथ तिमिल्सिना
सदस्य	- खुसीराम गुरुङ्ग
सदस्य	- तेजेन्द्र सापकोटा
सदस्य	- घन श्याम घिमिरे

**ग) बैठक, भेटघाट, भेला, अन्तरकृया तथा सभा सम्मेलन**

यस अवाधिमा विभिन्न नीति निर्माण तथा कार्यक्रम तय गर्नका लागि प्रत्येक महिनाको पहिलो बुधवार कार्य कारिणी समितिको बैठक बस्ने निर्णय बमोजिम जम्मा १६ पटक कार्यकारिणी समितिको औपचारिक बैठक सम्पन्न गर्नुका साथै अन्य विविध महत्वपूर्ण बिषय बस्तु माथि छलफल तथा परामर्श बैठक सम्पन्न भएका थिए ।

त्यस गरि सम्बन्धित विषयगत पुष्प व्यवसायिहरूका समस्या, गुनासा तथा सुभावा संकलनका लागि कट फ्लावर रिटेलर, नर्सरी तथा कट फ्लावर उत्पादकहरूको छुट्टा छुट्टै भेलाहरूको आयोजनाहरू गरि घनिभुत रूपमा अन्तरकृयाहरू भएका थिए । साथै विभिन्न सरकारी तथा गैर सरकारी निकाय संघ संस्थाद्वारा आयोजना गरिएको विभिन्न सभा सम्मेलन तथा भेटघाट समारोहहरूमा सक्रिय रूपमा सहभागी भई FAN को उपस्थिति देखाउनुको साथै पुष्प व्यवसाय सम्बन्धी आवश्यक लविङ्ग गरिएको थियो ।

**घ) सदस्य संख्या**

यस आ.ब.मा ११६ जना नयाँ सदस्यहरूले प्रवेश गरि यस संस्थाको साधारण सदस्य संख्या आ.ब.२०६९/७० को अन्त सम्ममा जम्मा ४८२ जना पुगेको छ ।

**ङ) मेला तथा प्रदर्शनीको आयोजना :**

FAN ले पुष्प व्यवसायको बिकास बिस्तार तथा व्यवसायिक प्रवर्द्धनका लागि २०५१ सालबाट निरन्तर रूपमा पुष्प व्यापार मेलार प्रदर्शनीको आयोजना गर्दै आएकोमा गत बर्ष पनि निरन्तरता दिईएको थियो । FAN ले हालसम्म १६ वटा राष्ट्रिय स्तरको, १ अन्तर्राष्ट्रिय स्तरको, ३ वटा AEC (कृषि उद्यम केन्द्रले आयोजना गरेको एग्री एक्पो) सँग मिलेर पुष्प प्रदर्शनी सम्पन्न भइसकेको छ भने त्यस्तै नेपाल सरकारका सम्बन्धित बिभाग (बनस्पती बिभाग तथा कृषि बिभाग) सँग मिलेर १५ वटा गोदावरी फूलको प्रदर्शनी, फूलोरिकल्चर सहकारी संस्था लिमिटेडसँग मिलेर २ वटा लालुपाते फूलको प्रदर्शनी तथा ४ वटा क्षेत्रीय स्तरको पुष्प प्रदर्शनी पोखरामा संचालन भईसकेको छ । यसरी पुष्प व्यवसायको व्यवसायीक प्रवर्द्धनका लागि जम्मा ४१ वटा मेला/प्रदर्शनी सम्पन्न भइसकेका छन् । यस संस्थाले यस्तै विभिन्न संघ संस्थाहरूले आयोजना गरेको मेला प्रदर्शनीहरूमा समेत सहभागिता जनाउदै पुष्प व्यवसायको व्यवसायीक प्रवर्द्धनमा महत्वपूर्ण भुमिका निभाउदै आईरहेको छ ।

FAN ले आ.ब २०६९/७० मा गरेको मेला तथा प्रदर्शनीको आयोजना निम्नानुसार रहेका छन् ।

**ड.१) छैटौ गोदावरी फूलको प्रतियोगितात्मक प्रदर्शनी २०६९**

बि.स. २०६४ साल देखि कृषि व्यवसाय प्रबर्द्धन कार्यक्रम/कृषि बिभाग मुख्य आयोजक तथा फ्लोरिकल्चर एशोसिसन नेपाल सह आयोजकको रूपमा रहि संचालन गरिदै आएको गोदावरी फूलको प्रतियोगितात्मक प्रदर्शनी गत बर्ष पनि २०६९ कार्तिक १७ देखि १९ गते सम्म “गोदावरी फूलको बहार, आय आर्जनको आधार” भन्ने मुल नाराका साथ छैटौ राष्ट्रिय गोदावरी पुष्प प्रतियोगितात्मक प्रदर्शनी २०६९ भव्यता र सफलताका साथ जाउलाखेलमा सम्पन्न भएको थियो। नेपालीहरूको महान चाड बडा दशै पछिको मुख्य चाड तिहारमा बढि प्रयोग हुने सयपत्री मखमली र गोदावरी फूलहरूलाई प्रत्यक्ष उपभोक्त माभ पुऱ्याउन पनि मेला/प्रदर्शनीले महत्वपूर्ण भुमिका निर्बाह गर्ने हुदा हरेक बर्ष तिहार पर्व सुरु हुनु केहि दिन अघि मात्र मुख्य गरी गोदावरी फूलको प्रदर्शनी गर्ने गरिएको छ।

पुष्प व्यवसायलाई प्रबर्द्धन गर्ने, प्रतियोगितात्मक भावनाको बिकास गरी गुणस्तरिय फूल बिरुवा उत्पादनमा टेवा पुऱ्याउने, गोदावरी फूलको प्रचार प्रसार गर्ने गर्ने उदेश्य सहित आयोजना गरिएको गोदावरी फूलको प्रतियोगितात्मक प्रदर्शनीमा गोदावरी फूलका चार बिधा ईन्कभ, रिफ्लेक्स, स्पाईडर र मिनियचरमा प्रतिस्पर्धा गराईएको थियो। उक्त प्रतिस्पर्धामा निम्न नर्सरीहरूले प्रथम, द्वतिया, तृतिया तथा सान्त्वना पुरस्कार प्राप्त गर्न सफल भएका छन्।

