

Journal of Plant Development Sciences

(An International Monthly Refereed Research Journal)

Volume 9

Number 4

April 2017

Contents

RESEARCH ARTICLE

Evaluation of fenugreek (*Trigonella foenum-graecum* L.) genotypes under normal and limited moisture conditions

—**R.P. Meena, D. Singh, B.L. Meena, S.K. Meena and R. Kumari** ----- 283-295

Physiological studies of different *citrus* species and their cultivars under semi-arid conditions of Hisar, (Haryana)

—**Nidhi Sharma, Savita Duhan, Suneel Sharma and K.D. Sharma**----- 297-303

Comparative performance of different organic sources of nutrients and planting systems on growth and yield of scented rice (*Oryza sativa* L.)

—**Suvini Kumar, Thomas Abraham, Manoj Kumar and Victor Debbarma**----- 305-310

Seasonal incidence of red cotton bug (*Disdercus cingulatus*) and fruit & shoot borer (*Earias vitella*) of okra and their correlation with abiotic factors

—**Devender Verma, Palash Mondal and Mithlesh Kumar Sahu** ----- 311-315

Rapid analysis in mungbean [*Vigna radiata* (L.) Wilczek]

—**Anamika Nath, S.R. Maloo and B.L. Meena**----- 317-322

Heterosis for fibre quality traits in upland cotton (*Gossypium Hirsutum* L.)

—**Shiva Kumar K., J.M. Nidagundi and A.C. Hosamani** ----- 323-328

Effect of drying methods on acidity and sugar content of Sapota (*Manilkara zapota* L.)

—**Suman Bala, Jitender Kumar and Savita Duhan** ----- 329-333

Evaluation of newer insecticides against maize pink stem borer: Major constraint insect pest of maize in Raipur, Chhattisgarh

—**Sonali Deole, V.K. Dubey, D.K. Rana and Rashmi Gauraha**----- 335-339

Knowledge level of drip irrigation farmers and non-drip irrigation farmers regarding tomato production technology

—**Sushma Sahu, D.K. Surywanshi, M.A Khan, H.G. Sharma and Bhedu Prasad Sahu**----- 341-345

Performance evaluation of tractor drawn multi crop inclined plate planter for maize (<i>Zea mays</i> L.) — Manisha Sahu, Ajay Verma and A.K. Dave -----	347-352
Effect of plant growth regulators and cultivars on flowering and yield of African marigold (<i>Tagetes Erecta</i> L.) in Chhattisgarh plains — P.S. Markam, Neeraj Shukla, Gaurav Sharma, Deo Shankar Ram and G.P. Pali -----	353-357
Study of different genotype, planting geometry and nutrient status in pigeon pea during rabi season — B. Tigga, S. Bhagat, D.K. Chandrakar, Akhilesh K. Lakra and T.R. Banjara -----	359-362
Study on impact of bringing green revolution to eastern India (Bgrei) programme on production of rice crop in Durg district of Chhattisgarh — Anjay Singh, M.K. Chaturvedi R.S. Sengar and Vikram Singh -----	363-366
Study on communicational behavior of the towards bringing green revolution to eastern India (Bgrei) programme on production of rice crop — Anjay Singh, M.K. Chaturvedi and Vikram Singh -----	367-370
Impact of integrated nutrient management on yield and quality of broccoli (<i>Brassica Oleracea</i> L. var. <i>italic</i> plenck) CV. KTS-1 — Jal Singh Meena, M.L. Meena, Nirmal Kumar Meena and Rakesh Kumar Meena -----	371-374
Genetic divergence studies in ash gourd [<i>Benincasa hispida</i> (Thunb.) Cogn.] — Pappu Lal Bairwa, Amit Dixit, Dhananjay Sharma, Sunil Kumar Nair and Kiran Kumar -----	375-378
Effect of various oil cakes aqueous extracts (each @ 5 % and 10% @ conc.) on growth of <i>Plerotus</i> spp. — Tarun Kumar Jatwa, K.T. Apet and Rudrappa K. Bannihatti -----	379-382
Integrated management of root rot of pea — Anita Sharma and R.S. Ratnoo -----	383-386
Genetic variability studies in Kheda <i>Amaranthus Dubius</i> Mart. genotypes collected from Chhattisgarh — Arti Kujur, Vivek Kumar, Kurrey and Okesh Chandrakar -----	387-390

EVALUATION OF FENUGREEK (*TRIGONELLA FOENUM -GRAECUM L.*) GENOTYPES UNDER NORMAL AND LIMITED MOISTURE CONDITIONS

R.P. Meena¹, D. Singh¹, B.L. Meena^{2*}, S.K. Meena and R. Kumari

¹Department of Plant Breeding & Genetics, S.K.N. College of Agriculture, Jobner-303329

