

University of Agricultural and Horticultural Sciences, Shivamogga

M. Sc. (Hort.) theses abstracts produced in the

Department of Floriculture & Landscape Architecture

1. Evaluation of Marigold (*Tagetes erecta* L.) Genotypes Under Hill Zone of Karnataka

SHIVAKUMAR

ABSTRACT

A study on evaluation of fifteen African marigold genotypes viz., Pusa Narangi Gainda, Pusa Basanti Gainda, Double Orange, Bhuvana, Kalyan-2, Best of All, Dwarf Yellow, Pusa Narangi Orange, Coimbatore Local Yellow, Coimbatore Local Light Yellow, Darmapuri Local, Nilakkotai Local Yellow, Bangalore Local Dwarf Double, Nilakkotai Local Orange and Coimbatore Local Orange for their growth, yield and xanthophyll content was carried out in Randomized Block Design in the experimental block of Department of Floriculture and Landscape Architecture. College of Horticulture, Mudigere, during the period from September 2013 to February 2014. The genotype Nilakkotai Local Orange recorded maximum plant height (104.20 cm), number of primary and secondary branches per plant (17.73 and 29.27 respectively), number of leaves per plant (392.47) and stem diameter (17.43 mm) whereas minimum plant height (66.80 cm), number of leaves per plant (135.53), stem diameter (9.99 mm) was recorded in the genotype Pusa Narangi Gainda. In case of flower yield and quality attributes such as days taken flower bud initiation (16.53) and days to 50 per cent flowering (22.67) was found early in genotype Dwarf Yellow. The genotype Nilakkotai Local Orange recorded the maximum flowering duration (86.53), number of flower per plant (59.4), flower yield per plant (529.33 g), flower yield (19.60 t/ha), petal meal yield (122 g/kg), flower diameter (8.47), number of petals per flowers (264.07), xanthophyll content (20.19 mg/g petal meal) and shelf life (6.00 days), whereas minimum flowering duration (38.56), number of flower per plant (20.60), flower yield per plant (120.93 g) and petal meal yield (72 g/kg) was recorded in the genotype Dwarf Yellow. Among these marigold genotypes studied, better performance in terms of vegetative growth, flower yield and quality parameters, genotypes Nilakkotai Local Orange, Coimbatore Local orange, Coimbatore Local Yellow were found promising for loose flower production under hill zone condition of Karnataka.

July, 2014

(V. Srinivasa)
Major Advisor

2. Standardization of Drying Techniques in Gerbera for Value Addition

SHIVAYYA MATHAPATI

ABSTRACT

The investigations were carried out on 'Standardization of drying techniques in gerbera for value addition' at Department of Floriculture and Landscape Architecture, College of Horticulture Mudigere, during the year 2013-2014 for best quality of dry gerbera flowers.

Data on drying of gerbera flowers in laboratory condition had significant difference for dry weight, moisture loss, dry diameter, shrinkage of flower and duration of drying. Among the varieties, variety Impireal recorded least in dry weight (1.64 g/flower), shrinkage of flower (9.06 %) and time taken for drying (9.67 days). It also scored maximum values in colour retention (3.35) texture (3.46) shape (3.42) and overall acceptability (3.54). Among the desiccants studied silica gel recorded the least dry weight (1.85 g/flower) and it took minimum time (9.62 days) for drying followed by borax (10.76 days) and sand (11.44 days). Among the positions, position face up found to be the best position for drying of flowers than face down position. Glycerol pre-treated flowers took minimum time (5.21 days) for drying, whereas control treatment took maximum time for drying (8.36 days).

Influence of hot air oven found significant difference in quality parameters. Among the different temperatures and durations studied the flowers dried at 50° C for 55 hours scored least dry weight (1.25 g/flower) and maximum moisture loss (87.20 %). Whereas, flowers dried at 45° C for 45 hours recorded maximum values for colour retention (3.93), texture (4.04), shape (4.01) and overall acceptability (4.12). In an effort made to standardize drying level and time in microwave oven for gerbera variety Impireal, significant difference was noticed for dry weight, moisture loss, dry flower diameter and shrinkage of flowers. Flowers dried at higher level of micro power density recorded least dry weight (1.21 g/flower) and maximum moisture loss (87.70 %). Whereas, the flowers dried at medium level of micro power density at three minutes recorded maximum values for colour retention (4.10), texture (3.70), shape (3.60) and overall acceptability (4.20).

July, 2014

(Hemla Naik)
Major Advisor

3. Studies on Value Addition of Tuberose Flowers by Tinting for Value Addition

SURESH CHOUGALA

ABSTRACT

The present investigation entitled 'studies on value addition of tuberose flowers by tinting' was conducted with a view to adding value in the spikes of tuberose by artificially colouring them with different synthetic food dyes while maintaining its other beneficial virtues, in the research laboratory, Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, University of Agricultural and Horticultural Sciences, Shimoga, during the year 2013-14.

The complete research work was carried out with single experiment with completely randomized design with factorial concept. The tuberose spikes were treated with different food dyes used are tomato red, rose pink, lemon yellow, kesar yellow, apple green and blue with two concentrations (6 and 8 %) and three durations (4, 6 and 8 hrs). The darkest shades of colours were obtained at 8 per cent concentration with 8 hrs durations of food dyes treatments for tuberose spikes. The maximum amount of colour solution absorbed for apple green food dye (2.57 ml/spike). Maximum colour solution absorbed for 8 hour duration (3.23 ml/spike), whereas minimum colour solution absorbed for 4 hour duration (1.20 ml/spike). The maximum vase life was found in control (7.00 days) and minimum vase life recorded for blue (5.94 days). Water uptake of tinted spikes was showed optimum absorption for different food dyes but minimum amount of water absorption found in blue (2.60 ml/spike). Total numbers of florets were maximum dropped in lemon yellow (12.02) and minimum number of florets dropped in blue food dye (4.94). The maximum florets drop was found for 8 hour duration (11.69), whereas minimum found in control (6.00). Mean number of maximum florets were opened in lemon yellow food dye (4.08) and minimum number of florets opened in blue food dye (3.47). The mean maximum fragrance score was found in control (1.45), where as minimum found in blue food dye (1.01). The highest B:C ratio was obtained for lemon yellow food dye (1.91) with concentration of 6 per cent.

July, 2014

(B. Hemla Naik)
Major Advisor

4. Performance of Gerbera (*Gerbera jamesonii* Hook.) Genotypes Under Protected Cultivation

AMREEN TAJ

ABSTRACT

Gerbera is one of the important commercial cut flower crops. It is one among the top ten cut flower of the world flower trade. There is always demand for novel types with high yielding genotypes. Hence, the present study was conducted to identify the suitable gerbera genotypes under. Naturally ventilated polyhouse in hill zone, with respect to yield and quality cut flowers and also to find out the best chemical preservative for enhancing the vase life of gerbera cut flowers in the Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere.

Among the ten genotypes studied there were wide and highly significant variations observed for various growth, floral, cut flower yield and quality parameters. The genotype Naike (38.01) produced maximum number of quality cut flowers and was statistically on par with Kyllian (36.94) and significantly superior over other genotypes. The genotype Amlet produced the longest stalk length, bigger sized flowers were produced by Kyllian and Vilassar and the genotype Elite Produced maximum number of ray florets compare to other genotypes. The vegetative parameters like number of leaves per plant, suckers production and total leaf chlorophyll content was maximum in the genotype Naike, where as plant spread, leaf area and leaf area index were maximum in the genotype Amelie.

The genotype 'Naike' realized maximum net return of 2,39,894 in 560 m² area with a B:C ratio of 2.35 followed by Kyllian (Rs. 2,30,294; 2.25, respectively) and Amlet (Rs.2,20,754; 2.16, respectively) compared to other genotypes studied.

The vase life study was carried out with the genotype 'Naike' which had less lasting ability (5.55 days) in tap water. Among the chemical preservatives (viz., citric acid, cobalt chloride and 8-HQS) tried, citric acid @ 200ppm recorded maximum vase life of gerbera (9.16 days) followed by citric acid @ 150 ppm (8.45 days) and cobalt chloride @ 200 ppm (8.31 days).

July, 2014

(B. Hemla Naik)
Major Advisor

5. Standardization of Drying Techniques in Carnation for Value Addition

ANUROOPA, T.R.

ABSTRACT

Experiments were carried out during the year 2011-12 at College of Horticulture, Mudigere on drying of cut Carnation flowers for obtaining best quality dry flowers. Quality parameters were recorded according to sensory evaluation using five point hedonic scale. Data on shade drying of three varieties (Soto, White Dona, Dona) of Carnation flowers embedded in three desiccants (sand, silica gel, sand + silica gel) in two positions (face up and face down) revealed that embedding the Carnation flowers of var. Soto in silica gel in face up position was best with respect to colour (3.67), shape (3.78) and over all acceptability (3.67), it took less number of days (5.50) for drying. Experiment on glycerol pre-treatment showed improvement in suppleness of dried Carnation flowers of var. Soto.

The flowers treated with 1:5 glycerol to water for 12 hours maintained best in maintaining colour (4.11), texture (4.11), shape (4.11) and over all acceptability (4.00). In the hot air oven, flowers dried at 300 C for 89.33 hours were found superior in maintaining colour (3.38), texture (3.13), shape (3.13) and over all acceptability (3.25) of Carnation var. Soto. While in micro wave oven, drying at medium low level for 2.0 minutes and then at low level for 4.5 minutes produced the best quality in dried Carnation flowers of var. Soto. Minimum dry weight (1.17 g/flower) with maximum moisture loss (78.87 %) was noticed in the Carnation flowers of var. Soto when exposed to sun drying + Black cotton cloth. Shade + Sun drying can produce best quality dried flowers of Carnation cut flower of var. Soto with respect to colour (3.63), texture (3.25), shape (2.87) and over all acceptability (3.00).

July, 2014

(Srinivasa, V)
Major Advisor

6. Integrated Nutrient Management Studies in Carnation (*Dianthus caryophyllus* L.) Cv. Soto under Protected Condition

BASAVARAJ D. DALAWAI

ABSTRACT

Carnation (*Dianthus caryophyllus* L.) is one of the most popular florist's flowers belonging to the family Caryophyllaceae. They are immediately recognizable flowers and possess a charm and allure that continues to captivate people around the globe. In fact, in many parts of the world, the popularity of Carnations surpasses that of any other flower including Roses. The powerful sentiments these flowers can express are a perfect complement to their classic beauty and long-lasting freshness.

The study was conducted with 11 treatment combinations including RDF as check to find out the best integrated nutrient approach with Azospirillum (60 g/m²), PSB (60 g/m²), FYM (2 kg/ m²) and, vermicompost (500 g/m²) along with 75 per cent RDF for higher growth, higher quality cut flower yield in Carnation cv. Soto at the Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere during 2011-12.

The results on growth parameters viz., plant height, number of branches, number of leaves, plant spread, leaf length, leaf width, leaf area, leaf area index and intermodal length, total dry matter production and chlorophyll content were found maximum and statistically significant values in the treatment T_i compared to the check. Similarly the flowering and floral traits, viz., flower bud development and opening, days for 50 % flowering, flower stalk length (cm) and girth, flower length, flower weight along with stalk, flower bud and diameter as well as vase life (days) were also found maximum and significant difference by the same combined application of Azospirillum (60 g/m²), PSB (60 g/m²), FYM (2 kg/m²), vermicompost (500 g/m²) along with 75 per cent RDF compared to other treatments and check. Besides the above the same treatment also recorded maximum number of cut flowers production per plant and per square meter, lesser mortality to insect pests and diseases and ultimately it has resulted in maximum net returns (Rs. 3,75,223.00) with a BCR of 2.9.