प्रथम सिजनल नर्सरी, बुढानिलाकण्ठ काठमाण्डौ,  
दोस्रो अरुण नर्सरी, नयाँबानेश्वर, काठमाण्डौ  
तेस्रो सम्भना नर्सरी, सानेपा, ललितपुर  
चौथो सागरमाथा खोटाङ्ग कृषक समुह, ललितपुर

प्रतियोगितामा उत्कृष्ट रिफ्लेक्स तर्फ सिजनल नर्सरी, उत्कृष्ट ईन्कभ तर्फ सागरमाथा खोटाङ्ग कृषक समुह, उत्कृष्ट स्पाईडर तर्फ अरुण नर्सरी र उत्कृष्ट मिनियचर तर्फ सम्भना नर्सरीले पुरस्कार जितेका थिए। उक्त मेलामा काठमाण्डौ उपत्यका भित्रका प्रतियोगितामा ८ वटा नर्सरी, बिक्री बितरणमा २० वटा नर्सरी तथा सुचनामुलक प्रदर्शनीमा ३ वटा संघ संस्थाको सहभागिता रहेको थियो। मेला अर्वाधि भरिमा लगभग २०,९५० भन्दा बढि दर्शकहरूबाट मेला

अवलोकन भएको र करिब १९ लाख सम्मको व्यापारीक कारोबार भएको अनुमान गरिएको थियो।

**ड.२) दोस्रो लालुपाते फूलको प्रतियोगितात्मक प्रदर्शनी २०६९**

बि.स. २०६८ साल देखि फ्लोरिकल्चर सहकारी संस्थाले क्रिसमस पर्वलाई लक्षित गरि सुरु गरेको लालुपाते फूलको प्रदर्शनी तथा व्यापार मेला गत बर्ष दोस्रो पटक फ्लोरिकल्चर एशोसिसन नेपालको आयोजना र फ्लोरिकल्चर सहकारी संस्थाको सह आयोजनामा २०६९ पौष ५-७ गतेसम्म जाउलाखेल फूटवल ग्राउण्ड, ललितपुरमा सम्पन्न भयो। लालुपाते फूलको प्रतियोगितात्मक प्रदर्शनी आयोजना गर्नुको उदेश्य पुष्प व्यवसायीहरूलाई व्यवसाय प्रबर्द्धनमा हौसला प्रदान गर्ने, लालुपाते फूलको जातिय बिकास संगै गुणस्तरिय फूल बिरुवा उत्पादनमा सहयोग पुऱ्याउने, यसको बिकास बिस्तार तथा प्रबर्द्धनमा सघाउ पुऱ्याउनका लागि प्रदर्शनीको आयोजना गर्ने गरिएको थियो। व्यवसायीक कृषि तथा व्यापार आयोजना PACT को आयोजना निर्देशक श्री योगेन्द्र कुमार कार्कीज्यूबाट उक्त मेलाको उद्घाटन गरिएको थियो। साथै मेला उद्घाटन समरोह कार्यक्रमका प्रमुख अतिथी व्यवसायीक कृषि तथा व्यापार आयोजना PACT को आयोजना निर्देशक श्री योगेन्द्र कुमार कार्कीज्यूबाट प्रतिस्पर्धामा सफल हुनु भएका निम्न नर्सरीहरूलाई प्रथम, द्वतिया तथा तृतिया पुरस्कार प्रदान गरेका थिए।

प्रथम :अल ट्रीपिकल प्लान्ट हाउस, काठमाण्डौ  
द्वतिय :खडका नर्सरी, काठमाण्डौ  
तृतिय :शिखा फ्लावर प्लान्ट नर्सरी, काठमाण्डौ

उक्त अवसरमा सहयोगी संघ संस्थाहरूलाई समेत कदर पत्रद्वारा सम्मान समेत गरिएको थियो। उक्त अवसरमा कार्यक्रमका अतिथि, कृषि बिकास मन्त्रालय, कृषि बिभाग, कृषि व्यवसाय प्रबर्द्धन कार्यक्रमका कार्यक्रम प्रमुख रोजलिन महर्जनज्यू, फलफूल बिकास निर्देशनलयका बरिष्ट कार्यक्रम अधिकृत श्री द्रोण काफ्लेज्यू, कार्यक्रमका प्रमुख अतिथी तथा PACT का आयोजना निर्देशक श्री योगेन्द्र कुमार कार्कीज्यू ले आ-आफनो मन्तव्य व्यक्त गर्नु भएको थियो। क्रिसमस पर्वलाई लक्षित गरि गत पौष ५ गते देखि ७ गतेसम्म

जाउलाखेल फूटवल ग्राउण्ड, ललितपुरमा संचालन गरिएको लालुपाते फूलको प्रतियोगितात्मक प्रदर्शनीमा काठमाण्डौ उपत्यका भित्रका १० वटा, बित्री बितरणमा २२ वटा नर्सरी र सुचनामुलक प्रदर्शनीमा १ वटा संघ संस्थाको सहभागिता रहेको थियो ।

