

Variety Pant haritma was recorded significantly superior and gave maximum (19.25 q per ha) seed yield per hectare which was followed by Rcr 436 (18.41 q per ha), Acr 1 (18.03 q per ha) and Kumbhraj (17.09 q per ha) as compared to other varieties. Variety Pant haritma was observed significantly superior which recorded maximum number of umbels per plant, number of umbellate per plant, fruit size, test weight and seed yield per plant.

P-1.21

Evaluation of gladiolus (*Gladiolus grandiflorus* Hort.) genotypes under hill zone of Karnataka

H.P. Sudeep¹, Shiva Kumar², Ravi Kumar, B.³

^{1&2} Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere -577 132

³Department of Fruit Crops, HC&RI, TNAU, Coimbatore

The present investigation was carried out with ten cultivars gladiolus at Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere to evaluate gladiolus cultivars for growth, flowering and corm production under hill zone of Karnataka. Among the cultivars, cv. Red Majesty, Summer Sunshine and Candy Man were early to sprout (5.67, 7.00, 7.00 days respectively), while late in cv. Jester (11.00 days). Per cent sprouting was maximum in cv. Summer Sunshine (95.00%) and minimum in cv. Her Majesty (51.67%). Cultivars Summer Sunshine, Red Ginger, Red Majesty and Green Bay were fairly good with respect to growth attributes such as plant height, number of leaves per plant, leaf length and leaf width, while poor vegetative growth in cultivars Jester and Her Majesty. First floret opening was recorded in cv. Red Majesty (73.87 days), while it was delayed in cv. Jester (91.80 days). Cv. Red Ginger recorded the longest spike length (114.23 cm) and shortest spike length in Her Majesty (70.3 cm). Number of florets per spike was maximum in cv. White Prosperity (18.27). While, minimum in cv. Her Majesty (10.80). Spike yield was maximum in cv. Summer Sunshine (116666.33 spikes per hectare) and minimum in cv. Jester (59259.00 spikes per hectare). Vase life was maximum in cv. American Beauty (11.67 days). Number of corms per plant was maximum in Summer Sunshine (1.47). Diameter of corm was maximum in cv. Summer Sunshine (7.64 cm) and minimum in cv. Her Majesty (5.39 cm). Maximum yield of corms per hectare in cv. Summer Sunshine (9058.67 kg) and minimum in cv. Her Majesty (921.67g).

P-1.22

Ethno-botanical study of papaya

K R Meena, S Maji, J K Meena, D C Meena, Govind and R Yadav

Department of Applied Plant Science (Horticulture)

Babasaheb Bhimrao Ambedkar University (A Central University)

Vidya-Vihar, Rae Bareilly Road, Lucknow-226025 (U.P.)

Email: majisutanu@gmail.com/krammeena84@gmail.com

Papaya (*Carica papaya*) belong to family Caricaceae with chromosome no. $2n = 18$. Papaya, a tropical plant believed to be originated in southern Mexico and Central America, is now popularly cultivated in tropical and sub tropical regions worldwide. *C. papaya* is cultivated for its edible ripe fruits. Papaya leaves are also used in indigenous populations for its therapeutic applications. The fruits are used as flavoring agent in preparation of candies, jellies, preserves, and ice cream. Shallow cuts on the surface of fully grown but unripe fruits produces a milky sap or latex to ooze that is collected, dried, and termed as "crude papain", used in industry as well as milk - clotting (rennet) and have protein-digesting properties. Nearly 80% of American beer is treated with papain, which allows the beer to remain clear upon cooling. Papain is most commonly & commercially used in meat tenderizing and chewing gums. Cosmetically, papain is used in some toothpastes, shampoos, and facial creams. The phytochemical analysis of the leaf extract contains saponins, cardiac glycosides, anthraquinones, reducing sugar, flavonoids,

P-3.3

Impact of NAA and GA₃ on growth, yield and quality of onion (*Allium cepa* L.) cv. NHRDF-Red-2

Sanjay Kumar, S. Maji*, Govind, D. C. Meena and R. Kumawat

Department of Applied Plant Science (Horticulture)