²ICAR Research Complex for NEH Region, Tripura Centre, Lembucherra - 799210

Email: blmeena.icar@gmail.com

Received-14.03.2017, Revised-27.03.2017

Abstract: The present investigation was carried out during during *rabi* 2007-08 at Research Farm, S.K.N. College of Agriculture, Jobner with 60 genotypes of fenugreek (*Trigonella foenum-graecum L.*) in RBD with three replications to estimate the genetic variability, heritability and genetic advance for nine quantitative traits. Analysis of variance indicated significant genetic variability among the genotypes for all the characters in individuals as well as the pooled basis under both the environments. High magnitude of PCV and GCV were observed for seed yield per plant in both the environments. High estimates of PCV, GCV, heritability and genetic advance as percentage of mean were found for seed yield per plant in both the environment. Based on the present investigation it is suggested that in breeding programme major emphasis should be given to pods per plant in both the environmental conditions as it had positive correlation with seed yield per plant with high direct effect. The association analysis revealed that seed yield per plant was significantly and positively correlated with branches per plant, pods per plant and seeds per pod in both the environment. Path coefficient analysis indicated that direct selection for pods per plant in both the environments, was the important character for selection of high yielding genotype as this exerted high positive direct effect as well as showed high and positive correlation with seed yield. Based on the present investigation it is suggested that in breeding programme major emphasis should be given to pods per plant in both the environmental conditions as it had positive correlation with seed yield per plant with high direct effect. On the other hand concerted efforts on evaluation of a larger number of genotypes are likely to identify genotypes worth exploitation in breeding programme to develop limited moisture stress tolerant varieties in fenugreek.

Keyword: *Trigonella foenum-graecum L.*, GCV, PCV, Heritability, Genetic advance, Character association, Path coefficient

PHYSIOLOGICAL STUDIES OF DIFFERENT CITRUS SPECIES AND THEIR CULTIVARS UNDER SEMI-ARID CONDITIONS OF HISAR, (HARYANA)

Nidhi Sharma*, Savita Duhan, Suneel Sharma and K.D. Sharma

Department of Horticulture,

Department of Botany and Plant physiology,

Chaudhary Charan Singh Haryana Agriculture University,

Hisar, Haryana-125004, India

Email: nidhi.nandani@gmail.com

Received-05.03.2017, Revised-24.03.2017

Abstract: The experiment on well-maintained 12 year old trees each of Sweet orange (*Citrus sinensis*(L.)Osbeck) cv. Jaffa and Pineapple; Mandarin hybrids Pearl Tangelo (*Citrus reticulata*Blanco x *Citrus paradisi*Macf.) and Kinnow (*Citrus nobilis* Lour. x *Citrus deliciosa*Tenore) and Grapefruit (*Citrus paradisi*Macf.)cv.Duncan and Ruby Red was carried out at CCS HAU, Hisar during 2014 and 2015. The relative water content were observed 80-90% in almost all cultivars. Cell membrane stability index and potent physiological indices were observed highest in Kinnow. As Kinnow mandarin was found most photo-synthetically efficient mandarin cultivar in fixing more CO₂ among all cultivars and species of citrus. Transpiration rate was recorded highest in sweet orange cv. Pineapple and lowest in grapefruit cv. Duncan. Apparently no marked differences were recorded in stomatal conductance among all citrus species and their cultivars. Leaf water potential in Pineapple and osmotic potential in cv. Ruby Red were greatest. Whereas it was lowest in grapefruit cv. Ruby Red and osmotic potential in sweet orange cv. Jaffa. Spring flush leaves of Kinnow mandarin were behaved most drought tolerant with least cell membrane injury, followed by Ruby Red grapefruit with highest cell membrane stability index.

Keywords: Citrus, Mandarin, Sweet orange, Grapefruit, Cell membrane injury

COMPARATIVE PERFORMANCE OF DIFFERENT ORGANIC SOURCES OF NUTRIENTS AND PLANTING SYSTEMS ON GROWTH AND YIELD OF SCENTED RICE (*ORYZA SATIVA* L.)

Suvin Kumar, Thomas Abraham², Manoj Kumar*³ and Victor Debbarma⁴

Department of Agronomy, Allahabad School of Agriculture, Sam Higginbottom Institute of Agricultural, Technology & Sciences (Formerly Allahabad Agricultural Institute)
Allahabad - 211007 Uttar Pradesh (India)
Email (manojagric@gmail.com)

Received-07.03.2017, Revised-21.03.2017

Abstract: A field experiment was conducted at crop research farm, Department of Agronomy, Allahabad School of Agriculture, Sam Higginbottom Institute of Agricultural, Technology & Sciences, Allahabad (U. P). It is on the near of the river Yamuna to study the effect of different planting systems and organic sources of nutrients on growth and yield of scented rice (*Oryza sativa* L.) during *kharif* season at 2010.