July, 2014

(B. Hemla Naik)
Major Advisor

7. Integrated Nutrient Management Studies in China Aster [*Callistephus chinensis* (L.) Nees]

MALLIKARJUNA, G.T.

ABSTRACT

A field experiment was conducted to know the effect of "Integrated Nutrient Management Studies in China aster [*Callistephus chinensis* (L.) Nees.]" in the Department of Floriculture and Landscape Architecture, at College of Horticulture Mudigere during rabi season of 2011-2012. The experiment was laid out in randomized complete block design with 3 replications and 11 treatment combinations viz., T1: 100% RDF, T2: Azospirillum +75% RD'N' +100% RD'P' and K, T3: PSB+75% RD'P'+100% RD'N & K, T4: Azospirillum+ FYM+ 75% NPK, T5: Azospirillum +VC + 75% NPK, T6: PSB+ FYM + 75% NPK, T7: PSB+ VC +75% NPK, T8: Azospirillum+ PSB+ 75% N&P + 100% RD-K', T9: Azospirillum+ PSB+FYM +75% NPK, T10: Azospirillum+ PSB +VC +75%NPK, T11: Azospirillum+ PSB+ FYM + VC+ 75% NPK. The treatments comprising of inorganic fertilizers (NPK), organic manures (FYM & VC) and biofertilizers (Azospirillum & PSB) in cv. Kamini. The treatment receiving Azospirillum + PSB + FYM + VC + 75% recommended NPK recorded the highest plant height (54.67 cm), number of leaves (103.3), leaf area (15.83 dm²), total dry weight of plant (43.26 g) and yield attributes such as flower yield (11.73 t/ha) and seed yield (4.61 q/ha). Significantly higher available nutrients in soil (N-227.00, P₂O₅-47.33 and K₂O-177.67 kg/ha) and maximum NPK per cent content by plant parts were recorded in treatment receiving Azospirillum +PSB +FYM +VC +75% recommended NPK. The same treatment also recorded significantly higher quality parameters such as stalk length (25.08 cm), flower diameter (4.87 cm) and vase life of cut flowers (7.04 days). The economic analysis clearly indicated that net returns and benefit cost ratio was found highest in the T11 treatment combination (Rs. 1, 22,264/ha and 2.74 respectively).

July, 2014

(Srinivasa, V)
Major Advisor

8. Performance of Carnation (*Dianthus caryophyllus* L.) Genotypes under Protected Cultivation

TARANNUM

ABSTRACT

The Divine flower Carnation in the modern times has become one of the most important and highly remunerative flower crops grown under polyhouse, occupies an esteem position among top ten flower crops in the International trade mainly for its cut flowers. It is also used for bedding, pots, rock gardens, window boxes and edging. There is always demand for novel types with high yielding genotypes. Hence, the present study was conducted to identify the suitable Carnation genotypes under naturally ventilated polyhouse in hill zone during 2011-12, with respect to yield and quality cut flowers and also to find out the best chemical preservative for enhancing the vase life in the Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere.

Among the eight genotypes studied there were wide and highly significant variations observed in performance with respect to growth, floral, cut flower yield and quality parameters. The cv. Soto produced maximum number of quality cut flowers and was found to be significantly superior over others. Dona and White Dona were next superior types. Soto produced the longest stalk length, bigger sized flowers with maximum number of petals whereas; stalk girth was more in White Dona followed by Soto and Dona. The genotype Soto, Golem and White Dona were early in flowering. Most of the morphological parameters *viz.*, plant height, plant spread, number of branches, internodes and leaves; leaf length and width, leaf area, dry matter production, chlorophyll content etc., were found superior in cv. Soto followed by White Dona, Dona and Harish.

The genotype 'Soto' realized maximum net return and B:C ratio (Rs. 3,50,483; 2.50) in 560m² area followed by Dona (Rs. 2,80,343; 2.00, respectively) and White Dona (Rs. 2,59,343; 1.85) compared to other genotypes studied. In the vase life study, among the chemical preservatives [*viz.*, citric acid, cobalt chloride and 8-HQS) tried, citric acid @ 200ppm recorded maximum vase life of Carnation (12 days) followed by citric acid @ 150 ppm (11 days).

July, 2014

(B. Hemla Naik)
Major Advisor

9. Evaluation of Anthurium Cultivars for their Performance under Protected Cultivation

LATHA, S.

ABSTRACT

An investigation on evaluation of anthurium cultivars for their performance under protected cultivation was carried out in randomized block design in the experimental block of department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, Karnataka during 2012-13. The varieties viz., Fantasia, Acropolis, Arabhavi Local, Tropical, Fire, Cheers and Midori were taken for study. Among seven anthurium varieties, variety Tropical recorded maximum plant height (63.11 cm), petiole length (46.91 cm), leaf length (31.50 cm), leaf width (22.91 cm), leaf area (4320 cm²) and leaf area index (4.80). Variety Arabhavi Local recorded maximum number of leaves per plant (8.67) and maximum number of suckers per plant (1.27) at 360 days after planting. In case of flower quality and yield attributes, such as peduncle length (64.42 cm), spathe length (12.00 cm), spadix length (6.89 cm) and spadix girth (10.11 mm) was maximum in variety Tropical. Spathe width (14.83 cm) was maximum in variety Midori. Varieties Cheers and Arabhavi Local showed minimum spadix angle to spathe (27.33⁰ and 28.33⁰, respectively). Variety Arabhavi Local recorded maximum number of flowers per plant (1.53). Maximum vase life was observed in Variety Midori (35.00 days). Correlation study revealed that number of flowers per plant showed significant and positive correlation with number of leaves per plant, leaf area per plant and number of suckers per plant. Occurrence of anthracnose and bacterial blight disease incidence was less in varieties Arabhavi Local and Cheers compare to rest of the cultivars under study. Highest benefit cost ratio was recorded in Variety Arabhavi Local (2.17). Among the anthurium cultivars studied, better performance in terms of vegetative growth and flower quality of anthurium, variety Tropical was found superior, in terms of flower yield, varieties Arabhavi Local and Midori are identified as promising suitable cultivars for cultivation under protected condition.

July, 2014

(Sathyanarayana Reddy)
Major Advisor

10. Evaluation of Asiatic Lily Cultivars Under Protected Cultivation

SHWETHA, B.S.

ABSTRACT

The study was conducted to identify the suitable Asiatic lily cultivars under naturally ventilated polyhouse during 2012-13, with respect to yield and quality cut flowers and also to find out the best chemical preservative for enhancing the vase life in the Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere.

There are seven cultivars included in the study *viz.*, Gironde, Levi, Navona, Pavia, Pollyanna, Turandot and Tresor. Among them there were wide and highly significant variations observed in the performance with respect to growth, floral, cut flower yield, quality and bulb yield and bulb quality parameters. The cv. 'Levi' produced maximum number of quality cut flowers and was found to be significantly superior over others. 'Gironde' and 'Pavia' were found to be the next superior cultivars. 'Gironde' produced the longest stalk length, whereas; stalk girth, diameter of bud, dry matter production and flower weight was more in 'Turandot'. 'Pavia' produced longest bud before opening, whereas, bigger flowers were produced by 'Levi'.

The morphological parameters *viz.*, leaf width, leaf area and chlorophyll content etc., were found superior in Pavia. The cv. 'Tresor' produced maximum number of leaves and leaf length. Most of the bulb parameters like weight of bulb (g), number of bulblets per bulb, bulb size (cm) were found superior in cv. 'Pollyanna' followed by cv. 'Turandot'. From this study it can be concluded that 'Turandot' and 'Tresor' are classified as early cultivars. Whereas, 'Levi' and 'Gironde' as late cultivars. The cultivars 'Gironde' and 'Tresor' realized maximum net return (2, 72,695 Rs/560 m²). In vase life study the cv. 'Turandot' was used to standardize the chemical preservative, among those chemical preservatives (*viz.*, GA₃, 8-HQC and sucrose) tried, combination of GA₃ (25 ppm) and 8-HQC (200 ppm) with sucrose (2%) recorded maximum vase life of Asiatic lily (20.40 days).

July, 2014

(B. Hemla Naik)
Major Advisor

11. Evaluation of Gladiolus Genotypes under Hill Zone of Karnataka

SUDEEP, H. P

ABSTRACT

An investigation on evaluation of gladiolus genotypes under hill zone of Karnataka was carried out in Randomized Block Design in the experimental block of Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during the period from October 2012 to April 2013. The cultivars viz., Jester, Charms Flow, Red Ginger, White Prosperity, American Beauty, Her Majesty, Green Bay, Red Majesty, Summer Sunshine and Candy Man were taken for the study.

Among ten cultivars, Red Majesty was early to sprout (5.67 days). Per cent of corm sprouting was maximum in cultivar Summer Sunshine (95.00). Plant height was maximum in cultivar Red Majesty (76.31 cm). Sucker production per plant was maximum in cultivar Summer Sunshine (0.47) whereas leaf production per plant was maximum in cultivar Green Bay (8.93). In case of flower yield and quality attributes, such as days taken for bud initiation and first floret opening were found early in cultivar Red Majesty (62.80 days and 73.87 days, respectively). Spike length was maximum in cultivar Red Ginger (114.23 cm) and the longest rachis length was recorded in cultivar Jester (61.39 cm). Cultivar Summer Sunshine recorded maximum number of spikes per plant (1.53), but vase life was maximum in cultivar American Beauty (11.67 days). Number of corms per plant was maximum in cultivar Summer Sunshine (1.47) and number of cormels per plant was maximum in cultivar White Prosperity (94.17). Corm yield per hectare was maximum in cultivar Summer Sunshine (9058.67 Kg). Among the gladiolus cultivars studied, better performance in terms of vegetative, flower yield and corm production, cultivars Summer Sunshine, Red Ginger, Red Majesty and White Prosperity were found promising for cut flower production under hill zone condition of Karnataka. Among these four cultivars, Summer Sunshine, Red Ginger and Red Majesty were good in flower and corm yield, while White Prosperity was good with respect to quality.

July, 2014

(Sathyanarayana Reddy)
Major Advisor

12. Standardization of Spacing and Nutrition for Growth and Flower Yield of Asiatic Lily Under Hill Zone

VEDAVATHI.R.S

ABSTRACT

The study was conducted to find out the optimum spacing and nitrogen levels in Asiatic lily cultivar Gironde in open field condition at College of Horticulture, Mudigere, UHS, Bagalkot during 2012-13. The experiment consists of three spacing levels (30 x 15, 30 x 30 and 40 x 15 cm) and four levels of nitrogen (0, 100, 150 and 200 kg/ha) in all possible combinations were assessed for vegetative, flowering and bulb characters. Among the different spacings, S₁ (30 x 15 cm) and among the different nitrogen levels, N₄ (200 kg/ha) recorded maximum plant height, number of leaves per plant, leaf length and breadth, leaf area, specific leaf area, specific leaf weight, absolute growth rate, crop growth rate, relative growth rate, net assimilation rate, dry matter accumulation in different plant parts like leaves, stem, flowers and bulbs, total dry matter production and the same treatments also recorded maximum flower yield, bulb yield and quality parameters. Similarly, leaf N, P, K and soil available N, P and K content after harvest were found to be maximum in the same spacing and nitrogen levels.

While, lower morphological, flowering and bulb parameters were observed at wider spacing S₂ (30 x 30 cm) and in control N₁ (0 kg/ha). Interactions of spacing and nitrogen levels were found significant with respect to flower quality and bulb yield parameters. S₁N₄ (30 x 15 cm + 200 kg/ha) treatment combination recorded significantly higher values with respect to bud diameter (2.01 cm), diameter of flower (12.70 cm), number of florets per spike (7.40), number of bulblets per plant (1.32), weight of bulblet (1.23 g) and the same treatment combination also recorded maximum benefit cost ratio (1.70) compared to other treatment combinations.