School for Biosciences and Biotechnology

Babasaheb Bhimrao Ambedkar University (A Central University)

Vidya-Vihar, Rae Bareilly Road, Lucknow-226025, Uttar Pradesh

Bio-regulators play a vital role in plant metabolic activities which ultimately influence the vegetative growth, flowering, fruiting, quality of produce and overall performance of crop. In the present experiment two bio-regulators viz. Naphthalene acetic acid (NAA) and Gibberellic acid (GA₃) were applied to see their effect on performance of onion crop cv. NHRDF-RED-2 under Lucknow condition having high pH (8.2) soil. The experiment comprised of 12 treatments [T₀-control (water spray), T₁-Gibberellic acid (GA₃) @ 50 ppm, T₂- (GA₃) @ 100 ppm, T₃- GA₃ @ 150 ppm, T₄- Naphthalene acetic acid (NAA) @ 50 ppm, T₅- (NAA) @ 100 ppm, T₆- NAA @ 150 ppm, T₇- GA₃ @ 50 ppm + NAA @ 50 ppm, T₈- GA₃ @ 50 ppm + NAA @ 100 ppm, T₉- GA₃ @ 50 ppm + NAA @ 150 ppm, T₁₀- GA₃ @ 100 ppm + NAA @ 50 ppm, T₁₁- GA₃ @ 100 ppm + NAA @ 100 ppm and T₁₂- GA₃ @ 150 ppm + NAA @ 150 ppm] and replicated thrice with Randomized Block Design (RBD). It was found that the combined application of Gibberellic acid @ 100 ppm & Naphthalene acetic acid @ 100 ppm (T₁₁) was better in the comparison to the other treatments for satisfactory improvement of vegetative growth (maximum plant height- 46.47, 71.37 and 76.50 cm and basal diameter - 1.12, 1.84, and 2.05 mm at 30, 60 and 90 DAT, respectively), yield (3.26 kg/plot and 60.34 t/ha.) and quality parameters (TSS 12.03°brix, Ascorbic acid 11.80 mg/100g and pH 6.99) of onion cv. NHRDF-RED-2 followed by T₉ (GA₃) @ 50 ppm + NAA @ 150 ppm) grown under Lucknow condition.

P-3.4

Effect of enriched material (Tata Geo Green) & FYM along with graded level of chemical fertilizer on the quality and yield of potato (*Solanum tuberosum* L.)

Neeraj Kumar Tiwari and Neeraj Kumar*

Department of soil science & agricultural Chemistry

ND University of Agriculture and Technology, Narendra Nagar (Kumarganj), Faizabad (U.P.)

**Assistant Professor, Department of soil science & agricultural Chemistry*

ND University of Agriculture and Technology, Narendra Nagar (Kumarganj), Faizabad (U.P.)

Potato popularly known as the king of vegetables has emerged as fourth most important food crop in India after rice, wheat and maize India ranks second among potato producer countries and contribute about 10-11% of world potato production after China. Globally, the total area of potato under cultivation is 186.3 million ha with production of 3300 million tonnes and productivity 17.7 tonnes ha⁻¹. In India total area under potato cultivation is 18.63 million ha with the total production of 423.39 million tonnes and productivity 22.7 tonnes ha⁻¹. While in Uttar Pradesh area, production and productivity of potato is 5.56 million ha, 135.76 million tonnes and 24.4 tonnes ha⁻¹, respectively (Anonymous 2011). The nutritive value of potato/100g of edible portion as reported by Gopalan et al. (1987).