The field experiment was laid out in split plot design with three replications. The results showed that treatment (M₂) green manuring with *Crotalaria spp.* (M₂) gave 4.08 and 30.87% more seed yield compared than other green manuring with *sesbania spp.* (M₁) and basal application of FYM 12 t ha⁻¹ (M₃) respectively and significantly maximum growth and yield attributes plant height (70.24 cm, 98.71 cm, at 60, 100 DAS respectively), plant dry weight (14.67, 42.13, 81.71, and 145.47 g at 20, 40, 60, 80, and 100 DAS), CGR (g m⁻² day⁻¹) (0.136, 0.483, 1.442, 1.897 and 2.768 g at 0-20, 20-40, 40-60, 60-80 and 80-100 DAS), number of effective tillers hill⁻¹ (9.36), grain yield (7.85 t ha⁻¹), straw yield (7.85 t ha⁻¹), harvest index (38.05 %) and test weight (22.61 g) than other application of green manuring treatments.

The treatment (S₃) i.e. system of rice intensification (SRI), (S₃) gave 15.00 and 38.89 % significantly the highest seed yield (5.27 ha⁻¹) compared than other system of planting S₁ transplanted rice and direct seeded rice (DSR) also recorded non significantly the highest straw yield (8.25 t ha⁻¹), but significantly higher harvest index (38.52 %) and test weight (23.00 g) than other two planting system.

Keyword: System of Rice Intensification (SRI), Organic sources, Green manuring, Scented rice and Pusa Basmati -1

Journal of Plant Development Sciences Vol. 9(4)

SEASONAL INCIDENCE OF RED COTTON BUG (*DISDERCUS CINGULATUS*) AND FRUIT & SHOOT BORER (*EARIAS VITELLA*) OF OKRA AND THEIR CORRELATION WITH ABIOTIC FACTORS

Devender Verma*¹, Palash Mondal² and Mithlesh Kumar Sahu³

Dept. of Plant Protection, Palli Siksha Bhavana, (Institute of Agriculture)
Visva-Bharati, Sriniketan, West Bengal.
Email: dvermaent@gmail.com

Received-05.03.2017, Revised-20.03.2017

Abstract: The field experiment was conducted at the Horticulture farm, Rathindra Krishi Vigyan Kendra, Palli Siksha Bhavana (Institute of Agriculture), Visva-Bharati, at Sriniketan during the period of March 2010 to June 2010 and Okra variety "Parbhani Kranti" were sown in experimental site. The basic objective of the experiment was to find out the seasonal incidence of Red cotton bug (*Disdercus cingulatus*) and Fruit & shoot borer (*Earias vitella*) of okra and their correlation with abiotic factors. Experimental findings revealed that the Red cotton bug and Fruit & shoot borer observed to infest the crop at different growth stages and ecological factors played an important role in their fluctuation during the crop growing season as many weather parameters showed their significant effects on population abundances. The incidence of red cotton bug started from 18th standard week i.e. 1st week of May and the maximum population was recorded to the tune of 2.41/plant on 21st standard week during peak fruiting (4th week of May). The peak populations of fruit & shoot borer (6.97%/plant) were recorded on 1st week of June. Multiple regression analyses depicted that contribution of all the abiotic factors to the variations of red cotton bug population was 8.5% and for fruit & shoot borer it was 98.4%.

Keywords: Okra, Seasonal incidence, *Disdercus cingulatus*, *Earias vitella*, Abiotic factors

Journal of Plant Development Sciences Vol. 9(4)

RAPD ANALYSIS IN MUNGBEAN [*VIGNA RADIATA* (L.) WILCZEK]

Anamika Nath, S.R. Maloo and B.L. Meena*

*Department of Plant Breeding & Genetics,
Maharana Pratap University of Agriculture and Technology Udaipur (Rajasthan) -313001*

Received-16.03.2017, Revised-06.04.2017

Abstract: Molecular characterization is helpful in understanding the phylogenetic relationship among various germplasm to reveal the genetic diversity within a given taxonomic group. Evaluation of genetic diversity would promote the efficient use of genetic variations (Paterson *et al.*, 1991), effective conservation and purity of the genotype to be determined as well as utilization of germplasm in crop improvement. RAPD marker analysis was performed to detect relatedness and diversity among eight parental genotypes. Twenty five RAPD primers having 60% or more GC content were used for the present investigation. Out of 25 primers only 17 were amplified and produce total 391 amplified fragments (amplicon) ranged between 100 bp to 2500 bp. Out of 104 scorable bands, 91 were polymorphic that showed 88 per cent polymorphism. The average number of bands per primer was found to be 6.12 and average numbers of polymorphic bands per primer were 5.35. OPP-10 proved to be best primer in our investigation with total 52 fragments and eight highest scorable bands as well as 100 per cent polymorphism.