मेलामा लालुपाते फूलको बिभिन्न प्रजातीका फूलहरूका साथै अन्य सिजनल फूल, आलंकारिक बोटीबिरुवा, कट फ्लावर, ड्राई फ्लावर, सुनखरी, कम्पोष्ट मल, बिउ बिजन, फूलको गानो, औजार उपकरण, बिषादी, आदीको प्रदर्शनी तथा बित्री कक्ष रहेको थियो । मेलामा नेपाल सरकार, कृषि बिकास मन्त्रालय, व्यवसायीक कृषि तथा व्यापार आयोजनाबाट पुरक अनुदान प्राप्त गरेको पुष्प फर्म तथा नर्सरीहरूद्वारा उत्पादित कट फ्लावर तथा फूल बिरुवाहरूको समेत प्रदर्शनी गरिएको थियो । मेला संचालन अवधि भरि अवलोकन कर्ताहरूको उल्लेख्य उपस्थिती रहेको थियो । प्रदर्शनी अवधि भरिमा लगभग १०५०० भन्दा बढि दर्शकहरूबाट मेला अवलोकन भएको थियो । मेला अवधि करिब १६ लाख सम्मको व्यापारीक कारोबार भएको अनुमान गरिएको थियो ।

### ड.३) क्षेत्रिय पुष्प व्यापार मेलाको आयोजना

जिल्ला जिल्लामा पुष्प व्यवसायको बिकासका लागि केन्द्रबाटै काम कारबाही हुदै आएकोमा यस संस्थाले बिभिन्न जिल्लामा संबन्धित जिल्लाका पुष्प व्यवसायीहरूलाई संगठित गरि पुष्प व्यवसायको प्रबर्द्धन गर्दै आएको छ । काठमाण्डौ पछिको पर्यटकिय जिल्ला तथा शहरको रूपमा परिचित कास्की पोखरामा पुष्प व्यवसायको बजार बिस्तार हुने क्रममा रहेको र यसलाई अभै सशक्त रूपमा बिकास, बिस्तार तथा प्रबर्द्धनका लागि FAN कास्की जिल्ला समितिको स्थापना २०६३ सालमा गरि जिल्ला बाटै क्षेत्रीय स्तरमा पोखरामा पुष्प व्यापार मेलाको आयोजना गर्दै आईरहेको छ । यस अघि गरिएको पुष्प व्यापार मेलाको अपार सफलता सगै व्यवसायिक बिस्तारमा थप सघाउ पुऱ्याउन पोखरामा क्षेत्रीय स्तरको पुष्प व्यापार मेलालाई निरन्तरता दिईएको छ । जसमध्ये गत आ.ब. मा भएका मेला निम्नानुसार छन् ।

### ड.३.१) क्षेत्रिय प्रथम गोदावरी पुष्पको प्रतियोगितात्मक प्रदर्शनी

फूलोरिकल्चर एशोसिएसन नेपाल, कास्की जिल्ला समितिको आयोजनामा २०७० कार्तिक २३-२६ गतेसम्म पोखरामा “क्षेत्रिय प्रथम गोदावरी पुष्पको प्रतियोगितात्मक प्रदर्शनी ” को भव्यता र सफलताका साथ सम्पन्न गरिएको थियो । उक्त मेलामा पश्चिमाञ्चल क्षेत्रका नर्सरी व्यवसायीहरूद्वारा उत्पादित गोदावरी पुष्प बिच प्रतिस्पर्धा गराई निम्न नर्सरीहरूले प्रथम, द्वितीया, तृतीया तथा सान्त्वना पुरस्कार प्राप्त गर्न सफल भएका छन् ।

### पुरस्कृत नर्सरीहरू

प्रथम : गार्डेन नर्सरी  
द्वितीय : सृजना नर्सरी  
तृतीय : हिमालयन नर्सरी  
सान्त्वना पुष्पाञ्जली फ्लावर नर्सरी

### ड.३.२) चौथो पश्चिमाञ्चल क्षेत्रिय पुष्प व्यापार मेला २०६९

“पोखराको प्रकृति र सुन्दरतामा शान, पुष्प व्यवसायको प्रबर्द्धनमा वातावरणीय पहिचान” भन्ने मुख्य नाराका साथ फूलोरिकल्चर एशोसिएसन नेपाल तथा व्यवसायीक कृषि तथा व्यापार आयोजना (PACT) को सहयोगमा फूलोरिकल्चर एशोसिएसन नेपाल, कास्की जिल्ला समितिको आयोजनामा २०६९ फागुन २२-२५ गतेसम्म पोखरामा “चौथो पश्चिमाञ्चल क्षेत्रिय पुष्प व्यापार मेला” को भव्यता र सफलताका साथ सम्पन्न गरिएको थियो । १९ वटा नर्सरी व्यवसायीहरूले भाग लिएको उक्त मेलामा पश्चिमाञ्चल क्षेत्रका नर्सरी व्यवसायीहरूद्वारा उत्पादित फूल बिरुवाहरू र ल्याण्डस्केपिङ्ग बिच प्रतिस्पर्धा गराई प्रथम हुने निम्न नर्सरीहरूलाई मेला उद्घाटन अवसरमा शिल्ड तथा प्रमाण-पत्रद्वारा पुरस्कृत गरिएको थियो ।

### पुरस्कृत नर्सरीहरू

१) उत्कृष्ट मौसमी फूल :सृजना नर्सरी  
२) उत्कृष्ट फूलने बिरुवा :सृजना नर्सरी  
३) उत्कृष्ट आलङ्कारिक बिरुवा :सृजना नर्सरी  
४) उत्कृष्ट स्टल सजावट :हिमालयन नर्सरी  
५) उत्कृष्ट ल्याण्डस्केप :बुद्ध नर्सरी

#### ड.४) 16<sup>th</sup> Flora Expo 2013 :

पुष्प व्यवसायको प्रवर्द्धन गर्ने कार्यलाई निरन्तरता दिदै फ्लोरिकल्चर एशोसिएसन नेपालको आयोजनामा “स्वाच्छ वातवरण र आर्थिक सम्बृद्धिका लागि पुष्प व्यवसाय” भन्ने मुख्य नाराको साथ २०६९ चैत्र १५ गतेदेखि १८ गतेसम्म चार दिने १६ औं फ्लोरा एक्सपो २०६९ को भूकृटिमण्डप प्रदर्शनी हल, काठमाडौंमा भव्यता र सफलताका साथ सम्पन्न गरिएको थियो ।