July, 2014

(Srinivasa, V)
Major Advisor

13. Response of Marigold (*Tagetes Erecta L.*) to the Inoculation of Vam Fungi at Different Phosphorus Levels for Xanthophyll Yield

G. SWATHI

ABSTRACT

A field experiment was conducted at experimental unit of Department of Floriculture and Landscape Architecture, college of Horticulture, Mudigere to study the response of marigold (*Tagetes erecta L.*) to the inoculation of Vesicular – Arbuscular Mycorrhizal (VAM) fungi at different P levels on plant growth, yield and xanthophylls yield. The VAM fungi viz., *Glomus fasciculatum*, *G. mosseae*, *G. intraradices* with an uninoculated control was maintained at P levels viz., 60, 90, 120 kg/ ha were tried. The results brought out that with *G. fasciculatum* and given P at 90 kg/ ha recorded significantly maximum plant height, plant spread, secondary branches, number of levels total dry matters Production, number of leaves, leaf area duration, crop growth rate, net assimilation rate. The same treatment combination also recorded maximum flowers duration, maximum flower yield (17.83 t/ ha), petal meal yield (15.66 q/ ha), xanthophylls yield (34.49 kg/ha).

Shoot P concentration, P – uptake, available N.P. Ca, mg and S were significantly maximum in the treatment inoculated with *G. fasciculatum* and given P at 120 kg/ ha. Whereas, available K was significantly maximum in the treatment with *G. fasciculatum* at P 90 kg/ ha. The plants inoculated with *G. mosseae* and given P at 90 kg/ha recorded significantly maximum percent root colonization and sporulation. The same treatment combination also recorded maximum net return (Rs. 225655/ ha) and cost: benefit ratio (1: 5.39) for flower production. Whereas, for maximum net return of Rs. 539695/ ha and cost: benefit ratio (1: 11.57). This clearly indicates the possibility of reducing P fertilization by 25 per cent of the recommended dose by inoculation with *G. fasciculatum* and *G. mosseae* in marigold.

July, 2014

(B. Hemla Naik)
Major Advisor

14. Spacing and Nutrition Trial in Anthurium Under Hill Zone of Karnataka

JYOTHI S.

ABSTRACT

An investigation on spacing and nutrition trial in anthurium cv. Arabhavi Local under protected cultivation was carried out in factorial randomized complete block design in the experimental block of Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, Karnataka during 2013-14. The experiment consists of three spacing levels (30 x 30, 30 x 40 and 30 x 50 cm) and three levels of nutrients (312 : 448 : 375 kg NPK/ha, 262 : 398 : 325 kg NPK/ha and 212 : 348 : 275 kg NPK/ha) in all possible combinations were assessed for vegetative and flowering characters. Among the different spacings, S₁ (30 x 30 cm) recorded maximum number of flowers per square meter (48.33) and among the different nutrient levels, N₁ (312:448:375 kg NPK/ha) recorded maximum Plant height (54.64 cm).

Number of leaves per plant (24.09), leaf length (27.04 cm), Leaf width (27.40 cm), petiole length (53.62 cm), number of suckers per plant (3.07). In case of flower quality and yield attributes, such as peduncle length (49.38 cm), spathe length (14.63 cm), spathe width (14.44 cm), spadix length (6.80 cm), spadix girth (6.29 mm), number of flowers per square meter (46.00) and vase life (25.23 days) were maximum in N₁ (312 : 448: 375 kg NPK/ha). Similarly, leaf content N (2.34%), P (0.42%) and K (2.91%) were found to be maximum in the same nutrient levels. Interactions of spacing and nutrient levels, S₁N₁ (30 x 30 cm + 312:448:375 kg NPK/ha) treatment combination recorded maximum benefit cost ratio (1.61) compared to other treatment combinations.

September, 2014

(Sathyanarayana Reddy)
Major Advisor

15. Evaluation of Daisy (*Aster Amellus L.*) Cultivars in the Hill Zone of Karnataka

KETANA G B

ABSTRACT

An investigation on evaluation of daisy cultivars in the hill zone of Karnataka was carried out in Randomized Complete Block Design in the experimental block of Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, Karnataka during 2013-14. Selection, Section – 1, Section -2, Section -3, Section -4, Section – 5, Section – 6, Section -7, and Dharwad Local were taken for study. Among the eight cultivars selection – 4 performed better in terms of plant height (91.93 cm), number of suckers (11.48), plant spread leaf area per plant (117010.44 cm²), (51.51cm²), leaf area index (19.52) and dry matter production (101.84 g/plant).

The cultivar Dharwad Local was earlier for first flowering (73.27 days) and days to 50 per cent flowering (80.64 days), selection – 1 took maximum days for first flowering (84.13 days) and 50 per cent flowering (89.53 days). Spike length was maximum in the cultivar selection – 4 (72.43 cm). The number of spikes yield per plant (8.37 spikes/plant), spike yield per plot (251.20 no's) and vase life (8.67) were also maximum in cultivar selection -4(5.3), whereas, the lowest was recorded in the cultivar Dharwad Local (3.6). Among the daisy genotypes studied, better performance in terms of vegetative growth, flower yield and quality parameters, cultivars selection -4 and selection 007 were found promising for loose flower production under hill zone condition of Karnataka.

July, 2014

(Sathyanarayana Reddy)
Major Advisor

16. Performance of China Aster (*Callistephus Chinensis* L. Nees) Cultivars Under Hill Zone of Karnataka

SAVITHA, K. H.

ABSTRACT

A study on performance of nine China aster cultivars viz., Kamini, Poornima, Shashank, Phule Ganesh Violet, Phule Ganesh White, Phule Ganesh Pink, Namdhari Pink, Namdhari White and Budiguppa Local for their growth, flower yield and quality was carried out in Randomized Block Design in the Experimental block of Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during the period from September 2013 to February 2014. Among the nine cultivars studied there were highly significant variations observed in performance with respect to growth, flower yield and quality parameters. The cultivar Phule Ganesh White produced maximum plant height (62.25 cm), number of primary branches per plant (18.21), stem girth (12.08 mm), intermodal length (1.87 cm), leaf area (33.21 cm²), leaf area index (0.0368), flower yield per plant (308.68 g), seed yield per plant (8.70 g), fresh weight of flower (5.70 g), dry weight of flower (0.81 g), flower diameter (6.80 cm), stalk length (46.90 cm) and vase life (13.55 days) and which was found to be significantly superior over other cultivars. Early flowering (53.53 days) was observed in cultivar Shashank followed by cultivar Poornima (58.40 days). Maximum and minimum flowering duration was recorded in cultivars Kamini (35.17 days) and Poornima (29.92 days), respectively. Occurrence of *Fusarium* wilt incidence was less in cultivars Phule Ganesh Violet, Phule Ganesh White, Phule Ganesh Pink and Shashank, whereas cultivar Poornima was moderately susceptible. The cultivar Phule Ganesh White realized maximum net return and B:C ratio (Rs. 5,49,350:11.79, respectively) followed by cultivar Phule Ganesh Violet (Rs. 4,20,850:9.27, respectively) and Phule Ganesh Pink (3,45,100:7.78, respectively), whereas minimum net return and B:C ratio (Rs. 1,40,600:3.76, respectively) was recorded in cultivar Budiguppa Local. Among these China aster cultivars studied, cultivar Phule Ganesh White was found promising for loose flower production under hill zone of Karnataka.

February, 2014

(Srinivasa, V)
Major Advisor

17. Characterization of Gladiolus (*Gladiolus hybridus* L.) Genotypes through Morphological and Molecular Markers

RASHMI R.

ABSTRACT

An investigation on “Characterization of gladiolus (*Gladiolus hybridus* L.) genotypes through morphological and molecular markers” was carried out in Randomized Complete Block Design with three replications at the experimental block of Floriculture and Landscape Architecture, College of Horticulture, Mudigere during the year 2014-15. Analysis of variance revealed high significant difference among all the genotypes for all the characters studied. High heritability (>75%) coupled with high genetic advance over mean (>30%) was observed for duration of flowering, spike length, rachis length, number of spikes per plant, number of florets per spike, weight of spike, number of corms per plant and diameter of corm indicating the prevalence of additive gene action for these traits. Correlation studies showed highly significant and positive association of number of spikes per plant with plant height, leaf area, spike length, rachis length, vase life, number of corms and diameter of corms both at genotypic and phenotypic level. Path coefficient analysis revealed that plant height, days taken for spike initiation, rachis length, number of florets per spike, number of corms and diameter of corm had direct positive effect on number of spikes per plant. Based on Mahalanobis D^2 analysis twenty genotypes of gladiolus were grouped into five clusters. Diameter of corm (40.53%) followed by weight of spike and weight of corm (13.68%) contributed maximum towards genetic diversity. Molecular characterization of gladiolus genotypes was done using SRAP markers. Among twenty five primer combinations screened, thirteen primer combinations gave consistent banding patterns. The primer combination of Me3 + Em3 produced highest polymorphism. On comparing the genetic diversity as revealed by the Dendrogram, twenty genotypes resulted in to two clusters and it was evident that Shobha was identified quite distinct genotype.

June, 2015

(S. Y. Chandrashekar)
Major Advisor

18. Performance of Carnation (*Dianthus caryophyllus* L.) Genotypes Under Naturally Ventilated Polyhouse in Transitional Zone of Karnataka

SHIVAMURTHY, C. K.

ABSTRACT

An investigation on performance of carnation genotypes under transitional zone of Karnataka was carried out in Randomized Block design in farmer polyhouse at Abbalagere, Shivamogga, during the period from September 2014 – February 2015. The cultivars *viz.*, Cares, Nebula, Trinidad, Amos, Lories, Turbo, Geoli and Pingue were taken for the study. Hence, the present study was conducted to identify the suitable carnation genotypes with respect to yield, quality of cut flowers and vase life.

Among the eight genotypes studied there were wide and highly significant variations observed in performance with respect to growth, floral, cut flower yield and quality parameters. The cv. Lories produced maximum number of quality cut flowers (14.67) and was found to be significantly superior over others. Pingue and Geoli were next superior types. Lories produced the longest stalk length (96.00 cm), the highest flower weight (11.53 g) with maximum number of petals (116.67) including maximum vase life (11.00 days) whereas stalk girth (6.02 mm) was more in Cares followed by Lories and Geoli. The genotype Lories (127.67 days), Geoli (132.00 days) and Pingue (137.00 days) were early in flowering. Most of the morphological parameters *viz.*, plant height (110.37 cm), number of shoots (7.73), internodes per plant (108.67) and number of leaves (217.33), leaf length (17.93 cm), leaf area (1836.73 cm²), dry matter production (88.17 g) and total chlorophyll content (1.33 mg/g) were found superior in cv. Lories followed by Trinidad, Pingue and Geoli. The genotype 'Lories' realized the maximum net return and B:C ratio (4,37,182.00:3.17) in 560m² area followed by Pingue (3,32,644.00: 2.41) and Geoli (2,80,116.00: 2.03, respectively) compared to other genotypes studied. In the vase life study cultivar Lories showed maximum days of fresh look appearance under tap water.

July, 2015

(B. Hemla Naik)
Major Advisor

19. Genetic Variability Studies for Growth, Yield and Quality Traits of Dahlia (*Dahlia variabilis* L.) Under Hill Zone of Karnataka

MANJULA, B. S.