Keywords : Mungbean, RAPD Markers, Yield, Yield components

Journal of Plant Development Sciences Vol. 9(4)

HETEROSIS FOR FIBRE QUALITY TRAITS IN UPLAND COTTON (*GOSSYPIUM HIRSUTUM* L.)

Shiva Kumar K.^{1*}, J.M. Nidagundi¹ and A.C. Hosamani²

¹*Department of Genetics and Plant Breeding*

²*Department of Agricultural Entomology*

University of Agricultural sciences, Raichur -584104

Email: kumar.shiva602@gmail.com

Received-24.03.2017, Revised-14.04.2017

Abstract: The present investigation was carried out with half diallel analysis involving 10 parents and their 45 F₁ hybrids to estimate the heterosis for fibre quality traits. The hybrid Pusa 9127 x BS 277 recorded highest heterobeltiosis (8.23) for 2.5% span length and hybrid BS 2170 x TCH 1728 exhibited positive significant relative heterosis (9.09%) for uniformity ratio. hybrid GSHV 99/ 307 x TSH 0250 (32.26%) showed significant positive heterobeltiosis for micronaire while hybrid CCH 510 x BS 2170 (18.25%) for strength to length ratio appears to be most superior hybrids.

Keywords: Heterobeltiosis, Relative heterosis, Micronaire, 2.5% span length, Half Diallel analysis

Journal of Plant Development Sciences Vol. 9(4)

EFFECT OF DRYING METHODS ON ACIDITY AND SUGAR CONTENT OF SAPOTA (*MANILKARA ZAPOTA* L.)

Suman Bala*, Jitender Kumar and Savita Duhan

Department of Botany and Plant Physiology, CCS HAU, Hisar-125004

Email: sumanmalika14@gmail.com

Received-21.01.2017, Revised-24.02.2017

Abstract: Sapota (*Manilkara zapota* L.) is a tropical fruit found in several parts of India. Once ripe, it needs to be consumed within a couple of days due to the highly perishable nature of this exquisite fruit variety. Drying is effective method to convert this perishable fruit into stabilised dehydrated products that can be stored for an extended period of time. In this study, influence of solar and oven drying on the quality of sapota fruit was investigated. Acidity and non-reducing sugars

increased in sapota pieces dried by different methods of drying during storage upto 90 days. Sapota pieces dried in solar dryer had maximum acidity (0.346%). Total and reducing sugars decreased during storage in both methods of drying. Solar dried sapota powder contained maximum total sugars (35.58%) and minimum reducing sugars (26.27%) whereas minimum total sugar (35.52%) and maximum reducing sugar content (28.58%) was recorded in oven dried sapota on all periods of storage. Sapota dried after cutting in 4 parts had maximum acidity, total and reducing sugars in both methods of drying.

Keywords: Sapota, Acidity, Drying methods, Solar, Oven, Sugars

Journal of Plant Development Sciences Vol. 9(4)

EVALUATION OF NEWER INSECTICIDES AGAINST MAIZE PINK STEM BORER: MAJOR CONSTRAINT INSECT PEST OF MAIZE IN RAIPUR, CHHATTISGARH

Sonali Deole*, V.K. Dubey, D.K. Rana and Rashmi Gauraha

*Department of Entomology
Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh, India-492012
Email:-sonalideoleigkv@yahoomail.com*

Received-17.03.2017, Revised-05.04.2017

Abstract: The present studies were carried out during spring seasons of the year 2013-14 and 2014-15 at Research cum Instructional Farm, IGKV, Raipur (C.G.). Nine insecticides from different groups were applied as foliar sprays (liquid formulations) and whorl application (granular formulations) on maize crop against pink stem borer *Sesamia inferens*, Walker. The treatment was given at 15 days after germination of the crop when pink stem borer infestation was observed in the field. Among the insecticides evaluated, spinosad 45 SC proved to be highly effective in reducing the pink borer infestation with minimum leaf injury level (2.94) and tunnel length (2.31cm) resulting in higher grain yield (61.63 q/ha.).

Keywords: Chemical control, Maize, *Sesamia inferens*, Spinosad, Tunnel length

Journal of Plant Development Sciences Vol. 9(4)

KNOWLEDGE LEVEL OF DRIP IRRIGATION FARMERS AND NON-DRIP IRRIGATION FARMERS REGARDING TOMATO PRODUCTION TECHNOLOGY

Sushma Sahu*¹, D.K. Surywanshi², M.A Khan³, H.G. Sharma⁴ and Bhedu Prasad Sahu⁵

*Department of Agricultural Extension
Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) – 492 012 (INDIA)
Email: sushklchd@gmail.com*

Received-25.12.2016, Revised-10.04.2017

Abstracts: The present study was carried out during 2013 in the Durg district of Chhattisgarh state. This study was conducted in randomly selected 8 villages of two purposively selected blocks i.e. Durg and Dhamdha located in Durg district. The aim of this study was to know the level of knowledge about tomato production technology. A total of 128 respondents including 64 drip irrigation farmers and 64 non-drip irrigation farmers were selected randomly. The data collection was done by the use of interview schedule through personal interview. Data were analyzed with help of suitable statistical tools. The findings further revealed that Majority of the DIF and non-DIF were having high level of knowledge about sowing time and were adopted U. S.440 and mahalakshmi varieties of tomato and harvested their tomato in partial ripe stage. Gajargansh was found as important weed, tomato fruit borer and blight diseases were prevalent in the study area.