मेलामा व्यवसायिक स्टल ५४ वटा, सूचनामुलक स्टल ५ वटा र फूल बिरुवाको प्रतिभ्रधात्मक प्रदर्शनी स्टल २ वटा गरी जम्मा ६१ वटा प्रदर्शनी कक्ष रहेका थियो । मेलामा मौसमी फूल अलकारिक बोटबिरुवा, कट फ्लावर, ड्रई फ्लावर, सुनाखरी, कम्पोष्ट मल, फूलको गानो, बिउविजन, कृषि औजार, उपकरण, प्याकेजिङको सामग्री, सुक्ष्म तथा थोपा सिंचाई प्रविधि र विषादीका प्रदर्शनी तथा बिक्री कक्ष रहको थियो । उक्त एक्सपोको उद्घाटन नेपाल राष्ट्र बैंकका गभर्नर डा. युवराज खतिवडाज्यूबाट सुसम्पन्न भएको थियो । साथै उक्त एक्सपोमा फूल बिरुवाहरूको बिबिध बिधामा स्वच्छ प्रतिस्पर्धा गराई पुरस्कृत गरिएको थियो । बिबिध बिषयको मुल्याङ्कनका लागि ३ सदस्यीय निर्णायक समितिको गठन गरिएको थियो । उक्त समितिको संयोजकमा जे.बी. तामाङ्ग र मीन बहादुर तामाङ्ग रहनु भएको थियो भने निर्णायकमा श्री कुबेर जंग मल्ल, श्री अनुप राई र श्री अनिल आचार्य रहनुभएको थियो । प्रतिस्पर्धामा प्रथम हुने बिभिन्न नर्सरीहरूलाई कार्यक्रमका प्रमुख अतिथीज्यूद्वारा पुरस्कृत गरिएको थियो ।

#### पुरस्कृत नर्सरीहरू:

उत्कृष्ट मौसमी फूल	- बुद्ध हर्ष नर्सरी
उत्कृष्ट आलंकारिक बिरुवा	- नारायणी नर्सरी
उत्कृष्ट फूलने बिरुवा	- एभरग्रीन नर्सरी
उत्कृष्ट ल्याण्डस्केप	- पिपल नर्सरी
उत्कृष्ट पुष्प सजावट	- कृष्ण फ्लावर सप
उत्कृष्ट स्टल	- बुद्ध हर्ष नर्सरी
कदर पत्र	- श्री आदर्ष नर्सरी, धषुषा,
बि.स.२०३७ स्थापना भएको ।	
सम्मान पत्र - श्री महेन्द्र रत्न बहुमुखी क्याम्पस, ईलाम	

सम्मान पत्र - श्री लक्ष्मी बैंक लिमिटेड, काठमाण्डौ

उत्कृष्ट मौसमी फूल, उत्कृष्ट फूलने बिरुवा, उत्कृष्ट आलंकारिक बिरुवा तर्फ बिजयी नर्सरीलाई सिल्ड तथा प्रमाण पत्रका साथै नर्सरी उप समितिको कोषबाट पाँच पाँच हजार नगदद्वारा पुरस्कृत गरिएको थियो । त्यस्तै उत्कृष्ट स्टल र उत्कृष्ट ल्याण्डस्केप तर्फ बिजयी हुने नर्सरीहरूलाई सिल्ड तथा प्रमाण पत्रका साथै नर्सरी उपसमितिको कोषबाट दश दश हजार र FAN को कोषबाट थप पाँच पाँच हजार नगद सहित पुरस्कृत गरिएको थियो । उत्कृष्ट पुष्प सजावट तर्फका बिजेता कृष्ण फ्लावर सपलाई सिल्ड तथा प्रमाण पत्रका साथै युनाईटेड फ्लोरा प्रा.ली.का तर्फबाट समेत रु.५०००/- नगदद्वारा पुरस्कृत गरिएको थियो । साथै पुष्प सजावट तर्फ सहभागि सबैलाई कट् फ्लावर रिटेलर उप समितिको कोष बाट रु एक एक हजार नगद प्रदान गरिएको थियो । साथै मेलामा सहयोगी संस्थाका रूपमा रहेको संघ संस्थाहरूलाई समेत सोहि अवसरमा कदर तथा सम्मान पत्र प्रदान गरिएको थियो । सोहि अवसरमा FAN र लक्ष्मी बैंक बिच भएको आपसी छलफल तथा सहमती अनुसार FAN को सिफारिसमा पहिलो पटक बिना धितो पुष्प व्यवसायीहरूलाई ऋण प्रबह गरि पुष्प व्यवसायको क्षेत्र बिस्तार गर्ने कार्यमा योगदान पुऱ्याए वापत लक्ष्मी बैंक लिमिटेडलाई प्रशंसा-पत्र द्वारा सम्मान गरिएको थियो । पुष्प व्यवसायको क्षेत्रमा नेपालमा दक्ष जन शक्तिको उत्पादन गर्ने शैक्षिक स्तरको कुनै संस्था बिगतमा नभईरहेको अवस्थामा प्रथम पटक दक्ष जनशक्ति उत्पादन गर्ने गरि श्री महेन्द्र रत्न बहुमुखी क्याम्पस, ईलामले Bachelore in Horticulture & Management अध्ययन शुरु गरि दक्ष जनशक्ति उत्पादन गर्ने गरि दक्ष प्राबिधिज्ञको बिकास गर्ने कार्यको शुरुवात गरे वापत प्रशंसा-पत्रद्वारा सम्मान गरिएको थियो ।

#### च) शोभिनियर तथा क्यालेन्डर प्रकाशन

FAN ले हरेक बर्ष प्रकाशन गर्दै आएको पुष्प विशेषङ्क यस बर्ष पनि १७ औं अङ्कको रूपमा 16<sup>th</sup> Flora Expo 2013 को अवसर पारि फ्लोरिकल्चरसँग सम्बन्धित विभिन्न लेख रचनाहरू संलग्न गरि १००० प्रति पुष्प विशेषङ्क २०१३ प्रकाशन गरि बितरण गरिएको थियो साथै सोहि