ABSTRACT

An experiment was carried out to study the performance of twenty five genotypes of dahlia for genetic variability, heritability, correlation and path analysis at the department of FLA, College of Horticulture, Mudigere during Dec 2014 - April 2015. The superior performance with respect to growth as well as yield attributes was recorded by the genotypes Sourav (3,25,925 flowers per hectare), Saraladevi (2,95,184 flowers per hectare) while the genotype Joyal Singh showed minimum. Analysis of variance revealed highly significant difference among the genotypes for growth, flowering, yield and quality parameters. High heritability with high genetic advance was observed for plant height at 60 and 90 DAT, number of branches at 30,60 and 90 DAT, stem girth at 30 DAT, leaf length at it's peak stage of growth, leaf width at it's peak stage of growth, stalk length, number of days taken to first flowering, number of days taken to 50 per cent flowering, number of days taken for complete flowering, number of flowers per plant, number of tubers per plant, number of flowers per hectare, flower weight, tuber weight, flower diameter, number of petals per flower and vase life, indicating predominance of additive gene component. Thus, there is ample scope for improving these characters through direct selection. Number of flowers per hectare had strong positive correlation with plant height at 120 DAT, number of branches per plant at 120 DAT, internodal length at 120 DAT, duration of the crop, flower weight, flower diameter, stalk length, tuber number, tuber weight and vase life. Direct effect of path analysis for flower yield was recorded highest for plant height at 120 DAT, number of days taken to first flowering, flower weight, stalk length, tuber number, tuber weight and vase life.

June, 2015

(Nataraj, S. K.)
Major Advisor

20. Performance of Rose Cultivars Under Naturally Ventilated Polyhouse in Hill Zone of Karnataka

SHIVAPRASAD, S. G.

ABSTRACT

An investigation on performance of rose cultivars under naturally ventilated polyhouse in hill zone of Karnataka was carried out in Randomized Complete Block Design at the experimental block of Floriculture and Landscape Architecture, College of Horticulture, Mudigere during the 2014-15. The cultivars *viz.*, Grand Gala, Noblesse, Corvetti, First Red, Gold Strike, Shakira, Arka Swadesh, Konfetti, Tineke and Tajmahal were taken for study. Among different rose cultivars, Grand Gala recorded maximum plant height (97.43 cm). While, Shakira recorded maximum number of shoots per plant (3.70). In case of quality and yield attributes, Grand Gala took minimum days for first flower bud initiation and flower harvest (16.30 and 36.24 days, respectively). Maximum stalk length (66.75 cm), stalk girth (0.96 cm), flower bud diameter (3.91 cm) and vase life (9.22 days) were also observed in Grand Gala. Tineke recorded maximum flower diameter and number of petals per flower (8.68 cm and 37.37, respectively). Tajmahal was found to be high yielder with respect to number of flowers per plant (3.58) and flowers per square meter (39.41) per month. Correlation studies revealed that, number of flowers per plant showed significant and positive correlation with number of shoots per plant, flower diameter, days to first flower bud initiation and first to harvest. Occurrence of powdery mildew was less in Tajmahal and Arka Swadesh, whereas mites incidence was less in Tajmahal. The incidence of black spot and thrips were less in First Red and Konfetti respectively. Highest benefit cost ratio was recorded in Tajmahal (3.55). Among the rose cultivars studied, the cultivars Tajmahal, Shakira and Arka Swadesh were found to be superior for cultivation under naturally ventilated polyhouse in hill zone of Karnataka.

June, 2015

(Nataraj, S. K.)
Major Advisor

21. Response of Marigold (*Tagetes erecta* L.) Cv. Double Orange to Liquid formulations of Em Consortia with Graded Levels of NPK

RAVI, C. H.

ABSTRACT

A field experiment was conducted to know the response of Marigold (*Tagetes erecta* L.) cv. Double Orange to liquid formulations of EM consortia with graded levels of NPK at the experimental block of Horticulture Department, College of Agriculture, Shivamogga during 2014-15. The experiment was laid out in randomized complete block design with 15 treatments replicated thrice. Plants treated with 100% RDF+*Azotobacter* recorded significantly maximum plant height (104.81 cm), stem girth (1.37 cm) and number of leaves (308.80). Application of 75% RD'N'+*Azotobacter*+ 100 % RD'P' and 'K' reported maximum flowering duration (71.17 days). However, the highest flower weight (8.37 g), diameter (8.04 cm), number of petals per flower (323.12), flowers per plant (91.34), flower yield (12.70 t/ha), petal meal yield (1156.40 kg/ha) and xanthophyll yield (48.61 kg/ha) were recorded with the application of 75% RDF + *Azotobacter* + *Bacillus megaterium*+ *Frateuriaaurantia*. Whereas, 100% RDF + *Azotobacter* + *Bacillus megaterium* recorded higher seed yield (514.52 kg/ha) and its quality parameters. The highest plant N (1.40 %), P₂O₅ (0.97 %) and K₂O (2.91%) contents were observed with 75 % RDF + *Azotobacter* + *Bacillus megaterium*+ *Frateuriaaurantia*, 100 % RDF + *Azotobacter* + *Bacillus megaterium* and 100 % RDF + *Bacillus megaterium*+ *Frateuriaaurantia*, respectively. Similarly, 100 % RDF + *Azotobacter*, 100 % RDF + *Azotobacter* + *Bacillus megaterium*+ *Frateuriaaurantia* and 75 % RD'N' and 'K' + *Azotobacter* + *Frateuriaaurantia* recorded significantly highest available N (229.46 kg/ha), P₂O₅ (157.05 kg/ha) and K₂O (247.52 kg/ha) in soil, respectively. The economic analysis clearly indicated that, application of 75 % RDF + *Azotobacter* + *Bacillus megaterium*+ *Frateuriaaurantia* realized maximum net returns (Rs. 2,12,402, 6,19,498 and 4,62,222/ha) and B: C ratio (5.11, 3.91 and 11.11) for flower, xanthophyll and seed yield, respectively.

June, 2015

(B. Hemla Naik)
Major Advisor

22. Evaluation of Gaillardia (*Gaillardia pulchella* Foug.) Genotypes Under Hill Zone of Karnataka

N. ARULMANI

ABSTRACT

An investigation was carried out to evaluate genotypes of gaillardia (*Gaillardia pulchella* Foug.) for growth, flowering, yield, quality and genetic traits at experimental block of Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, Karnataka during the period from October 2014 to April 2015. Among eight genotypes studied, DGC-2 recorded maximum plant height (58.38 cm), number of branches per plant (14.17), number of leaves per plant (642.40), stem girth (22.85 mm), dry weight of plant (40.64 g), flower yield per plant (348.94 g) and vase life (7.06 days). The maximum plant spread both at E-W (53.29 cm) and N-S (51.35 cm) direction, leaf area (6046.68 cm²) and whorls per flower (8.00) was found in genotype AGC-1. The genotype DGC-2 recorded minimum days for first flower appearance (48.00), 50 percent flowering (78.00) and maximum duration of flowering (146.67 days). The days taken for full bloom (4.33), seed setting (52.67) and shelf life (14.43 hr) of flowers were superior in genotype SGC-2. The genotype DGC-1 had recorded maximum number of flowers per plant (131.60) and flower yield per hectare (22.17 t/ha). The genotype SGC-1 exhibited maximum flower diameter (3.73 cm), flower weight (7.67 g) and seed yield per plant (17.12 g) as well as per hectare (1027.19 kg). The estimates on phenotypic coefficient of variation (PCV) were more than genotypic coefficient of variation (GCV) for all characters. High heritability estimates associated with high genetic advance (over mean) was noticed for most of the traits studied. The maximum B:C ratio was recorded in the genotype DGC-1 (1:3.32).

June, 2015

(S. Y. Chandrashekar)
Major Advisor

23. Standardization of Biostimulants for Growth, Yield and Quality of Hrysanthemum (*Dendranthema grandiflora* Tzvelev.) under Protected Cultivation

PRUTHVI, P. HEGDE

ABSTRACT

In recent decades, flower growing pattern is evolving towards organic way. Hence, the study was conducted on “standardization of biostimulants for growth, yield and quality of chrysanthemum (*Dendranthema grandiflora* Tzvelev.) under protected cultivation” at Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during 2015-16. The experiment was laid out in Randomized Complete Block Design with 25 treatments and replicated twice. The treatment Biovita @ 0.5 percent was found superior for all the growth parameters viz., plant height (66.83 cm), number of leaves (82.95), stem diameter (7.30 mm), number of primary and secondary branches (8.7 and 25.9, respectively) total dry matter accumulation (53.45), leaf area (5269.91 cm²), leaf area index (5.27), leaf area duration (123.08 days), CGR (107 mg/ m²/ day), RGR(13.65 mg/ g/ day) and NAR(9.4 mg/ dm²/ day) and biochemical parameter total chlorophyll content (5.07). It was statistically on par with Humicel plus @ 0.5 per cent and Formula 15 @ 0.5 per cent. Whereas, least vegetative parameters were registered in recommended dose of fertilizers.

Minimum days for first flowering and 50 per cent flowering were observed in foliar application of Biovita @ 0.5 percent. While, maximum duration of flowering (61.50 days) was recorded in Formula 15 @ 0.5 per cent. With respect to yield parameters maximum number of flowers was recorded in Biovita @ 0.5 per cent (92.15) with maximum yield per plant (424.09 g) and per square meter (4.05 Kg). The same treatment had high quality flowers with maximum flower size, weight and stalk length (6.70 cm , 5.06 g and 46.89 cm, respectively). Studies on vase life and shelf life proved that Biovita @ 0.5 per cent showed 7.5 days more longevity in tap water and 5.5 days more shelf life than control (15 days and 5.5 days, respectively). The treatment Biovita @ 0.5 per cent realized maximum net return of 3, 12, 411 in 560 m² area with a B:C ratio of 4.43 followed by Humicel plus @ 0.5 per cent (2, 99, 315; 4.25, respectively) and Formula 15 @ 0.5 per cent (2, 94, 031; 4.18, respectively) compared to control (1, 15, 609; 1.64, respectively).

June, 2016

(B. Hemla Naik)
Major Advisor

24. Morphological Characterization of Chrysanthemum (*Dendranthema grandiflora* Tzvelev) Genotypes under Central Dry Zone of Karnataka

BEERALINGAPPA

ABSTRACT

An investigation on “Morphological characterization of chrysanthemum (*Dendranthema grandiflora* Tzvelev) genotypes under central dry zone of Karnataka” was carried out in Randomized Complete Block Design with three replications at the experimental block of Department of Floriculture and Landscape Architecture, College of Horticulture, Hiriyr, Karnataka during 2015 - 2016.

Among the sixteen chrysanthemum genotypes, genotype Lakkundi recorded maximum plant height (69.87 cm) and stem girth (6.72 mm). The genotype Chandani recorded maximum number of primary (23.67) and secondary (36.80) branches per plant, number of leaves per plant (720.67), leaf area per plant (18718.33 cm²), number of flowers per plant (692.40), flower yield per plant (830.49 g) as well as per hectare (41.01 t/ha). The genotype Marigold recorded minimum number of days for first flower appearance (77.33 days), 50 per cent of flowering (100.67 days), longest flowering duration (126.67 days), shelf life (9.70 days) and vase life (17.33 days). The genotype White Seventige exhibited maximum flower diameter (6.46 cm) and genotype Star Pink recorded highest individual flower weight (6.26 g). Flower yield per plant showed highly significant and positive correlation with leaf area, number of leaves per plant, number of flowers per plant and duration of flowering at both genotypic and phenotypic level. Flower yield per plant exhibited highly positive direct effect of path analysis with number of secondary branches per plant, leaf area, duration of flowering, number of flower per plant and flower weight at both genotypic and phenotypic level. The genotype Chandani realized maximum net returns and benefit cost (B: C) ratio. Among these screened chrysanthemum genotypes, genotype 'Chandani' was found superior over the rest of the genotypes with respect to growth, flowering, yield and quality parameters followed by 'Marigold', 'Vasanthika' and 'Arka Chandrika' were found promising for loose flower production under central dry zone of Karnataka.