Keywords: Drip irrigation, Knowledge level, Risk bearing capability, Tomato growers

Journal of Plant Development Sciences Vol. 9(4)

PERFORMANCE EVALUATION OF TRACTOR DRAWN MULTI CROP INCLINED PLATE PLANTER FOR MAIZE (*ZEA MAYS L*)

Manisha Sahu*, Ajay Verma and A.K. Dave

*Department of Farm Machinery and Power Engineering, SVAET&RS, FAE, IGKV Raipur (C.G.),
Pincode: 492012*

Email: sahumanisha79@gmail.com

Received-12.04.2017, Revised-26.04.2017

Abstract: Five row tractor drawn multi-crop inclined plate planter was developed at I.G.A.U., Raipur for sowing of different crops. The calibration of seed and fertilizer rate was done in the laboratory of SVCAET & RS, IGAU Raipur. The seed rate was found 20.13 kg/ha for maize crop (45 cm×30 cm) and fertilizer rate was found from 9.24 kg/ha to 124.43 kg/ha. The field capacity was 0.70 ha/h and field efficiency was 80%. The plant population was found 9-12 plants per square meter. The cost of sowing per hectare was 2 times economical than traditional method.

Keywords: Cost economics, Field capacity, Field efficiency, Inclined plate planter, Tractor drawn

Journal of Plant Development Sciences Vol. 9(4)

EFFECT OF PLANT GROWTH REGULATORS AND CULTIVARS ON FLOWERING AND YIELD OF AFRICAN MARIGOLD (*TAGETES ERECTA* L.) IN CHHATTISGARH PLAINS

P.S. Markam*¹, Neeraj Shukla², Gaurav Sharma³, Deo Shankar Ram⁴ and G.P. Pali⁵

¹ *College of Agriculture and Research station Kanker, (C.G.)-494334*

^{2, 3 & 5} *College of Agriculture, IGKV, Raipur (C.G.)-492012*

⁴ *SG, College of Agriculture and Research station, Jagdalpur, Bastar (C.G.)*

Email: markamphoolsingh@gmail.com

Received-17.03.2017, Revised-12.04.2017

Abstract: Currently the marigold flower is well spread around the world due to their social and religious values. We do prefer it in all our social gatherings and rituals as important mean due to their specific colors and fragrance. Looking to their wide demand a very less area is taken under cultivation in Chhattisgarh due to lack of awareness which compelling them to buy it from other states. The productivity can be enhanced in Chhattisgarh by the incorporating suitable varieties and use of PGR's, which can prove to be better option for the farmers of Chhattisgarh. In this context, an experiment was conducted to investigate the effect of different levels of growth promoter and retardant on growth and flower yield of different cultivars of African marigold in Chhattisgarh plains condition at College of Agriculture and Research Station, Kanker, IGKV, Raipur in the year 2014-15 and 2015-16. The experiment was laid out in factorial RBD comprising treatment combination of two PGR (GA₃ and Cycocel) and two marigold cultivars (Pusa Narangi Gainda and Pusa Basanti Gainda). The result indicated that the growth and flower yield were significantly influenced by different plant growth regulators and cultivars. The maximum number of secondary branches plant⁻¹, minimum period for days taken to first bud emergence and 50 per cent flowering, maximum number of flowers and flower yield ha⁻¹ was recorded with Pusa Narangi Gainda. While, maximum flower diameter was recorded with Pusa Basanti Gainda. Among the growth regulators treatments, GA₃ 300 ppm (25 DAT) + GA₃ 300 ppm (45 DAT) recorded early initiation of flower bud and earliest 50 per cent flowering and maximum flower diameter. However, maximum number of secondary branches, number of flowers plant⁻¹ and flower yield ha⁻¹ was noticed with treatment GA₃ 300 ppm (25 DAT) + CCC 1500 ppm (45 DAT).