अवसरमा नर्सरी उप समितिको सक्रिय पहलमा संस्थाको नाममा वि. सं. २०७० को रीगिन क्यालेन्डर १००० प्रति प्रकाशन गरि वितरण गरिएको थियो ।

### छ) तालिम

आ.ब.२०६९/७० निम्न तालिम सम्पन्न गरिएको छ ।

- १) सेड हाउस व्यवस्थापन तालिम
- २) बगैचा व्यवस्थापन तालिम
- ३) गोदावरी फूलको उत्पादन तथा व्यवस्थापन तालिम

### छ.१) सेड हाउस व्यवस्थापन तालिम

फ्लोरिकल्चर एशोसिएसन नेपालद्वारा आयोजना गरिएको सेड/ग्रीन हाउस व्यवस्थापन तालिम २०७० बैशाख २२ गते देखि २७ गतेसम्म कृषि विभाग, कृषि तालिम निर्देशानलयको हल ललितपुरमा सम्पन्न भएको थियो । तालिममा १७ जना पुष्प व्यवसायीहरूको सहभागिता रहेको थियो । पम नेदरल्याण्ड सिनीयर एक्सपर्टको प्राविधिक सहयोग एवं कृषि विभाग, कृषि तालिम निर्देशानलयको विशेष सहयोगमा नेदरल्याण्डका प्राविधिक एन्टोनियस भन भ्लेटले नेदरल्याण्डमा पुष्प व्यवसायको क्षेत्रमा प्रयोग भएको प्रविधी र बिकासका साथै नेपालका पुष्प व्यवसायीहरूले अपनाउनु पर्ने तरिकाबारे लगायत पुष्प व्यवसायीले अपनाउनु पर्ने व्यवसायीक योजना र कार्यन्वयन एवं सेड हाउस व्यवस्थापनका बिषयमा बैशाख २२ गते देखि २७ गतेसम्ममा काठमाण्डौका बिभिन्न नर्सरी फर्महरूमा स्थलगत निरिक्षण गराई प्रशिक्षण दिनु भएको थियो । ६ दिन सम्म सञ्चालित तालिम बैशाख २७ गते शुक्रबार एक कार्यक्रमको आयोजना गरि सहभागीहरूलाई प्रमाणपत्र एवं प्रशिक्षकलाई नेपाली भण्डा भएको भादगाउले टोपी र पश्मनाको दोसल्ला ओडाई समापन गरिएको थियो । समापन कार्यक्रममा मन्तब्य राख्दै प्रशिक्षक एन्टोनिय भान भ्लेटल प्रशिक्षार्थीहरूलाई प्रशिक्षणका क्रममा सिकेका कुरा व्यवहारमा उतार्न अनुरोध गर्नु भएको थियो साथै सोको परिणाम हेर्न छिट्टै पुःन नेपाल आउने समेत बताउनु भयो ।

### छ.२) बगैचा व्यवस्थापन तालिम

फ्लोरिकल्चर एशोसिएसन नेपालको प्राविधिक

सहयोग र नारायणहिटी दरवार संग्रहलयको व्यवस्थापनमा मिति २०७० आषाढ ४ देखि ७ गतेसम्म काठमाण्डौमा बगैचा व्यवस्थापन तालिम सम्पन्न गरियो । नारायणहिटी दरवार संग्रहलयको बगैचा हेरचाह गर्ने मालीहरू तथा संग्रहलयका कर्मचारीहरूसहित ४२ जना सहभागी रहेको थियो । नारायणहिटी दरवार संग्रहलयका गार्डेनरहरूको क्षमता अभिवृद्धिका लागि सो तालिम संचालन गरिएको थियो । प्रशिक्षकहरूमा बगैचा व्यवस्थापन सम्बन्धी श्री कुबेर जंग मल्ला, माटो व्यवस्थापन सम्बन्धी श्री किरण मास्के, रोग किरा व्यवस्थापन सम्बन्धी श्री अनिल आचार्य र मेटिभेसन कक्षा संचालनका लागि श्री शंकर सापकोटाले प्रशिक्षण गराउनु भएको थियो ।

### छ.३) गोदावरी फूलको उत्पादन तथा व्यवस्थापन तालिम

कास्कि पोखराका पुष्प व्यवसायी सदस्यहरूको माग बमोजिम २०७० आषाढ २१ र २२ गते दुई दिने गोदावरी फूलको उत्पादन तथा व्यवस्थापन सम्बन्धी तालिम पोखरामा संचालन गरिएको थियो । तालिम प्रदान गर्न केन्द्रबाट उपाध्यक्ष श्री कुमार कसजु श्रेष्ठ तथा प्रशिक्षकको रूपमा श्री कुबेर जंग मल्ललाई पठाएको थियो । तालिममा कास्की जिल्लाका १९ जना पुष्प व्यवसायीहरूको सहभागिता रहेको थियो ।

### ज) PACT उप-आयोजना संचालन

नेपालमा कट फलावरको राष्ट्रिय तथा अन्तर्राष्ट्रिय बजार प्रवर्द्धन गर्नका लागि PACT को आर्थिक /FAN को आर्थिक प्राविधिक सहयोगमा सावण १, २०६९ बाट संचालनमा आएको छ । प्याकको २६ लाख ७२ हजार र फ्यानको १३ लाख ४९ हजार रूपैयाँ गरि कुल ४० लाख २१ हजार बजेट रहेको छ । २४ महिनासम्म सञ्चालन हुने उपआयोजनाले मुख्यत कट फलावरमा देखिने पोष्ट हार्भेष्ट क्षति न्यूनिकरण, व्यवसायीक कार्नेशन फूलको कास्कि र तनहुमा परिक्षण उत्पादन, कट फलावरको बजार बिकासका लागि काभ्रे, कास्की, बिरगंज र नेपालगंजमा खुद्रा पसल स्थापना, कुलिङ्क च्याम्बरको स्थापना, प्राविधिक सहयोग, अन्तर्राष्ट्रिय पुष्प प्रदर्शनी, क्षेत्रिय पुष्प मेलाको आयोजना, पुस्तिका प्रकासन, कट फलावर फार्मको नियमित अनुगमन र उत्पादक बिच अन्तक्रिया र फूल निर्यातका लागि खाडी मुलुकको संभाव्यता