October, 2016

(Hemanth Kumar P.)
Major Advisor

25. Standardization of Balanced Nutrition and Bioinoculants on Growth, Yield and Quality of Chrysanthemum (*Dendranthema grandiflora* Tzvelev)

MAHANTESH BIRADAR

ABSTRACT

A field experiment was conducted to know the “Standardization of balanced nutrition and bio-inoculants on growth, yield and quality of chrysanthemum (*Dendranthema grandiflora* Tzvelev)” was carried out at Department of Floriculture and landscape architecture, College of Horticulture, Mudigere, during 2015-16. The experiment was laid out in randomized complete block design with 22 treatments replicated twice. Plants treated with *Bacillus megaterium* + *Bacillus mucilaginosus* + MgSO₄+ Micronutrient mixture (T₂₂) recorded significantly maximum plant height (69.50 cm), stem girth (8.46 mm), plant spread North-South and East-West (37.75 and 39.00), number of primary branches (32.00), secondary branches (28.75), tertiary branches (22.50), number of leaves (112.50), leaf area (9444.68 cm²), leaf area index (4.66), dry matter of leaves (22.70 g), dry matter of shoots (16.05 g), dry matter of flowers (9.80 g), dry matter of roots (7.55 g), total dry matter (53.90 g), crop growth rate (1.07 g/m²/day), relative growth rate (0.0137 g/g/day), net assimilation rate (0.0094 g/dm²/day), total chlorophyll (5.07 mg/g), days to first flower bud initiation (55.00 days), days to first flower opening (88.65 days), maximum flowering duration (132.65 days), Highest flower weight (6.27 g), diameter (7.25 cm), number of petals per flower (136.50), flowers per plant (100.00), flower yield (30.73 t/ha), sucker yield (3,35,000/ha) and its quality parameters like shelf life (15.25 days), vase life (22.00 days). Similarly *Bacillus megaterium* + *Bacillus mucilaginosus* + MgSO₄+ Micronutrient mixture (T₂₂) recorded significantly highest available N (247.50 kg/ha), P₂O₅ (225.00 kg/ha) and K₂O (285.25 kg/ha) in soil, respectively. The economic analysis clearly indicated that, application of *Bacillus megaterium* + *Bacillus mucilaginosus* + MgSO₄+ Micronutrient mixture (T₂₂) realized maximum net returns (Rs. 23,79,750/ha) and B: C ratio (9.1) for flower and sucker production, respectively.

June, 2016

(B. Hemla Naik)
Major Advisor

26. Influence of Micronutrients on Growth, Flowering and Corm Production of *Gladiolus grandiflorus* L.) cv. Summer Sunshine

YASHAWANTH, D. R.

ABSTRACT

An investigation on “Influence of micronutrients on growth, flowering and corm production of gladiolus (*Gladiolus grandiflorus* L.) cv. Summer Sunshine” was carried out in Randomized Complete Block Design with two replications and twenty one treatments at the experimental block of the Floriculture and Landscape Architecture, College of Horticulture, Mudigere during the year 2015-16.

The results revealed that the plant height was maximum in treatment H_3BO_3 at 0.5 per cent (71.60 cm). Whereas the maximum leaf production per plant (9.50) was recorded in micronutrient mixture at 1.0 per cent. The days taken for bud initiation and first floret opening were found early in $ZnSO_4$ at 1.0 per cent + H_3BO_3 at 1.0 per cent (60.20 days and 70.00 days, respectively). Foliar application of H_3BO_3 at 0.5 per cent recorded maximum spike length (71.70 cm), rachis length (54.60 cm) and number of florets per spike (16.30) but vase life (11.50 days) was maximum with foliar application of micronutrient mixture at 1.0 per cent. Number of corms per plant (1.50) and number of cormels per plant (28.80) were maximum in $ZnSO_4$ at 1.0 per cent + H_3BO_3 at 1.0 per cent. Corm yield per hectare (11564.35 kg) was maximum in treatment H_3BO_3 at 0.5 per cent. Among the micronutrient treatments studied, better performance in terms of vegetative, flower yield and corm production was observed in treatment such as H_3BO_3 at 0.5 per cent followed by $ZnSO_4$ at 1.0 per cent + H_3BO_3 at 1.0 per cent and micronutrient mixture at 1.0 per cent. The maximum B: C ratio (2.57) was recorded in H_3BO_3 at 0.5 per cent treatment.

July, 2016

(S. Y. Chandrashekar)
Major Advisor

27. Field Response of Chrysanthemum (*Dendranthemagrandidiflora*Tzvelev) to Phosphorus Solubilizing and Mobilizing Bioinoculants with Graded Levels of Phosphorus

HARISH, S. DODDUJJAPPALAVAR

ABSTRACT

A field experiment was conducted to know the 'Field response of chrysanthemum (*Dendranthemagrandidiflora*Tzvelev) to phosphorus solubilizing and mobilizing bioinoculants with graded levels of phosphorus' was carried out at Department of Floriculture and landscape architecture, College of Horticulture, Mudigere, during 2016-17. The experiment was laid out in randomized complete block design with twelve treatments replicated thrice. Plants treated with 75 per cent recommended dose of phosphorus + phosphorus solubilizing fungus (*Aspergillusawamori*)+ phosphorus solubilizing bacteria (*Pseudomonas striata*) (T₁₁) recorded significantly maximum plant height (61.00 cm), stem girth (7.10 mm), plant spread North-South and East-West (30.67 cm and 31.53 cm, respectively), number of primary branches (24.31), secondary branches (48.62), tertiary branches (63.33), number of leaves (101.40), leaf area (5175.30 cm²), leaf area index (2.51), fresh weight of leaves (72.90 g/plant), fresh weight of shoots (64.80 g/plant), fresh weight of flowers (44.64 g/plant), fresh weight of roots (40.30 g/plant), total fresh weight (222.64 g/plant), dry matter of leaves (24.30 g/plant), dry matter of shoots (21.60 g/plant), dry matter of flowers (14.40 g/plant), dry matter of roots (13.00 g/plant), total dry matter (73.30 g/plant), crop growth rate (4.37 g/m²/day at 90-120 DAP), relative growth rate (0.0066 g/g/day at 90-120 DAP), net assimilation rate (0.00034 g/dm²/day at 90-120 DAP), total chlorophyll (3.08 mg/g), days to first flower bud initiation (61.60), days to first flower opening (90.90), maximum flowering duration (125.47 days), maximum flower weight (6.10 g), diameter (6.23 cm), number of petals per flower (118.37), flowers per plant (70.83), flower yield (18.08 t/ha), sucker yield (2,31,667 Nos. per hectare) and its quality parameters like shelf life (7.00 days) and vase life (13.87 days). Similarly 75 per cent recommended dose of phosphorus + phosphorus solubilizing fungus (*Aspergillusawamori*) + phosphorus solubilizing bacteria (*Pseudomonas striata*) (T₁₁) recorded significantly highest available N (225.77 kg/ha), P₂O₅ (128.53 kg/ha) and K₂O (221.88 kg/ha) in soil, respectively. The economic analysis clearly indicated that, application of 75 per cent recommended dose of phosphorus + phosphorus solubilizing fungus (*Aspergillusawamori*)+ phosphorus solubilizing bacteria (*Pseudomonas striata*) (T₁₁) realized maximum net returns (₹ 13,26,994 /ha) and B: C ratio (1:5.30) for flower production and sucker yield.

July, 2017

(B. Hemla Naik)
Major Advisor

28. Influence of Plant Growth Regulators on Growth, Flowering and Corm Yield of *Gladiolus (Gladiolus hybridusL.)* cv. Summer Sunshine

MANASA, M. D.

ABSTRACT

An investigation on “Influence of plant growth regulatorson growth, flowering and corm yield of *Gladiolus (Gladiolus hybridusL.)* cv. Summer Sunshine” was carriedoutat Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during 2016-17. The experiment was laid out in Randomized Completely Block Design (RCBD) and was planted by using the corms dippedfor 24 hrs with different growth regulators *viz.*, GA₃ (50, 100 and 150 ppm), NAA (50, 100 and 150 ppm), BA (50, 100 and 150 ppm) andThiourea (10000, 15000 and 20000 ppm) along with control as treatments and was replicated thrice. The results revealed that BA at 100 ppm was recorded maximum per cent sprouting (77.84), more number of suckers per plant (4.03) and leaves per plant (12.43).Corms treated with GA₃ at 150 ppm were taken minimum number of days to sprouting (9.07) also recorded significantly maximum plants height(73.52cm),leaf length (63.30 cm), leaf width(5.11 cm), leaf area (2544.12cm²) and LAI (4.24), same treatment had shown early spike initiation (62.33 days), maximumspike length (63.31 cm), rachis length (52.50 cm), girth of the spike (11.56 mm), spike weight (89.97 g), number of florets per spike (15.98), floret diameter (10.71 cm), length of floret (12.34 cm) and vase life (15.00 days). The maximum chlorophyll-a, chlorophyll-b and total chlorophyll was noticed from treatment BA @ 150 ppm (1.31, 0.74 and 2.25 mg/g fresh wt., respectively), whereas, minimum chlorophyll-a, chlorophyll-b and total chlorophyll was noticed from control (0.40, 0.10 and 0.77 mg/g fresh. wt., respectively). The maximum yield of spike, corms and cormels (261333.33 /ha, 11.04 t/ha, and 3.63 t/ha, respectively)were noticed from the treatment BA @ 100 ppm. The economic analysis clearly indicated that the corms treatment with BA @ 100 ppm recorded maximum cost benefit ratio (1:4.04) and net profit of Rs. 36, 30,532.98 per ha.

July, 2017

(Chandrashekar, S. Y.)
Major Advisor

29. Variability Studies in Heliconia Genotypes under Shade House Condition

SANTHOSH, N.

ABSTRACT

An investigation was carried out to evaluate genotypes of heliconia for growth, flowering, yield, quality and genetic traits at experimental block of Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, Karnataka during the 2016-2017. The genotypes *viz.*, Super Cheri, Lobster Claw II, Rostrata, Guyana, Lady Di, Daintree Red, Golden Yellow, African Dawn, Sassy, Distans, Tropics, Strawberry Cream, Golden Torch and Lobster Claw I were taken for study. Among fourteen genotypes studied, Distans recorded maximum plant height (205.67 cm) and leaf length (55.00 cm). The genotype Tropics recorded the maximum number of shoots per plant (19.73), number of leaves per plant (37.87) and leaf area (23235.30 cm²). The genotype Lobster Claw II recorded the maximum leaf width (20.53 cm). The days to emergence of spike (141.73 days) and days to opening of spike (147.00 days) were minimum in the genotype Strawberry Cream. The maximum stalk length was recorded in the genotype Sassy (83.53 cm). The maximum stalk girth (15.01 mm) and vase life (12.00 days) was observed in the genotype Lobster Claw II. The maximum spike length (46.00 cm) and number of bracts per spike (16.23) was observed in the genotype Rostrata. The spike width (17.53 cm) and number of flowers per bract (14.20) was maximum in the genotype Distans and Guyana, respectively. The maximum number of stalks per plant (16.27), number of stalks per m² (65.07), number of stalks per hectare (6.57 lakhs) and sucker yield per m² (15.00) was produced in the genotype Tropics. The estimates on phenotypic coefficient of variation (PCV) were more than genotypic coefficient of variation (GCV) for all characters. High heritability estimates associated with high genetic advance (over mean) was noticed for most of the traits studied. The maximum B: C ratio was recorded in the genotype Tropics (1:5.47), while the minimum was recorded in the genotype Super Cheri Red (1:0.90).