Keywords: Marigold, PGR, Gibberellic acid (GA₃), Cycocel (CCC), Pusa Narangi Gainda, Pusa Basanti Gainda

Journal of Plant Development Sciences Vol. 9(4)

STUDY OF DIFFERENT GENOTYPE, PLANTING GEOMETRY AND NUTRIENT STATUS IN PIGEON PEA DURING RABI SEASON

B. Tigga, S. Bhagat, D.K. Chandrakar, Akhilesh K. Lakra* and T. R. Banjara

Department of Agronomy, College of Agriculture, IGKV, Raipur (Chhattisgarh)

E-mail Author: biruamb15@gmail.com

Received-21.02.2017, Revised-15.03.2017

Abstract: A field experiment was conducted during winter season of to study the performance of pigeonpea genotypes to planting geometry. The genotype and planting geometry significantly influenced the seed yield, stalk yield, harvest index, availability of nutrient in soil, nutrient % in seed and Stover. Among the six genotypes (Asha, Rajeevlochan, RPS- 2007-106, Laxmi, RPS-2008-4 and RPS-2007-10) tested, genotype Asha (1281 kg ha⁻¹) recorded significantly highest seed yield over the other genotype. In the two planting geometry significantly maximum seed yield of 1235 kg ha⁻¹ was realized with spacing of 45 cm x 10 cm and was higher yield than the yield recorded with spacing of 60 cm x 10 cm (1085 kg ha⁻¹). In genotype Asha (227.722 kg ha⁻¹) availability of nitrogen and nutrient (NPK) % of seed and Stover are significance. In narrow spacing significantly maximum availability of nitrogen and nutrient (NPK) % of seed and Stover was significance over the wild spacing.

Keyword: Genotype, Geometric, Nutrient, Energy, Seed and Plant

Journal of Plant Development Sciences Vol. 9(4)

STUDY ON IMPACT OF BRINGING GREEN REVOLUTION TO EASTERN INDIA (BGREI) PROGRAMME ON PRODUCTION OF RICE CROP IN DURG DISTRICT OF CHHATTISGARH

Anjay Singh, M.K. Chaturvedi* R.S. Sengar³ and Vikram Singh

*Department of Agricultural Extension
Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) – 492 012
Email: mkchaturvedi96@gmail.com*

Received-19.03.2017, Revised-20.04.2017

Abstract: The present study was carried out during 2015-16 in the Durg district of Chhattisgarh state. This study was conducted in randomly selected 18 villages from Durg district. A total of 90 beneficiaries were selected randomly as respondents, for comparison and to know the impact of BGREI programme on production of rice crop, 90 non-beneficiaries were also selected. Thus a total of 180 farmers were chosen for the study. The data were collected from the selected respondents are aimed to know the impact BGREI programme on production of rice crop in Durg district. The data collection was done by the use of well structured pre-tested interview schedule through personal interview. Data were analyzed with help of suitable statistical tools. The findings of the study revealed that the majority of the beneficiaries farmers were agree with improvement in standard of living. To determine the level of difference between the beneficiaries farmers and non-beneficiaries farmers related to their rate of adoption for approved rice production technology.

Keywords: BGREI, Rice production technology, Impact assessment, Durg, Chhattisgarh

Journal of Plant Development Sciences Vol. 9(4)

STUDY ON COMMUNICATIONAL BEHAVIOR OF THE TOWARDS BRINGING GREEN REVOLUTION TO EASTERN INDIA (BGREI) PROGRAMME ON PRODUCTION OF RICE CROP

Anjay Singh, M.K. Chaturvedi* and Vikram Singh

*Department of Agricultural Extension
Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) – 492 012
Email: mkchaturvedi96@gmail.com*

Received-19.03.2017, Revised-07.04.2017

Abstracts: The present study was undertaken in Durg district of Chhattisgarh with 180 respondents (90 beneficiaries and 90 non beneficiaries) to assess the communicational sources used by respondents. From the selected respondents data were collected by using well structured and pre tested interview schedule and collected data were analyzed by using appropriate statistical tools. In case of cafeteria in information the results of the study indicated that the majority of the beneficiaries farmers and the non-beneficiaries farmers both had found information from ATIC, as regards to contact with extension agencies, the majority of the beneficiaries farmers and the non-beneficiaries farmers both had always contacted with Govt.

Agril. Deptt., majority of the beneficiaries farmers and the non-beneficiaries farmers both had medium level of contact with extension agencies.

Keywords: Communication, BGREI, Information sources

Journal of Plant Development Sciences Vol. 9(4)

IMPACT OF INTEGRATED NUTRIENT MANAGEMENT ON YIELD AND QUALITY OF BROCCOLI (*BRASSICA OLERACEA* L. VAR. *ITALIC* PLENCK) CV. KTS-1

Jal Singh Meena¹*, M.L. Meena¹, Nirmal Kumar Meena² and Rakesh Kumar Meena¹

¹Department of Applied Plant Science (Horticulture), Babasaheb Bhimrao Ambedkar University, Lucknow-226025

²Division of Food Science & Postharvest Technology, ICAR-Indian Agricultural Research Institute, New Delhi-110012