अध्ययन गर्ने लगायतका योजना समेटिएका छन्। यस उप आयोजना अन्तर्गत यस आ.ब.२०६९/७० मा निम्न कार्यक्रम सम्पन्न भईसकेको छ

- १) सार्वजनिक सुनुवाई कार्यक्रम १ पटक
- २) स्थानिया एफ एम प्रसारण १ पटक
- ३) क्षेत्रिय पुष्प प्रदर्शनीको आयोजना २ वटा
- क) दोस्रो लालुपाते पुष्प प्रतियोगितात्मक प्रदर्शनी २०६९, सम्पन्न (जाउलाखेल, ललितपुरमा मिति २०६९ पौष ५-७)
- ख) चौथो पश्चिमाञ्चल क्षेत्रिया पुष्प प्रदर्शनी तथा व्यापार मेला, सम्पन्न (पोखरामा मिति २०६९ फागुन २५-२९)
- ४) कट फ्लावरको पोष्ट हार्भेष्ट प्याकेजिङ ह्याण्डलिङ अध्ययन
- ५) कट फ्लावर निर्यातको लागि खाडी मुलुकको संभाव्यता अध्ययन
- ६) कट फ्लावर प्याकेजिङ तथा ह्याण्डलिङ सम्बन्धी गभिएको अध्ययन प्रतिवेदनको एक दिने अभिमुखिकरण तालिम सम्पन्न
- ७) २ वटा Cut Flower Handling and Marketing तालिम सम्पन्न
- ८) कार्नेशन फूलको परिक्षण उत्पादन अभिमुखिकरण तालिम सम्पन्न
- ९) १ वटा Flower Shop स्थापना -पोखरा
- १०) हिउदमा कार्नेशन फूलको व्यवसायिक परिक्षण उत्पादन कार्यक्रम सम्पन्न (कास्की र तनहु)
- ११) कोल्ड स्टोर निर्माण कार्य सम्पन्न (ग्लोबल फ्लोरा प्रा.ली., काठमाण्डौ प्लाजा)
- १२) राष्ट्रिय टेलिभिजनबाट प्रसारण सम्बन्धी सम्झौता (मेडिया प्लान प्रा.ली.)

#### झ) फ्लोरिकल्चर कल्याण कोष :

FAN सदस्यहरूको जिवन कालमा भैपरि आउने व्यक्तिगत दुर्घटना तथा रोग व्याधिबाट हुन सक्ने क्षितिलाई आर्थिक रूपमा सहयोग पुऱ्याउने मूल उद्देश्य राखि १९

औ साधारण सभाबाट अनुमोदन भई स्थापना भएको फ्लोरिकल्चर कल्याण कोषमा आ.ब.२०६८/६९ मा २९ जना सदस्य रहेकोमा यस आ.ब. २०६९/७० मा ५४ जना सदस्य थप भई कोषको सदस्य संख्या ८३ जना पुगेको छ। दुर्घटना अथवा कालगतिले जिवन गुमाउने सदस्यहरूका परिवारलाई राहत उपलब्ध गराउने, गम्भिर बिरामी भई लामो समयसम्म अस्पतालमा बस्नु पर्ने सदस्यहरूलाई सहयोग प्रदान गर्ने तथा दुर्घटनाबाट सदस्यहरूलाई पर्ने क्षती, अंगभंगको अवस्थामा उपचार सहयोग गर्ने कार्यहरूको लागि यो कोष खडा गरि संचालनमा रहेको छ। हालसम्म यो कोषमा रु .१,४२,०५२.५५ दाखिला हुनु आएको छ। हाललाई यो कोषको सुविधा उपभोग गर्न इच्छुक सदस्यहरूले अग्रिम रूपमा वार्षिक रु १२००/- जम्मा गर्दै जानु पर्ने व्यवस्था गरिएको छ।

#### ञ) लक्ष्मी बैकसँग सहकार्य

FAN र लक्ष्मी बैक बिच भएको आपसी छलफल तथा सहमती अनुसार FAN को सिफारिसमा पहिलो पटक बिना धितो तीन जना व्यवसायीको सामुहिक जमानीमा प्रति व्यवसायीलाई बढिमा रु.५ लाखसम्म ऋण प्रवाह गरि पुष्प व्यवसायको क्षेत्र बिस्तार गर्ने कार्यको सुरुवात भएको छ। गत आ.व. सम्ममा यस सहकार्य अन्तर्गत ४४ जना पुष्प व्यवसायिहरूले ऋण प्राप्त गरि लाभन्वित भई सकेका छन्।

#### ३. पुष्प प्रबर्द्धन नीति २०६९ पारीत

फ्यानद्वारा २०६४ सालमा मस्यौदा तयार गरी कृषि बिकास मन्त्रालयमा पेश भएको पुष्प नीति परिमार्जित भई पुष्प प्रबर्द्धन नीति २०६९ को रूपमा २०६९ मंसिर २९ गतेको प्रधानमन्त्री तथा मन्त्री परिषदको निर्णयानुसार पारित भई आएको छ। पुष्प व्यवसायको बिकास, बिस्तार र प्रबर्द्धनको लागि ढोका खुलेको छ। पुष्प व्यवसायी तथा लगानी कर्ताहरूका लागि यो नीति सहयोगी हुने छ।