Data presented in table showed that maximum tuber yield (301.60q/ha) was recorded with treatment T2 receiving TGG @ 3.75 t/ha + RDF which is significantly superior to over all the treatments except treatment T6, T5, T3 and T1. Various levels of TGG (Enriched) showed significant improvement in yield as well as nutrients availability as compared to 100% recommended dose of chemical fertilizers supplied through inorganic fertilizers alone. Tuber yield and availability of nutrients (OC, N,P and K) showed impressive improvement through use of TGG(

and fruits (bergamot, orange, lemon, juniper). Traditional methods of extraction of essential oils such as water distillation, water and steam distillation, steam distillation, cohobation, maceration and enfleurage are the methods most widely used on commercial scale. However, with technological advancement, new techniques viz., super critical fluid extraction, solid phase-micro extraction, controlled instantaneous decomposition etc, have been developed which may be widely used for commercial production of essential oils and are considered valuable for the production of costly essential oils. Commercial cultivation of aromatic and medicinal plants and efficient extraction of superior quality essential oil could thus, be developed in India to meet the worldwide demand for raw materials, intermediary chemicals and end-products in time to come.

P-7.18

Uses of pomegranates

Shashank Verma, Sanjay Kumar and Madhvendra Singh

B.B.A.U. Vidya Bihar, Raibareli Road, Lucknow – 226025 (U.P.)

Email: Shashank3978@gmail.com

The word pomegranate is derived from the Latin words *pomus* (apple) and *granatus* (seeded). Frequent intake of pomegranate juice can maintain good flow of the blood in the body. It decreases the risk of heart attack and heart strokes.

Pomegranates peel, bark and leaves are used to calm the stomach disorder or diarrhea triggered due to any kind of digestive problems. Drinking tea made from the leaves of this fruit helps in curing digestive problems. Pomegranate juice is also used for handling problems of dysentery and cholera. The best benefit of pomegranate is that its juice, along with its antibacterial and antiviral properties, helps to reduce the effects of dental plaque. Pomegranates consist of advanced level of antioxidants called flavonoids. These flavonoids are thought to be effective in counteracting various cancer radicals. The individuals that face high risk of prostate and breast cancer should start drinking the juice of this fruit, as this will help them to reduce further risk of developing cancer. Regular consumption of pomegranates can reduce the PSA levels in the body and helps to fight the existing cancer cells in the body. Pomegranate minimizes the illness triggered in various forms, like atherosclerosis and osteoarthritis. The loss that is triggered due to the thickening and solidifying of the arterial walls and in cartilage and joints can be cured by consuming this fruit. Also, pomegranate is capable of preventing the creation of minerals that are liable for breaking down the connective tissues. Consuming of pomegranate fruit juice by a diabetic patient can prevent coronary illnesses. Along with this, there is a slowdown in solidifying of the bloodstream, which can fuel non-occurrence of various heart diseases.

P-7.19

Medicinal properties & spice value of ginger (*Zingiber officinalis*)

Kanaram Sodh, S. Maji, Govind, R. Kumawat, D.C. Meena, K.R. Meena and J.K. Meena

Department of Applied Plant Science (Horticulture)

School for Biosciences and Biotechnology

Babasaheb Bhimrao Ambedkar University (A Central University)

Vidya-Vihar, Rae Bareilly Road, Lucknow-226025, Uttar Pradesh

Email: majisutanu@gmail.com, ramkana792@gmail.com

Ginger (*Zingiber officinalis*) is an important spice crop of family Zingiberaceae. It is grown in tropical to temperate areas. In India, it is grown popularly as spice crop and accounts 70 % of world production. It is used as common ingredient in various foods and beverages. Apart from spice crop, ginger has long time use of medicinal type back 3000 years. Ginger is mainly used medicinally and as a spice. Dry ginger is used for the manufacture of oil,

oleoresin essence, soft drinks, non-alcoholic beverages and vitamins. It has medicinal properties like stimulant, carminative, flavouring agent. It is used in treatment of dyspepsia, flatulent, colic, pulmonary and catarrhal diseases, dropsy neuralgia, headache and toothache or cancer. Ginger also exhibits cancer preventive activity in experimental carcinogenesis. The anticancer properties of ginger are attributed to the presence of certain pungent vullinoids, gingerol and paradol, constituents like shogaols, zingerone and ginger use in antibacterial patent. The ginger oil extract were obtained by using solvents n-hexane, ethyl acetate, eathanolic soxhlet and water. It is beneficial and used indigenously against common cold, cough and also as refreshing drink. Ginger contains 5.19 % of fibre. Ginger is widely used throughout the world for treating loss of appetite, nausea and vomiting after surgery, nausea resulting from cancer treatment, flatulence, stomach upset, colic, morning sickness and motion sickness. In some parts of the world, ginger juice is applied to the skin to treat burns. Ginger is extremely safe, some people have trouble tolerating its spiciness, but most tend to adapt if they keep taking it.