Email: jalsinghchf@gmail.com

Received-15.03.2017, Revised-03.04.2017

Abstract: Present investigation was undertaken to study the effect of INM on yield and quality of broccoli cv. KTS-1. For this, a field experiment was carried out in Randomized Block Design with three replications. The experiment was conducted at the Horticulture Research Farm of university, during Rabi season of 2014-15. For the experiment, thirteen treatment combinations viz. T₀ (Control), T₁ (NPK:150 :100 :100 Kg/ha), T₂ [(Neem cake (2.5 t/ha) + Vermicompost (5 t/ha) + Azotobacter (2 kg/ha)], T₃ [Neem cake (1.5 t/ha) + 75% recommended dose of NPK], T₄ [Neem cake (2.5 t/ha) + 50% recommended dose of NPK], T₅ [Vermicompost (2.5 t/ha) + 75% recommended dose of NPK], T₆ [Vermicompost (5 t/ha) + 50% recommended dose of NPK], T₇ [Azotobacter (2 kg/ha) + 75% recommended dose of N + full dose of P and K through inorganic fertilizer], T₈ [Azotobacter (2kg/ha) + 50% recommended dose of N + full dose of P and K through inorganic fertilizer], T₉ [Neem cake (1.5 t/ha) + Vermicompost (2.5 t/ha) + 75% recommended dose of NPK through inorganic fertilizer], T₁₀ [Neem cake (2.5 t/ha) +Vermicompost (5 t/ha) + 50% recommended dose of NPK through inorganic fertilizer], T₁₁ [Neem cake (1.5 t/ha) + Vermicompost (2.5 t/ha) + Azotobacter (2 kg/ha) + 75% recommended dose of NPK through inorganic fertilizer] and T₁₂ [Neem cake (2.5 t/ha) + Vermicompost (5 t/ha) + Azotobacter (2 kg/ha) + 50% recommended dose of NPK through inorganic fertilizer] were used. Treatment T₁₁ (Neem cake 1.5 t/ha + Vermicompost 2.5 t/ha + Azotobacter 2 kg/ha + 75% recommended dose of NPK through inorganic fertilizer) was found best in terms of maximum curd weight/plant (438 g), curd weight/plot (3.94 kg), curd yield (219.06 q/ha), T.S.S. (10.15 °B), vitamin C content (82.91 mg/100g), acidity (0.49), total sugar content (3.16 g), reducing sugar content (2.75g), non reducing sugar (0.43).

Keywords: Broccoli; Inorganic fertilizer; Vermicompost; Neem cake; Azotobacter; Yield; Quality

Journal of Plant Development Sciences Vol. 9(4)

GENETIC DIVERGENCE STUDIES IN ASH GOURD [*BENINCASA HISPIDA* (THUNB.) COGN.]

Pappu Lal Bairwa¹*, Amit Dixit¹, Dhananjay Sharma¹, Sunil Kumar Nair² and Kiran Kumar¹

¹Department of Vegetable Science, COA, IGKV, Raipur – 492012 (C.G.) India.

²Department of Genetics and Plant Breeding, COA, IGKV, Raipur – 492012 (C.G.) India.

Email: plbairwa28@gmail.com

Received-19.03.2017, Revised-15.04.2017

Abstract: An experiment was carried out to analyze genetic diversity for yield and its contributing traits in 60 ash gourd genotypes at Research cum Instructional Farm, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.), India, during *Kharif* 2015-16. The cluster analysis grouped all 60 ash gourd genotypes into 5 major clusters based on D² value. Extreme genetic divergence was estimated among clusters. Maximum number of genotypes were grouped into cluster I included nineteen genotypes, whereas, cluster IV included seventeen genotypes. The cluster V had seventeen genotypes, cluster II included five genotypes and which is followed by cluster III had only two genotypes in each cluster. Average inter cluster distance was found maximum (10.742) between cluster III and cluster II which would be fruitful for developing heterotic cross combination. Cluster III showed highest mean value for number of branches per plant, fruit length, fruit girth, average fruit

weight, number of seeds per fruit, number of fruits per plant, total soluble solid, 100 seed weight and fruit yield per plot (kg). The characters like number of seeds per fruit, duration of crop, 100 seed weight contributed maximum to divergence. Hence, ash gourd crop improvement could be tried with the genotypes of divergent clusters for better heterotic effects.

Keywords: Ash gourd, Cluster, divergence, Genotypes, Yield

Journal of Plant Development Sciences Vol. 9(4)

EFFECT OF VARIOUS OIL CAKES AQUEOUS EXTRACTS (EACH @ 5 % AND 10% @ CONC.) ON GROWTH OF *PLEROTUS* SPP.