#### ४. अन्तर्राष्ट्रिय सहभागिता

नेपाली फ्लोरिकल्चरको अन्तर्राष्ट्रिय स्तरमा चिनारी दिनुका साथै सम्बन्ध विस्तार गरि अन्तर्राष्ट्रिय अनुभव र अभ्यासबाट थप कुराहरू सिकेर नेपालमा लागु

गर्ने उद्देश्यका साथ FAN को तर्फबाट निम्न अन्तर्राष्ट्रिय सहभागिता रहयो ।

### International Flower Show 2013, Sikkim मा सहभागिता:

Horticulture & Cash crops Development, Government को आयोजनामा समसारा गार्डेन सिक्किम मा भएको छैठौँ अन्तर्राष्ट्रिय पुष्प मेला २०१३ (Febury 23-27, 2013) को अवलोकन गर्न तथा Seminar मा सहभागिता गर्न यस संस्थाका उपाध्यक्ष कुमार कसजु श्रेष्ठ, को नेतृत्वमा ३ सदस्यीय टोली (दिलिप बादे, मीन बहादुर तामाङ्ग र शम्भु आचार्य) सम्मिलित पुष्प व्यवसायीहरू व्यक्तिगत खर्चमा सहभागी हुन पुगेका थिए। उक्त मेलामा नेपालबाट पनि FAN का सदस्य स्वयम्भु गार्डेन सर्भिस एण्ड प्लान्ट नर्सरी सहभागिता रहेको थियो ।

### Flower Market Development का लागि अध्ययन भ्रमण

नेपालमा FAN को अन्तरगत भौतिक संरचना सहितको बृहत पुष्प बजार निर्माण तथा बिकासका लागि छिमेकी मुलुक भारतबाट पाठ लिएर अघि बढनका लागि नयाँ दिल्लीमा अवस्थित भौतिक संरचना सहितको बृहत पुष्प बजार तथा अन्य पुष्प बजारहरूको अवलोकन तथा अध्ययन भ्रमणको सिलसिलामा २०६९ साउन महिनाको अन्त तिर लोक नाथ गैरेज्युको नेतृत्वमा ३ सदस्यीय (दिलिप बादे र मीन बहादुर तामाङ्ग) टोली अध्ययन भ्रमणमा गई Flower Market Concept Note को तयारी गरि PACT मा पेश गरेको थियो ।

### ५. भावी नीति तथा कार्यक्रमहरू ( आ.ब. २०७०/७१ का लागि ) :

आ.ब. २०६७/७१ का लागि तयार पारेको नीति तथा कार्यक्रमहरूको संक्षेपमा विवरण पेश गर्ने अनुमति चाहन्छु ।

१) पुष्पजन्य बस्तुको आयात प्रतिस्थापन तथा निर्यात बृद्धि गर्नका लागि आवश्यक नीतिगत व्यवस्था मिलाउन पहल गर्ने साथै आयात प्रतिस्थापनका लागि पकेट क्षेत्र निर्धारण र सम्भाव्य वाली पहिचान गरि जन चेतना जगाई प्रवर्द्धनका लागि पहल अघि बढाउने ।

- २) फूलोरिकल्चर सहकारी संस्था लिमिटेडसँग समान उद्देश्य प्राप्तिका लागि विशेष रूपमा आर्थिक, सामाजिक, सांस्कृतिक तथा प्राविधिक सहकार्यलाई प्राथमिकताका साथ अघि बढाउने ।
- ३) फूलोरिकल्चरको बिकास, विस्तार तथा प्रवर्द्धनमा दिर्घकालिन टेवा पुयाउन सहयोग गर्ने नीजि तथा सरकारी संघ, संस्था, बैक तथा अन्य निकायहरूसँगको सहकार्यलाई घनिभूत रूपमा अघि बढाउने साथै उक्त निकायहरूमा पुष्पजन्य उत्पादन उपयोग गर्ने वातावरण श्रृजना गर्न पहल अघि बढाउने ।
- ४) भौतिक संरचना सहितको बृहत पुष्प बजार निर्माण तथा बिकासका लागि पहल गर्ने ।
- ५) PACT अन्तरगत उप आयोजना नेपालका प्रमुख कट फ्लावरहरूको राष्ट्रिय तथा अन्तर्राष्ट्रिय स्तरमा बजार सबल बनाउने (Strengthening National and International Market of Major Cut flowers of Nepal) का बाँकी कार्यहरू संचालन गर्ने ।
- ६) फूलोरिकल्चर कल्याण कोषलाई बृद्धि गर्नका लागि आवश्यक थप कार्यक्रम तथा नीतिगत व्यवस्था मिलाउने ।
- ७) पुष्प व्यवसायसँग सम्बन्धित विभिन्न तथ्यांकहरू संकलन गर्ने ।
- ८) पुष्प नीति लागु गराउनका लागि आवश्यक गतिविधि तथा नीतिगत व्यवस्था मिलाइ आवश्यकतानुसार विभिन्न क्रियाकलापहरू संचालन गर्ने ।
- ९) पुष्प मेलाहरूको आयोजना गर्ने, जसमध्ये २०७० कार्तिकमा गोदावरी फूलको मेला, २०७० पुसमा लालुपाते मेला, २०७० चैत्रमा 2<sup>nd</sup> International Flora Expro 2014 प्रमुख रहेका छन, साथै जिल्ला कार्य समितिहरू तथा जिल्ला उद्योग बाणिज्य संघहरूसँग समन्वयन गरि क्षेत्रिय मेला महोत्सवहरूको आयोजना र सहभागिता जनाउने ।
- १०) क्यालेन्डर, शोभिनियर, डाइरेक्टरी तथा अन्य प्रकाशन गर्ने ।
- ११) पुष्प ब्यावसायीलाई आवश्यक विषयगत निम्न,