P-7.20

Medicinal properties & spice value of cumin (*Cuminum cyminum*)

Amit Kumar, M.L. Meena, Jal Singh Meena and Mahipal Singh

Department of Applied Plant Science (Horticulture)

School for Biosciences and Biotechnology

Babasaheb Bhimrao Ambedkar University (A Central University)

Vidya-Vihar, Rae Bareli Road, Lucknow-226025, Uttar Pradesh

Email: amitagro24@gmail.com; jalsinghchf@gmail.com

Cumin (*Cuminum cyminum*) is an important spice crop of family Umbelliferae It is grown in Gujarat Rajasthan Madhya pardesh In India, The chief constituent and important aromatic compound in cumin is cuminaldehyde (4-isopropylbenzaldehyde). Cumin seeds contain numerous phyto-chemicals that are known to have antioxidant, carminative and anti-flatulent properties. The seeds are an excellent source of dietary fiber. Its seeds contain certain health-benefiting essential oils such as cuminaldehyde (4-isopropylbenzaldehyde), pyrazines, 2-methoxy-3-sec-butylpyrazine, 2-ethoxy-3-isopropylpyrazine, and 2-methoxy-3-methylpyrazine. The active principles in the cumin may improve gut motility and help in digestion by augmenting gastro-intestinal enzyme secretions. This spice is an excellent source of minerals like iron, copper, calcium, potassium, manganese, selenium, zinc and magnesium. Copper is required in the production of red blood cells. Iron is required for red blood cell formation. Zinc is a co-factor in many enzymes that regulate growth and development, sperm generation, digestion and nucleic acid synthesis. Potassium is an important component of cell and body fluids that helps controlling heart rate and blood pressure. Manganese is used by the body as a co-factor for the powerful anti-oxidant enzyme, superoxide dismutase. The spice also contains very good amounts of B-complex vitamins such as thiamin, vitamin B-6, niacin, riboflavin, and other vital anti-oxidant vitamins like vitamin E, vitamin A, and vitamin C. The seeds are also rich source of many flavonoid phenolic anti-oxidants such as carotenes, zea-xanthin, and lutein. Its seeds are used to prepare decoction, which sometimes used in treating flatulence and indigestion in traditional medicines.

maximum girth of pseudostem (64.00 cm), number of leaves (30.60) per plant, maximum length of inflorescence (105.80 cm), number of fingers per hand (17.66) and per bunch (140.00), finger length (19.33cm), weight of finger (138.00g), finger diameter (15.10 cm), total soluble solids (17.98 °Brix), total sugars (18.33%), pulp (80.36%) and pulp: peel ratio (4.58) with minimum number of days (232.33 days) taken from planting to flowering or initiation/ emergence of bunch and minimum amount of titratable acidity (0.25%) and peel (17.36%).

P-10.9

Improvement of growth, yield and quality of tomato (*Solanum lycopersicon* L.) cv. Azad T-6 with foliar application of zinc and boron

D. C. Meena, S. Maji, J K Meena, Govind, R. Kumawat, K. R. Meena and S. Kumar

*Department of Applied Plant Science (Horticulture)
Babasaheb Bhimrao Ambedkar University (A Central University)
Vidya-Vihar, Rae Bareilly Road, Lucknow-226025
E-mail : majisutanu@gmail.com/ dcmeena1989@gmail.com