Tarun Kumar Jatwa, K.T. Apet and Rudrappa K. Bannihatti*

Department of Plant Pathology, V.N.M.K.V., Dist. Parbhani, India

Email: tarunjatwa@gmail.com +919461553414

Received-10.04.2017, Revised-27.04.2017

Abstract: Effect of various oil cakes aqueous extracts each @ 5 % and 10% @ conc. (cotton seed cake, neem seed cake, soyabean seed cake, castor cake, karanj cake, safflower cake, sunflower cake and groundnut cake) on mycelial growth of *Pleurotus* spp. (*P. florida*, *P. eous*, *P. sajor-caju*) was studied *in vitro*. The culture media tested, maximum colony diameter of *P. florida* (90.00 mm) was recorded on Potato dextrose agar (control-without any aqueous extract of oil cakes), this was followed by Cotton cake extract @ 5 % (49.66 mm), Karanj cake extract @ 5 % (42.66 mm) minimum colony diameter was recorded on safflower cake extract @ 10 % (21.00 mm) and this was followed by sunflower cake extract @ 10 % (23.00 mm). The average colony diameter of *P. eous* the maximum colony diameter (90.00 mm) was recorded on Potato dextrose agar (control-without any aqueous extract of oil cakes), this was followed by Cotton cake extract @ 5 % (59.66 mm), Karanj cake extract @ 5 % (55.66 mm) and the minimum colony diameter was recorded on sunflower cake extract @ 10 % (20.33 mm) and this was followed by groundnut cake extract @ 10 % (24.66 mm). Colony diameter of *P. sajor-caju* the maximum colony diameter (90.00 mm) was recorded on Potato dextrose agar (control-without any aqueous extract of oil cakes), this was followed by Cotton cake extract @ 5 % (53.00 mm) and the minimum colony diameter was recorded on castor cake extract @ 10 % (20.33 mm) and this was followed by sunflower cake extract @ 10 % (22.00 mm).

Keyword: *In vitro*, *Pleurotus florida*, *Pleurotus. eous*, *Pleurotus sajor-caju*, Culture media

Journal of Plant Development Sciences Vol. 9(4)

INTEGRATED MANAGEMENT OF ROOT ROT OF PEA

Anita Sharma and R.S. Ratnoo*

Department of Plant Pathology, Rajasthan College of Agriculture, MaharanaPratap University of Agriculture & Technology, Udaipur 313001. Rajasthan, India

Email: anitasharma141082@gmail.com

Received-12.04.2017, Revised-26.04.2017

Abstract: In present investigation the fungicides, phytoextracts, oil cakes and biocontrol agents found effective *in vitro*, were further evaluated in field for two consecutive seasons as seed treatment individually as well as in different combinations for suppression of root rot of pea. It was found that combined treatments were superior in terms of better germination, lower mortality and higher yield as compared to individual treatments. The most effective treatment with ST Bavistin + Neem oil + *T. harzianum*+ SA Neem cake followed by seed treatment with Bavistin + Neem oil + *T. harzianum* as compared to control as well as other treatments. *T. harzianum* applied as seed treatment effectively established in pea rhizosphere and reached high population densities, at 90 DAS while the population of the pathogen was low in the rhizosphere as significant disease suppression was recorded.

Keywords: *F. solanif.sp. pisi*, Pea, Root rot, Neem oil, Bavistin, *T. harzianum*

Journal of Plant Development Sciences Vol. 9(4)

GENETIC VARIABILITY STUDIES IN KHEDA *AMARANTHUS DUBIUS* MART. GENOTYPES COLLECTED FROM CHHATTISGARH

Arti Kujur*, Vivek Kumar, Kurrey and Okesh Chandrakar

*Department of Vegetable Science, Indira Gandhi Krishi Vishwavidyalaya Raipur - 492012
Chhattisgarh, INDIA*

Email: artikujur18@gmail.com

Received-02.02.2017, Revised-15.04.2017

Abstract: Twenty five genotypes of Kheda *Amaranthus dubius* Mart. collected from different agroclimatic region of Chhattisgarh were evaluated to assess the genetic variability, heritability and genetic advance for thirteen different yield contributing characters and important quality characters for yield traits. Significant genetic variation was observed for all the characters. High magnitude of genotypic as well as phenotypic coefficient of variations were recorded for traits viz., test weight of seed (30.83 and 30.96), plant height (29.22 and 29.57), leaf length (28.13 and 28.48) and yield kg per plot (28 and 29.28). The highest heritability was recorded for the characters viz., test weight of seed (99.10 %), plant height (97.70 %), leaf length (97.6 %), dry matter % (96.7 %), leaf width (95.0 %), number of branches per plant (91.6 %), yield kg/plot (91. %), petiole length (91.2). Genetic advance as percentage of mean was observed high for test weight of seed (63.44%), plant height (59.48 %), leaf length (57.21 %), yield kg/plot (55.27 %), leaf width (52.34 %), number of branches per plant (51.14%), dry matter% (49.29%), number of leaf per plant (44.52 %), petiole length (43.83 %), fibre content % (30.81 %), showing the possibility of improvement of these traits through selection.

Keywords: Variability, GCV, PCV, Heritability, Genetic advance, Khedha (*Amaranthus dubius* Mart.)