August, 2017

(Chandrashekar, S. Y.)
Major Advisor

30. Influence of Plant Growth Regulators on *Anthurium andreanum* Lind. var. Tropical Under Protected Condition

SEEMANTHINI, N. S.

ABSTRACT

An investigation was carried out on influence of plant growth regulators *viz.*, Benzyl Adenine (250, 500 and 750 ppm), Gibberellic acid (100, 150 and 200 ppm), Maleic Hydrazide (100, 150 and 200 ppm) and Cycocel (1000, 1500 and 2000ppm) on *Anthurium andreanum* Lind. var. Tropical under protected condition. The experiment was laid out in randomized completely block design with three replications in the experimental block of department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, Karnataka during 2016-17. The results of the experiment indicated that among different treatments, spraying of BA @ 750 ppm recorded maximum plant height (42.70 cm), stem girth (21.30 mm), number of leaves per plant (6.56), leaf length (25.90 cm), leaf width (16.80 cm), leaf area (2435.10 cm²), leaf area index (1.80), chlorophyll-a (1.32 mg/g fresh weight), chlorophyll-b (0.74 mg/g fresh weight), total chlorophyll (2.25mg/g fresh weight), early to sucker emergence (88.67 days), number of suckers/plant (3.33), early to 1st flowering (97.33 days), early to 100 per cent flowering (157.00 days) and the flower quality parameters like maximum stalk length (35.87cm), spathe length (12.63cm), spathe width (9.80 cm), spadix length (6.10 cm), flower weight (15.33 g) and number of flowers/plant (6.47) at 240 days after spray. Similarly GA₃ @ 150 ppm depicted early to 50 percent flowering (128.00 days) and GA₃ @ 200 ppm exhibited maximum vase life (14.33 days). The economic analysis of the experiment distinctly shows that spraying of BA @ 750 ppm displayed the maximum net returns (₹ 8,07,473.61/500m²/year) and B:C ratio (1:2.89) for flower and sucker production.

July, 2017

(Chandrashekar, S. Y.)
Major Advisor

31. Effect of Biostimulants on Flowering and Seed Yield of China aster cv. Kamini

VINUTHA, D. B.

ABSTRACT

A field experiment was conducted to study the effect of biostimulants on flowering and seed yield of China aster cv. Kamini at Department of Horticulture, College of Agriculture, Shivamogga, University of Agricultural and Horticultural Sciences, Shivamogga during 2016-17. The experiment was laid out in randomized complete block design (RCBD) with six biostimulants *viz.*, GA₃, NAA, Boron, Biovita, Humicil and Azospirillum at two different concentrations all together as treatments and was replicated thrice. The plants sprayed with GA₃ @ 200ppm recorded maximum plant height (65.07cm), number of leaves (115.67), leaf area (4259.30cm²), stem girth (12.71mm), number of primary branches (9.73) and secondary branches per plant (13.00), plant spread East-West and North-South (22.17cm and 19.23cm, respectively), total dry weight per plant (45.03g), total chlorophyll content (21.60 mg/g fresh weight), days to first flowering (59.00), days taken for 50 per cent flowering (73.00) and stalk length (27.50cm). With respect to duration of flowering (70.33 days) and number of petals per flower (136.33) it was found maximum in Humicil @ 1 per cent and Humicil @ 0.5 per cent, respectively. Bigger sized flowers with a diameter (7.39cm), individual flower weight (2.40g) and shelf life (41.00 hrs) was recorded in Azospirillum @ 8 per cent spray. However, the longest vase life was observed in Biovita @ 1 per cent (8.17 days). Among the biostimulants, GA₃ @ 200ppm recorded maximum number of flowers per plant (67.67), flower yield/ha (30.23t), seed yield/plant (4.45g), seed yield/ha (4.57q) and test weight (2.27g). The economic analysis indicated that, foliar application of GA₃ @ 200ppm realized maximum B: C ratio (6.10 and 12.08) for flower and seed production, respectively.

July, 2017

(B. Hemla Naik)
Major Advisor

32. Morphological, Floral Characterization and Diversity of Wild Orchids of Western Ghats

AKSHATA, A. S

ABSTRACT

An investigation on “Morphological, floral characterization and diversity of wild orchids of Western Ghats” was carried out at orchidarium, Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during 2017-18. The experiment was laid out in Randomized Complete Block Design (RCBD) with 22 treatments and 3 replications. The shoot height in monopodial and sympodial orchids was recorded maximum in *Rhyncostylis retusa* (L.) Blume (43.43 cm) and *Spathoglottis plicata* Blume (121.43 cm) respectively. *Spathoglottis plicata* Blume recorded maximum leaf length (100.67 cm) and leaf breadth (5.97 cm). The number of flowers recorded were maximum in *Rhyncostylis retusa* (L.) Blume. (99.40). *Coelogyne fimbriata* Lindl. recorded maximum dorsal sepal length (2.74 cm), dorsal sepal breadth (1.38 cm), lateral sepal length (3.00 cm) and lateral sepal breadth in *Aerides maculosum* Lindl.(1.33 cm). *Spathoglottis plicata* Blume. showed maximum petal length (2.67 cm) and petal breadth (1.47 cm).The maximum longevity of the flowers was found 87.13 days in *Cottonia pendicularis*. (Lindl.) Rchb. f. *Rhyncostylis retusa* (L.) Blume recorded the maximum number of pods per inflorescence (9.20). A dendrogram based on the morphological and floral parameters of 18 wild orchid species formed two main clusters. The results revealed that *Bulbophyllum fimbriatum* (Lindl.) Rchb. F. had the highest distance between *Spathoglottis plicata* Blume(9.97). The survey of wild orchids of Western Ghats was under taken to study diversity of wild orchids. Thirty eight species belonging to 20 genera were recorded in five diverse locations in and around Mudigere taluk. The highest Shannon’s and Simpson’s diversity index was observed for Devaramane region (3.25 and 0.96).

September, 2018

(Nataraj, S. K)
Major Advisor

33. Effect of Foliar Application of Biostimulants on Growth, Yield and Flower Quality of Chrysanthemum cv. Kolar Local

BHARGAVI, S. P.

ABSTRACT

An experiment was conducted to know the influence of biostimulants on growth, yield, quality and economics of chrysanthemum under fan and pad greenhouse at Department of Horticulture, College of Agriculture, Shivamogga during 2017-18. The experiment was laid out in RCBD with thirteen treatments replicated thrice. The treatments comprised of T₁-Humic acid 0.5%, T₂-Humic acid 0.6%, T₃-Biovita 0.5%, T₄-Biovita 0.6%, T₅-Recharge 0.5%, T₆-Recharge 0.6%, T₇- Spic cytozyme 0.2%, T₈-Spic cytozyme 0.4%, T₉-Vipul 0.2%, T₁₀-Vipul 0.4%, T₁₁-Boron 0.1%, T₁₂-Boron 0.2% and T₁₃-Control.

Among the different biostimulants treatments application of Spic cytozyme @ 0.4% at 30, 60, 90, 120 and 150 days after transplanting resulted in significantly higher plant height (89.04 cm) and internodal length (2.44 cm), while biovita at 0.6% recorded maximum number of leaves (143.43), stem girth (8.18 mm), number of primary branches (11.47), number of secondary branches (24.98), leaf area (5245.33 cm²/plant), leaf area index (5.80), leaf area duration (122.60), stem dry weight (15.06 g/plant), leaf dry weight (24.84 g/plant), flower dry weight (6.16 g/plant), total dry matter accumulation (45.37 g/plant), crop growth rate (0.000897 g/m²/day), relative growth rate (0.009760 g/g/day) and net assimilation rate (0.0129800 g/dm²/day), with respect to flowering biovita at 0.6 per cent recorded minimum number of days for first flowering (100.00), 50 per cent flowering (112.33) and maximum duration of flowering (65.82), maximum number of flowers per plant (95.57), flower yield per plant (511.93 g), flower yield per square meter (5.63 kg), flower yield per hectare (56.30 t/ha), sucker yield per plant (9.99), individual flower weight (7.87 g), flower diameter (6.92 cm), stem length (46.89 cm), vase life (22.99 days) and shelf life (11.07 days). The economic analysis indicated that biovita at 0.6% recorded the highest net returns (2,99,801.67) and BC ratio (3.92).

July, 2018

(B. Hemla Naik)
Major Advisor

34. Effect of Benzyl Adenine and Gibberellic Acid on Growth, Flowering, Flower and Corm Yield in Gladiolus (*Gladiolus hybridus* L.) cv. Summer Sunshine

PRIYANKA, S. HOLKAR

ABSTRACT

An investigation on “Effect of benzyl adenine and gibberellic acid on growth, flowering, flower and corm yield in gladiolus (*Gladiolus hybridus* L.) cv. Summer Sunshine” was carried out at Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during 2017-18. The experiment was laid out in Randomized Complete Block Design (RCBD) with 16 treatments and replicated thrice. The treatments comprises of BA (100, 200 and 300 ppm), GA₃ (150, 200 and 250 ppm) and their combinations along with the control. The results revealed that GA₃ at 250 ppm recorded minimum days to sprouting (7.20), maximum per cent sprouting (96.80 %), plant height (98.43 cm), duration of flowering (24.40 days), spike length (94.07 cm), rachis length (60.70 cm), florets per spike (18.80) and vase life (15.00 days). BA at 100 ppm recorded maximum number of leaves (9.50) per plant, leaf area (1824.37 cm²) and leaf area index (3.04). GA₃ at 150 ppm recorded minimum days taken for spike initiation (66.27), first floret opening (73.73 days), 50 per cent flowering (77.87 days), maximum spike girth (12.37 mm), spike weight (98.03 g), floret length (10.73 cm) and floret diameter (10.33 cm). BA at 300 ppm exhibited the maximum number of side shoots (5.00) per corm, total chlorophyll content (2.60 mg/g), number of spikes yield per plant (3.30), per plot (99.00), per hectare (4,95,000.00), number of corms yield per plant (3.41), per plot (102.00), per hectare (13,416.67 Kg/ha), cormels yield per plant (47.14), per plot (644.67) and per hectare (1250.00 Kg/ha), maximum corms weight per plot (2.68 Kg), cormels weight per plant (28.08 g) and per plot (251.33 g). GA₃ at 250 ppm recorded maximum diameter of corm (7.99 cm) and diameter of cormels (7.19 mm). BA at 300 ppm recorded maximum cost benefit ratio (1: 4.56).

July, 2018

(Hemanth Kumar, P.)
Major Advisor

35. Genetic Variability Studies in F₂ Segregating Population of China ASTER [*Callistephus chinensis* (L.) Nees.]

RAMYA, H. M.

ABSTRACT

A study on “Genetic variability studies in F₂ segregating population of China aster [*Callistephus chinensis* (L.) Nees.]” was carried out during 2017-2018 in the experimental block of Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere.