मध्यम तथा उच्च स्तरिय तालीमहरूको व्यवस्था मिलाउने ।

- १२) नर्सरी ब्यावसायीहरू, कट-प्लावर उत्पादक तथा खुद्रा बिक्रेताहरू, होलसेलरहरू, अर्किड व्यवसायीहरू तथा पुष्प व्यवसायसँग सरोकार वाला सम्बन्धित सबैसँग अन्तरक्रिया तथा सुझाव संकलन गर्ने ।
- १३) आवश्यकतानुसार राष्ट्रिय तथा अन्तर्राष्ट्रिय स्तरमा सम्बन्ध विस्तारका लागि विभिन्न सहभागिता मुलक तथा अवलोकन अध्ययन भ्रमण गर्ने ।
- १४) संघको संगठन विस्तार, विभिन्न समिति तथा उप समितिहरूको क्षमता विकास तथा सशक्तिकरण र सचिवालयको थप ब्यवसायिकरण तथा ब्यवस्थिकरणमा जोड दिदै जाने ।
- १५) सदस्य वृद्धि तथा नविकरण, जिल्ला कार्य समितिहरू गठन, सचिवालयको दैनिक कार्य सम्पादनका लागि आवश्यक कार्य गर्दै जाने ।
- १६) पुष्प व्यवसायीहरूको उधमशिलता तथा व्यावसायिकता विकाशका साथै पुष्प उधोगमा थप लगानिको वातावरण श्रुजना र पुष्पजन्य वस्तुको प्रयोगमा व्यापकताका लागि सम्बन्धित सरोकार वालाहरू सँग आवश्यकतानुसार विविध प्रकारका तालिम, सभा, सेमिनार, सम्मेलन गोष्ठी तथा सचेतना विकास कार्यक्रमहरूको आयोजना गर्ने ।
- १७) पुष्प वाली विमा गराउनका लागि सम्बन्धित निकायसँग समन्वय गर्ने ।
- १८) सम्बन्धित सरोकारवाला सवै सँग घनिभुत रूपमा अन्तरकृया तथा छलफल गरि उपयुक्त समयलाई पुष्प दिवस घोषणा गरि सोको आधिकारिकताका लागि पहल गर्ने ।

#### ६. अवसर, सम्भावना र चुनौतिहरू :

देश भित्र र बाहिर क्रमिक रूपमा बढि रहेको पुष्प व्यवसायको बजार हाम्रो लागि ठुलो अवसरको रूपमा अगाडि आएको छ । पुष्प व्यवसायको क्षेत्रमा हालै नेपाल सरकारबाट पुष्प प्रबर्द्धन नीति २०६९ पारित भई आएकोमा ठुलो अवसरको ढोका खुलेको छ । साथै

नेपाल सरकार तथा अन्य राष्ट्रिय तथा अन्तर्राष्ट्रिय निकायहरूको पुष्प व्यवसाय प्रतिको चासो र सकारात्मक धारणाले पनि यस क्षेत्रमा अथाह अवसर रहेको प्रष्ट हुन्छ । कृषिमा आधारित हाम्रो देश प्राकृतिक सुन्दरता, भौगोलिक विविधता र त्यस भित्रका विशिष्ट पहिचान बोकेका असंख्य फूल बोट बिरुवाहरूले भरिपूर्ण भएकोले गर्दा पूष्प व्यवसायको विकास, विस्तार तथा प्रबर्द्धनको सम्भावना अझ बढी छ । तर यसका लागि सरकारी, सहकारी तथा नीजि साभेदारीको अवधारणालाई अभ्यासमा ल्याई ब्यापक अध्ययन तथा अनुसन्धान गरी अघि बढ्न जरुरी छ । त्यसैगरी विदेशी बजारमा प्रतिष्पर्धा गर्न सकिने खालका फूल बोट बिरुवाहरू हामी सस्तो भन्दा सस्तो मुल्यमा उत्पादन गरी अन्तर्राष्ट्रिय स्तरको मुल्यमा बाह्य बजारमा बिक्री गर्न सकिने प्रचुर सम्भावना यस पुष्प व्यवसायमा रहेको छ । यसबाट देशले पनि प्रत्यक्ष रूपमा आर्थिक फाइदा पाउने छ । हाल उद्योगको रूपमा अगाडी बढिरहेको पुष्प व्यावसायको दिगो संस्थागत विकास, गुणस्तरीय उत्पादन आन्तरिक बजार व्यवस्थापन, आयात प्रतिस्थापन तथा निर्यात प्रबर्द्धन आदिमा सम्बन्धित संघ संस्थाहरूले महत्वपूर्ण भुमिका इमानदारिताका साथ पुरा गर्ने हो भने आगामी दिनहरूमा पूष्प व्यवसायको व्यवसायिकरण र निर्यात प्रबर्द्धनमा गुणात्मक रूपमा फडको मार्ने सकिने प्रशस्त संभावना रहेको छ ।

सरकारी तथा निजि स्तरका वित्तिय संस्थाहरूबाट प्रयाप्त मात्रामा लगानि गर्न नचाहनु, फ्लोरिकल्चरसँग सम्बन्धित प्रबिधी र प्राबिधिज्ञहरूको उपलब्धता सिमित हुनु, अनुसन्धान तथा बिकाशमा सरकारको लगानी नहुनु तथा यस क्षेत्रका लागि अत्यावश्यक भौतिक संरचनाहरूको विकास नहुनु नै हाम्रो सबै भन्दा ठुला चुनौतिहरू रहेका छन । साथै राजनैतिक अस्थिरता, प्राकृतिक प्रतिकुलता, काठमाण्डौंमा पानी र जग्गाको सीमितता तथा दक्ष कामदारहरूको पलायनताको साथै गुणस्तरीय मल, विषादि, औजार तथा विउ विजनहरूको अभाव आदि हाम्रो तत्कालिन चुनौतिहरू रहेका छन । जसलाई हामी सवैले मिलेर क्रमिक रूपमा सामना र समाधान गर्दै जानु पर्ने आवश्यक रहेको छ । यस कार्यमा FAN सदैब कृयाशिल रहिआएको छ ।

.....समाप्त.....



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