The present investigation was conducted at the Horticultural Research Farm, Department of Applied Plant Science (Horticulture), Babasaheb Bhimrao Ambedkar University, Lucknow (U.P.) during the rabi season of 2013-2014 to find out the response of Improvement of growth, yield and quality of tomato (*Solanum lycopersicon* L.) cv. Azad T-6 with foliar application of Zinc and Boron. The experiment was layout in Randomized Block Design with three replication and 12 treatments. Treatment combinations are T₀-Control (water spray), T₁-Zinc (50ppm), T₂-Zinc (100ppm), T₃-Zinc (150ppm), T₄-Boron (50ppm), T₅-Boron (100ppm), T₆-Boron (150ppm), T₇-Zinc (50ppm) + Boron (50ppm), T₈-Zinc (100ppm) + Boron (100ppm), T₉-Zinc (150ppm) + Boron(150ppm), T₁₀-Zinc (100ppm) + Boron (50ppm), T₁₁-Zinc (150ppm) +Boron (50ppm). The result showed that the vegetative growth in terms of plant height and number of branches at various stages (30,60 and 90 Days after transplanting) was greatly influenced by the application of micronutrients Zn and B. Among them treatment T₅-Boron (100ppm) significantly increased the plant height (61.23cm at 90 DAT) and number of branches (16.17 per plant at 90 DAT) compared to others. Whereas, application of zinc and boron each at 100ppm (T₈) caused early flowering (31.95 DAT) as well as showed maximum number of flowers (75.21) and fruit yield (93.10 t/ha). It was also revealed that the treatment T₈ improved the physico-chemical qualities of tomato fruits specially improved the TSS: acid ratio (10.98). Thus, the study indicated that application of boron and zinc either solely or in combination is quite beneficial for vegetative growth, flowering and fruiting as well as quality improvement of tomato fruits (Azad T-6) grown under high sodic soil (pH 8.2) of Lucknow.

P-10.10

Effect of time and intensity of pruning on yield and quality of guava (*Psidium guajava* L.) Cv. Sardar

Raut Shiruddha Aniruddha, U. M. Naglot, A. S. Kadam and Sanvar Mal Choudhary

*Department of Horticulture, College of Agriculture, Latur Vasantrao Naik Marathwada Krishi Vidyapeeth,
Parbhani - 431 402 (M.S.), India
Email : rautsa99@gmail.com*

An experiment was conducted to know the effect of time and intensity of pruning on yield and quality of guava (*Psidium guajava* L.) Cv. Sardar had undertaken on eight years old guava plants at the Instructional-Cum-Research Farm, Department of Horticulture, College of Agriculture, Latur during 2013-14. The experiment was laid out in Randomized Block Design with seven treatments replicated thrice. The treatments comprises heading back of tertiary branches at 25 %, 50 % and 75 % in 1st , 2nd , 3rd and 4th week of May and unpruned as control. The

P-7.11

Nutraceutical values of coriander

Bhagauti Prasad, Sutanu Maji, Rajesh Kumar and Pawan Kumar

*Department of Applied Plant Science (Horticulture)
Babasaheb Bhimrao Ambedkar University (A Central University)
Vidya-Vihar, Rae Bareilly Road, Lucknow-226025 (U.P.)
Email:-bp0943@gmail.com*