The F₂ population of the cross Arka Archana x AAC-1 recorded high PCV and GCV for number of branches per plant, plant spread East-West, number of flowers per plant, disc diameter, individual flower weight and flower yield per plant. While, the F₂ population of the cross Arka Kamini x PG Violet exhibited high GCV and PCV for number of branches per plant, plant spread North-South and East-West, individual flower weight, number of flowers per plant and disc diameter. High heritability coupled with high genetic advance as per cent of mean was recorded for plant height, number of branches per plant, plant spread North-South and East-West, disc diameter, flower stalk length, flower yield per plant, stem girth, flower diameter, number of flowers per plant and individual flower weight in both the crosses. Correlation studies revealed that flower yield per plant recorded positive and significant phenotypic correlation with number of flower per plant, individual flower weight, flower diameter, disc diameter, number of branches per plant, plant spread North-South and East-West and duration of flowering in both the F₂ segregating population of China aster. Path analysis of F₂ segregating population of China aster revealed that plant height, number of branches per plant, plant spread East-West and North-South, stem girth, days to first flowering, duration of flowering, number of flower per plant, individual flower weight, flower diameter and disc diameter had positive direct effects on flower yield per plant.

July, 2018

(Nataraj, S.K.)
Major Advisor

36. Morphological Characterization of Chrysanthemum (*Dendranthema grandiflora* Tzvelev) Genotypes under Hill Zone of Karnataka.

ROOPA, S.

ABSTRACT

An investigation on “Morphological characterization of chrysanthemum (*Dendranthema grandiflora* Tzvelev) genotypes under hill zone of Karnataka” was carried out in the experimental block of Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during 2017 - 2018.

Among the twenty chrysanthemum genotypes evaluated, the genotype ACC 1 recorded maximum plant height (56.26 cm). The genotype Chandini recorded maximum plant spread E-W and N- S (21.32 cm and 14.09 cm, respectively), number of leaves per plant (511.41), primary and secondary branches per plant (12.39 and 24.24, respectively), leaf area (9913.82 cm²) and leaf area index (11.02) and genotype Star Pink recorded maximum stem girth (5.50 mm). The genotype Kolar Local recorded minimum days for appearance of first flower and 50 per cent of flowering (90.59 and 99.66, respectively.) and maximum flowering duration (149.33 days). The genotype Kolar Local recorded significantly maximum flower yield per plant (250.78 g) and per hectare (25.72 t). Flower yield per plant was significantly correlated in positive associations with leaf area, flower weight, number of primary and secondary branches per plant, flower diameter, number of leaves per plant, duration of flowering, number of flowers per plant, stem girth and plant height at both genotypic and phenotypic level. The flower yield per plant exhibited high positive direct effect with number of primary branches per plant, internodal length, and flower weight at genotypic and phenotypic level. The genotype Kolar Local realized maximum net returns and benefit cost (3.06) ratio. Among these screened chrysanthemum genotypes, Kolar Local was found superior over the rest with respect to growth, flowering, yield and quality parameters. Hence, genotype Kolar Local can be recommended for commercial cultivation under Hill Zone of Karnataka.

July, 2018

(Chandrashekar, S.Y.)

Major Advisor

37. Effect of Foliar Nutrition and Harvesting time on Flower and Xanthophyll Yield of Marigold var. Arka Agni

VIBHA, V. RAO

ABSTRACT

An investigation was carried out to study the effect of foliar nutrients *viz.*, Mono ammonium phosphate, Single super phosphate, Zinc sulphate, Phosphate solubilizing bacteria, Potassium schoenite, Micronutrient mixture and 13:40:13 at two concentrations (0.3 % and 0.5 %) all together there were 15 treatment combinations along with control, on growth, flower and xanthophyll yield of marigold var. Arka Agni under field condition. The experiment was laid out in randomized complete block design with three replications in the experimental block of Department of Horticulture, College of Agriculture, Shivamogga, Karnataka during 2017-18. The results of the experiment indicated that among different foliar treatments, spraying of MAP at 0.5 per cent recorded maximum number of leaves (307.33), primary branches (15.54), secondary branches (42.81), tertiary branches (69.26), leaf area (8154 cm²), leaf area index (3.02), total dry matter (148.20 g), relative growth rate (5.64 g/g/day), crop growth rate (9.64 g/m²/day), net assimilation rate (1.69 g/dm²/day), number of flowers per plant (67.67), number of petals per flower (529.33), fresh flower weight (10.93 g), dry flower weight (1.85 g), shelf life (4.00 days), flower yield per plant (630.74 g), flower yield per hectare (22.71 t), seed yield per plot (835.27 g), seed yield per hectare (514.52 kg) and the xanthophyll yield parameters like petal meal yield per kilogram of fresh flower (72.48 g), petal meal yield per hectare (16.44 q), xanthophyll yield per kilogram of petal meal (23.86 g) and xanthophyll yield per hectare (39.57 kg). The economic analysis of the experiment distinctly shows that spraying of MAP at 0.5 per cent displayed the maximum B:C ratio for flower (3.62) and seed (6.75) production. While, the highest xanthophyll content (23.83 g/kg petal meal) was recorded in the flowers harvested at 7 AM which were treated with 0.5 per cent MAP.

August, 2018

(B. HemlaNaik)
Major Advisor

38. Studies on Diversity and Characterization of Fern Flora of Western Ghats in Mudigere Region of Karnataka

VIDYASHREE

ABSTRACT

An investigation on “Studies on diversity and characterization of fern flora of Western Ghats in Mudigere region of Karnataka” was carried out at the Department of Floriculture and Landscape Architecture, College of Horticulture Mudigere, during 2017-18. Survey of fern flora of Western Ghats was under taken to access the diversity of ferns. Thirty five species belonging to 33 families and 26 genera were recorded. The *Adiantum philippense* L. was most abundant species (42.72). The highest Shannon’s and Simpson’s diversity index was observed for Malayamarutha region (3.41 and 0.963). Out of the 35 species recorded twenty one species selected for further morphological characterization based on their abundance, habitat, survival ability and economic importance. The experiment was conducted in a Completely Randomized Block Design (CRD) replicated thrice under polyhouse. The species *Nephrolepis undulate* J. Sm. recorded maximum plant height (77.30 cm), frond length (70.00 cm), number of fronds (85.13) and vase life (17.50 days). *Cyathea nilgirensis* Holttum recorded maximum frond breadth (45.53 cm), plant spread in EW and NS direction (55.77 cm and 54.40 cm, respectively) and *Diplazium esculentum* (Retz.) Sw. had maximum leaf area (10721.00 cm²). Genetic variation was studied among nineteen fern species using ten inter simple sequence repeat markers (ISSR). ISSR fragments generated 29 to 87 bands per primer. A total of 281 polymorphic bands produced 34.48 to 66.66 per cent polymorphism per primer. The similarity coefficient between the species were within the range from 1.70 to 25 per cent. The dendrogram generated by ISSR markers revealed two major clusters, indicating that fern species have distributed based on frond shape, frond type, type of rhizome, habitat, stipe colour, texture, sori position. Based on molecular data *Parahemionitis cordata* (Fraser-Jenk.), *Pteris biaurita* L. and *Blechnum orientale* L branched singly having difference in their morphology.

July, 2018

(Chandrashekar, S.Y)
Major Advisor

39. Studies on Diversity and Characterization of Wild Orchids in Western Ghats of Chikkamagaluru

(CHAITRA, H. P)

ABSTRACT

The investigation on “Studies on diversity and characterization of wild orchids in Western Ghats of Chikkamagaluru” carried out at Orchidarium, Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during 2018-19. Survey of wild orchids of Sringeri was undertaken to assess the diversity of orchids. Twenty nine species belonging to 22 genera of wild orchids were recorded of which 27 species were epiphytic and two were terrestrial. *Hopea punga* (Dennst.) Mabb. was observed as the best host among all host trees hosting about 176 wild orchids belong to different genera. *Cleisostoma tenuifolium* (L.) Garay was densely populated in the study area (41.33). The highest Shannon’s diversity index was observed for Koradakallu (2.34) and the highest Simpson’s diversity index was recorded for Kunchebailu and Koradakallu (0.87 each, respectively). Morphological characterization of 39 species of wild orchids were taken up in the present study using Completely Randomized Block Design (CRD) with three replications under shade house. The maximum plant height was recorded in *Aerides maculosum* Lindl. (49.60 cm) among monopodials and in *Dendrobium herbaceum* Lindl. (98.07 cm) among sympodials. The maximum number of leaves per plant was observed in *Dendrobium herbaceum* Lindl. (58.67). The highest number of inflorescence were found in *Liparis viridifolia* (Blume) Lindl. (17.67) and maximum number flowers was observed in *Schoenorchis meeana* (Rchb.f.) Jalal, Jayanthi and Schuit (256). Molecular characterization of 22 wild orchids was performed using 17 SSR markers and the cluster analysis grouped them into 8 different genetic clusters. The highest PIC value 0.37 was observed for OA 18, DNESSR 24 and DNESSR 85. The highest genetic similarity of 89 per cent was observed between *Coelogyne breviscapa* Lindl. and *Coelogyne nervosa* A. Rich. and the least genetic similarity of 10 per cent was observed between *Aerides ringens* (Lindl.) C.E.C. Fish. and *Dendrobium aqueum* Lindl.

August, 2019

(Nataraj, S. K)
Major Advisor

40. Effect of Foliar Application of Bio-Stimulants on Growth, Flowering and Quality of Gladiolus Cv. Summer Sunshine

(HARISH, K.)

ABSTRACT

An experiment was conducted to know the influence of bio-stimulants on growth, flowering and quality of gladiolus Cv. Summer Sunshine in Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during 2018-19. The experiment was consisted with 11 bio-stimulants viz., T1-Humic acid (0.4%), T2-Humic acid (0.6%), T3-Biovita (0.4%), T4-Biovita (0.6%), T5-Biozyme (0.4%), T6-Biozyme (0.6%), T7-Spic cytozyme (0.4%), T8-Spic cytozyme (0.6%), T9-Recharge (0.4%), T10-Recharge (0.6%), and T11-Control and replicated thrice in Randomized Complete Block Design (RCBD). The results revealed that application of Biozyme @ 0.4 per cent recorded maximum plant height (76.07 cm), number of leaves (11.33), leaf area (1251.96 cm²), leaf area index (2.09), leaf dry weight (8.90g/plant), flower dry weight (9.10g/spike), total dry matter accumulation (27.27g/plant), crop growth rate (0.22g/m²/day), relative growth rate (0.0094g/g/day) and net assimilation rate (0.041g/dm²/day). With respect to flowering and quality parameters, Biozyme at 0.4 per cent recorded minimum days taken for initiation of inflorescence (75.00), first floret opening (80.67 days), 50% flowering (84.67 days), duration of flowering (22.00 days), spike length (87.87 cm), rachis length (43.47 cm), number of florets per spike (16.07), floret diameter (12.48 cm), floret length (12.95 cm), spike girth (10.49 mm), spike weight (74.92 g) and vase life (12.59 days). The yield parameters like number of spikes per plant (1.51), spike yield per plot (45.30) and spike yield per hectare (2,26,500.00) recorded in Biozyme at 0.4 per cent. The maximum corm parameters were recorded in Spic cytozyme at 0.4 per cent, corm weight per plant (102.53g), corm weight per plot (2.54kg), diameter of the corm (5.14cm), corm yield per plant (2.53), corm yield per hectare (12683.33kg). Biozyme @ 0.4 per cent recorded maximum cost benefit ratio (1:2.40).

August, 2019

(S. Y. Chandrashekar)
Major Advisor

41. Standardization of Potting Media for *Nephrolepis undulate* J. Sm under Protected Condition

(KAVANA, G. B)

ABSTRACT

An investigation on “Standardization of potting media for *Nephrolepis undulate* J. Sm under protected condition” was carried out in experimental block of Department of Floriculture and Landscape Architecture. College of Horticulture Mudigere during 2018 – 2019. The experiment consists of ten treatments viz., T1 - Soil + Sand + FYM (2:1:1), T2 - Soil + Cocopeat + Vermicompost (2:1:1), T3 - Soil + Coir pith + Vermicompost (2:1:1), T4 - Soil + Cocopeat + FYM + Vermicompost (2:1:1:1), T5 - Soil + Perlite + Coir pith + Vermicompost (2:1:1:1), T6 - Cocopeat + Sand + FYM (2:1:1), T7 - Cocopeat + Vermicompost + Coir pith (2:1:1), T8 - Cocopeat + Vermicompost + FYM (2:1:1), T9 - Cocopeat + Perlite + Sand + Vermicompost (2:1:1:1) and T10 - Cocopeat + Perlite + Coir pith + Vermicompost (2:1:1:1) with three replications with Completely Randomized Design (CRD). The suckers were planted in the 12” pots during October 2018. The significant differences were observed in the treatments. Among them the plants which are grown in the media soil + cocopeat + FYM + vermicompost recorded the maximum plant height (95.30 cm), plant spread in EW and NS (72.00 and 73.67 cm, respectively), number of shoots (6.17), number of croziers (3.10), number of fronds (12.00), frond length and width (87.00 and 15.67 cm, respectively), number of leaflets per frond, sori per leaflet (135.00 and 63.00), total chlorophyll and visual plant grade (2.96 mg/g of fresh weight and 4.85, respectively), shelf and vase life (8.00 and 20.33 days, respectively), N, P and K (5.10, 0.59 and 2.65 %, respectively) with maximum net returns and benefit cost (2.15) ratio. From the investigation, it is concluded that, media containing soil + cocopeat + FYM + vermicompost has significantly enhanced the vegetative, reproductive and quality parameters of *Nephrolepis* fern.

August, 2019

(S. Y. Chandrashekar)
Major Advisor

42. Effect of Bioagents on Growth, Yield and Management of *Fusarium oxysporum* f. sp. *Callistephi* in China Aster [*Callistephus chinensis* (L.) Nees.] cv. Kamini

KRISHNA, G.

ABSTRACT

The present study consisting of two experiments, one on effect of bioagents on growth and yield of China aster cv. Arka Kamini with seven treatments were replicated thrice using Randomized Complete Block Design in field condition, while another experiment on effect of bioagents and *Fusarium oxysporum* f. sp. *callistephi* challenge inoculation on growth, yield and management of *Fusarium* wilt of China aster with fourteen treatments were replicated thrice using Completely Randomized Design under pot condition at the Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during 2018-19. The maximum plant height (60.38 cm), number of branches (12.67), stem girth (1.30 cm), plant spread (568.82 cm²), days to flower bud initiation (58.00), first flowering (65.33 days), fifty per cent flowering (69.87 days), duration of flowering (40.07 days), flower head diameter (5.75 cm), flower stalk length (18.22 cm), vase life (8.60 days), shelf life (39.00 hrs), number of flowers per plant (48.60), individual flower weight (2.46 g), flower yield per plant (119.56 g), flower yield per hectare (13.28 tons), root length (12.78 cm), root weight (15.59 g) and minimum disease incidence (13.44 %) were observed with *Trichoderma harzianum*, while colony forming units found maximum at 90 days of application in Arka Microbial Consortium (92.50 cfu and 75.00 cfu at 10⁻¹ and 10⁻² dilution respectively). Similarly, among bioagents and challenge inoculation with *Fusarium oxysporum* f. sp. *callistephi*, vegetative growth, flowering, flower quality and flower yield were found maximum with *Trichoderma harzianum* and no disease incidence was observed. While, colony forming units were found maximum at 90 days application in Arka Microbial Consortium (92.50 cfu and 66.50 cfu at 10⁻¹ and 10⁻² dilution respectively). The antagonistic activity of different bioagents against *F. oxysporum* f. sp. *callistephi* was evaluated under in vitro and highest inhibition of 90.06 per cent noticed with *Trichoderma harzianum*.

August, 2019

(Nataraj, S.K.)
Major Advisor

43. Effect of Bio-Regulators on Growth and Development of Asiatic Lily under Protected Condition

(RAGINI, B. K.)

ABSTRACT

An experiment on “Effect of bio-regulators on growth and development on Asiatic lily under protected condition” was carried out at Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere, during 2018-19. The experiment was laid out in a Randomized Completely Block Design (RCBD) and replicated thrice with 13 treatments viz., Gibberellic acid (GA3) (100, 150 and 200 ppm), Benzyl adenine (BA) (150, 300 and 450 ppm), Naphthalene acetic acid (NAA) (100, 150 and 200 ppm) and Chlormequat chloride (CCC) (1000, 1500 and 2000 ppm) along with control. The bulbs were dipped in different bio-regulators for 12 hours. The results revealed that GA3 @ 200 ppm recorded minimum days for sprouting (3.33), maximum plant height (98.44 cm), number of leaves per plant (80.93), leaf length (12.53 cm), leaf breadth (2.77 cm), leaf area (1704.60 cm²), leaf area index (5.68), early bud initiation (37.67 days), flowering (67.47 days), 50 per cent flowering (73.20 days), bud length (5.83 cm), bud diameter (15.96 mm), length of petiole (7.23 cm), diameter of the flower (20.84 cm), petal length (11.54 cm), petal breadth (5.01 cm), number of spikes per m² (28.97), length of the stalk (80.40 cm), stalk weight (99.33 g), diameter of the bulbs (11.00 cm), weight of bulbs (109.67 g), yield of bulbs per plot (2.27 kg), number of scales (24.27), length of scales (2.75 cm) and breadth of scales (2.40 cm). CCC @ 2000 ppm recorded the maximum diameter of petiole (6.42 mm), days taken for flower senescence on the plant (20.67), vase life of flowers with anthers (14.17 days) and vase life without anthers (16.63 days). The treatment BA @ 150 ppm recorded a maximum number of buds per plant (9.17), maximum number of bulbs per plant (3.00), number of bulblets per plant (6.07) and also recorded highest benefit-cost ratio (1:2.26).

August, 2019

(Chandrashekar S. Y.)
Major Advisor

44. Performance of Liliiums under Protected Cultivation in Transitional Zone of Karnataka

(SANDESH, P)

ABSTRACT

The present investigation entitled “Performance of Liliiums under protected cultivation in transitional zone of Karnataka” was carried out under the polyhouse structure Department of Horticulture, College of Agriculture, University of Agricultural and Horticultural Sciences, Shivamogga during the 2018-19. Among the seven liliium cultivars studied the Cv. Yelloween was found to be superior with respect to plant height (56.93 cm) and number of leaves per plant (69.24), leaf area and leaf area index at peak growth stage and the cv. Justina Zantrijus recorded maximum leaf length. While, leaf breadth was higher in Meriva Zanolrva. The Cv. Indian Summerset recorded maximum chlorophyll ‘a’, ‘b’ and total chlorophyll content and the Cv. Indian Summerset took minimum number of days for the flower bud emergence (28.56) and days taken to 50 per cent flowering, days to flower harvest and flower senescence in plant. The maximum length of flower stalk, weight of flower stalk and stalk girth, was noticed in Cv. Yelloween. The highest number of florets per spike was produced by the Cv. Yelloween. The maximum bud length and bud diameter was recorded in the Cv. Meriva Zanolrva, while, Cv. Yelloween recorded maximum vase life both in with anthers and without anthers. Significant differences were observed among cultivars with respect to number of spikes per square meter. The Cv. Yelloween (23) recorded the maximum number of spikes per square meter followed by Pavia (22), while it was recorded minimum in the Justina Zantrijus (16). With respect to bulb parameters Yelloween produced maximum bulb weight, number of bulblets per bulb, weight of bulblet, bulb diameter, number of scales per bulb, length and breadth of scale, followed by Justina Zantrijus. While it was recorded minimum in the Cv. Indian Summerset. The Cv. Yelloween (2.22) realized maximum net returns and benefit to cost (B: C) ratio followed by Cv. Pavia (2.13) compared to all other cultivars.

August, 2019

(B. HemlaNaik)
Major Advisor

45. Standardization of Vase Chemicals for Longevity and Quality of Multiple Cut Flowers

(SATISH GOPALASETTI)

ABSTRACT

The present investigation was carried out on Standardization of vase chemicals for longevity and quality of multiple cut flowers, at the Department of Postharvest Technology, College of Horticulture, Mudigere, during 2018-2019. Total four experiments were conducted. In 1 to 3rd experiment standardization of sucrose, germicide/ mineral salts and bio-regulator concentration were studied and that of experiment-4 combined effect of all these chemicals were studied. The experiments were laid out in Completely Randomized Design with three replications and each conical flask was containing 500 ml of vase solution with eight flowers (rose, carnation, gerbera and anthurium two flowers each). In experiment-I Sucrose @ 4.0 per cent (13.75 days) and 6.0 percent (12.27 days), experiment-II Aluminium sulphate @ 75 ppm (10.21 days) and 50 ppm (9.86 days) and experiment-III Benzyladenine @ 75 ppm (13.41 days) and 100 ppm (12.29 days) recorded the significantly maximum vase life. Further, the best two concentrations from earlier experiments were selected and their effect were studied in experiment-IV.

Among seventeen treatments combinations, it was found that multiple cut flowers were replaced in sucrose (6.0 %) + Aluminium sulphate (75 ppm) exhibited the maximum cumulative water uptake (301.14g), cumulative transpiration loss of water (323.22 g), cumulative water balance (-22.08 g), relative fresh weight (66.96 %), final fresh weight (88.29g), vase life (15.25 day) and average sensory score (4.92) with the lowest bacterial count (7.08 CFU x 10⁴ ml⁻¹), final pH (3.24) and vase chemical cost (₹6.08/day/ flowers). Hence, above treatment combination maintaining the longevity and quality of multiple cut flowers.

August, 2019

(Kantharaj. Y)
Major Advisor

46. Response of Microbial Consortia at Graded Levels of N P K on Growth, Flowering, Quality and Yield of Asiatic Lily under Protected Cultivation

(SHILNA MUKUNDAN, P.V.)

ABSTRACT

The study was conducted to find out the suitable combination of graded levels of N P K and biofertilizers on growth, flowering, quality and yield of Asiatic lily Cv. Indian Summerset under protected cultivation during 2018-19 in the Department of Horticulture, College of Agriculture, Shivamogga. The experiment consists of seventeen treatments with three replications laid at Complete Randomized Design (CRD). The significant differences were observed for growth, flowering, flower quality and yield parameters. Among the treatments studied the treatment at 75 % RDF + Azotobacter croococcum + Aspergillus awamori + Bacillus musilogensis (T14) recorded significantly higher values with respect to plant height (55.09 cm), number of leaves (54.21), leaf area index (0.83) and the flowering parameters like least number of days to first flower bud emergence (23.08 days), minimum number of days to 50 per cent flowering (47.05days) and significantly maximum duration of flowering (14.88 days). Flower quality also influenced by T14 for length of flower stalk (35.69 cm), floret stalk diameter (5.53mm), diameter of bud (23.75 mm), flower diameter N-S (17.45 cm) and E-W (17.09 cm), number of florets per spike (5.00), number of florets per m² (46.33), vase life with anthers (11.15 days) and vase life without anthers (12.37 days). The bulb parameters like weight of bulb (11.23 g), bulb diameter (28.33 mm), number of bulblets (3.07), similarly biochemical parameters like chlorophyll a, b, total (1.27, 0.52 and 1.77 mg/g) and nutrient status like N P K initial (116.44, 32.66, 141.49 kg/ha) and final (249.99, 45.40, 432.36 kg/ha) was also found maximum in the same treatment. On the basis of results obtained in the present investigation, it was concluded that, the treatment T14 has significantly enhanced the growth, flowering, flower quality and yield attributes of Asiatic lily Cv. Indian Summerset.

August, 2019

(B. HemlaNaik)
Major Advisor