Coriander (*Coriandrumsativum*) is an herb that is widely used in recipes to give an appetizing aroma to the dishes. It is also known by the name of cilantro, especially in North American countries. It also has the health benefits, mainly because of its high nutritional value having vitaminA-6748 IU, vitaminB6-0.149mg, vitamin-27mg, vitaminE-2.5mg, vitaminK-310 mg, dietary fiber, Water - 92.21 gm., Carbohydrate - 3.67 gm., Fats - 0.52 gm., Calcium - 67 mg, Copper - 0.225 mg, Iron - 1.77 mg, Manganese - 0.426 mg, Magnesium - 26 mg, Phosphorus - 48 mg, Potassium - 521 mg, Selenium - 0.9 mg, Sodium - 46 mg, Zinc - 0.5 mg, Energy - 23 Kcal. Coriander leaves act as stimulants and tonics for the stomach, strengthening its functions as well as promoting digestion. Coriander seeds have been associated with offering a feeling of coolness and also reducing fever. Coriander has been found to provide effective protection against urinary tract infections. Coriander seeds can be boiled in water to make coriander tea and mixed with honey to soothe the acidity, which helps to ease constipation, clear toxins from the body. Coriander is also an effective antiseptic as it contains citronellal, which helps in healing mouth ulcers and coriander seed also some side effective but excessive use of coriander seeds can cause liver problems. Pregnant women can use coriander seeds but in lesser amounts. Chutney is made of cilantro and mint with onions and garlic is very popular in India. Also, split coriander seeds are roasted to make a great chewable mouth freshener. It is used in pickles, chutneys, curries, marinates apart from being used in garnishing food. In India, since ancient time's coriander has been used in food and in medicine. Coriander contains many compounds which have anti-oxidant properties. The flavor of coriander and cilantro is due to the fatty acids and volatile oils the, dietary fiber found in coriander helps in lowering the LDL cholesterol as it binds to the bile salts. Coriander contains very good amounts of minerals like iron, copper, calcium, potassium, manganese, magnesium and zinc. It also has high levels of vitamin C. Coriander is also a storehouse of the B-complex vitamins, thiamine, niacin and riboflavin. Coriander oil is extracted from the seeds and contains anti-bacterial properties and is rich in phytonutrients, flavonoids and active phenolic compounds. Coriander oil is a sweet and spicy, warm oil with almost colorless to pale yellow colored and of watery consistency. It helps in reducing brain fag, tension, migraine and nervous weakness. Also relieves gas and stomachache controls rheumatic and arthritic pains, muscle spasms, benefits in colds and flu. It removes toxins and wastes. One can use it in hot water used for taking steam and the vapors of this oil use for massage it for pain relief.

P-7.12

A medicinal and nutraceutical potency of genus momordica

Nirmal Singh

*Department of Vegetable Science, PAU, Ludhiana-141004 (Punjab)
E-mail: nirmalpau84@rediffmail.com*

During the last few decades, there has been an increase in the study of medicinal plants and their traditional use in different parts of the world. Herbal remedies are considered as the oldest forms of health care known to mankind on this earth. Prior to the development of modern medicine, the traditional systems of medicine that have evolved over the centuries within various communities are still maintained as a great traditional knowledge base in herbal medicines. Many researchers have paid attention towards the cucurbitaceae family because the fruits, seeds and vegetables are traditionally consumed. Important genera belonging to the family are *Trichosanthes*,

Self-employment through drying and dehydration of flowers and foliages

Sutanu Maji* and Rajesh Kumar

*Department of Applied Plant Science (Horticulture)
Babasaheb Bhimrao Ambedkar University (A Central University)
Vidya-Vihar, Rae Bareilly Road, Lucknow-226025 (U.P.)
Email: majisutanu@gmail.com

Flowers have aesthetic value, novelty and always remained an integral part of man's life. Flowers are always has a property of cool to see, create beauty and happiness in the life. Fresh flowers create quite attraction to human kind but it is expensive, short lived and available only during a particular season. On the other hand dried flower and ornamental products offer a wide range of qualities like novelty, longevity, aesthetic properties, flexibility and year round availability. But objective is not only for round the year availability but to generate employment for small, marginal as well as large family since it has good export potentiality. Dry flowers constitute more than two-thirds of the total floriculture exports. The demand for dry flowers is increasing at an impressive rate of 8-10 per cent annually thus, offering a lot of opportunities for generate employment, entrepreneurship development and global trade. Rural and hilly areas are covered with different types of colourful flowers and foliage at different seasons round the year and all these are wasted under natural process. So, the raw materials are available in abundant. The entire seasonal colourful vegetation can be converted into value added products by using drying and dehydration techniques. Rural women and unemployed youth fetch good income through this industry since, the initial establishment cost as well as operational cost is not so much high. By making different flower products they churn out dry flower based fancy and utility based items like greeting cards, bookmarks, wall hangings, table mats, garlands and dry flowers etc. mainly near metropolitan cities. Normally a piece cost is 30-40 rupees if it sold at domestic market while at tourist shopping centers it can fetch 100 rupees or more. Unemployed youth and rural women even the retired or old aged persons can take this opportunity. They can get training from a government's institutions, marginal loans from banks and start their own business to support their family and utilize their time also.