

# Journal of Plant Development Sciences

(An International Quarterly Refereed Research Journal)

Volume 4

Number 4

October 2012

## Contents

---

Study on effect of natural gas flaring (light pollution) on soil health/environment of paddy field of Assam near the vicinity of oil wells under oil India limited — <b>B. Kalita, H.P. Sharma and S. Bortahkur</b> .....	439-443
A rescued tree speaks — <b>M.L. Kapoor</b> .....	445-447
Pathogenicity of <i>rotylechulus reniformis</i> on <i>helianthus annuus</i> (cv. Morden) — <b>Suruchi Tyagi, Sunaina Singh</b> .....	449-451
Effect of biotic disturbance on soil characteristics of a mixed- oak forest in Kumaun Himalaya — <b>Raksha Pande, Kiran Bargali and Neerja Pande</b> .....	453-457
Ethnobotanical observations in trans-Himalayan region of Ladakh — <b>Konchok Dorjey, Sonam Tamchos and Sanjeev Kumar</b> .....	459-464
Anticarcinogenic assessment of <i>moringa oleifera</i> and its isolated saponin in attenuation of 7, 12-dimethylbenz [a] anthracene induced hepatic carcinogenesis — <b>Veena Sharma, Ritu Paliwal and Lokendra Singh</b> .....	465-472
“Tulsi” <i>ocimum sanctum</i> L. As germicidal — <b>Lalit Kumar, S.C. Dhiman, Poonam Tyagi and Durgesh</b> .....	473-478
The impact of nuclear-plasma gene interaction governing heterosis in Wheat ( <i>triticum aestivum</i> L.) — <b>Satyapal Singh, N.R. Rangare and P.C. Chaurasiya</b> .....	479-483
Study of pollen fertility in five varieties of <i>impatiens balsamina</i> — <b>Aruna Katiyar, Bharati Singh and Deepmala Katiyar</b> .....	485-488
Problems in adoption of recommended finger millet production technology among the tribal farmer’s of Chhattisgarh — <b>Romash Kumar Suryawanshi and Kedar Nath Yadaw</b> .....	489-492
Characteristics of farmers influencing use of information sources — <b>P.K. Sangode, Dilip Kumar and P. Shrivastava</b> .....	493-497
Knowledge level of tribal farmers about organic farming practices in paddy cultivation — <b>Satish Kumar Verma, R.S. Sengar and Kedar Nath Yadaw</b> .....	499-503
Effect of inorganic and organic sources of nutrients on yield and yield attributes of lemon grass ( <i>cymbopogon flexuosus</i> L.) Under salt affected soils in Balia district of U.P. — <b>V. B. Shahi, P. N. Singh and Pardeep Kumar</b> .....	505-509
Socio-economic status of hybrid rice growers in Surguja district of Chhattisgarh — <b>P. K. Lakra, M.K. Chaturvedi, Kedar Nath Yadaw and L. R. Verma</b> .....	511-516
Interaction effect of method and depth of sowing on growth and yield characters of Soybean ( <i>glycine max</i> ) — <b>Ashish Kumar Chandrakar, Chandresh Kumar Chandrakar, Chetan Kumar Dewangan and Deepshikha Manu</b> .....	517-520

Selection strategy for productive plant type in dolichos bean ( <i>dolichos lablab</i> L.) For Chhattisgarh plains — <b>Kanhaiya Lal Patel, Nandan Mehta and G.L. Sharma</b> .....	521-524
Genetic variability, heritability and genetic advance in Tomato —Abhilash Swaroop Mahapatra, Anand K. Singh, V. Manju Vani, Ramanand Mishra and B. K. Singh..	525-527
New peach rootstocks under changing climatic scenario — <b>Naira Ashraf, M. K. Sharma and Moieza Ashraf</b> .....	529-532
Yield advantage of optimal, sub optimal and integrated nutrient management on yield potential and economics of Aice ( <i>oryza sativa</i> ) in Rice-Wheat ( <i>triticum aestivum</i> ) cropping system — <b>Chandrashekhar Khare, Shrikant Chitale, Manish Kumar Singh, Kanhaiya Lal Patel and Priyanka Singh</b> .....	533-535
Effect of storage on Physico-chemical constituent of Aonla ( <i>emblica officinalis</i> gaertn.) Sauce — <b>Sarita Sahu</b> .....	537-540
Total monomeric anthocyanin composition of some underexploited fruits used by <i>Kani</i> tribal community of Agasthyamalai biosphere reserve. — <b>R.D. Arun Raj and M. Reginald Appavoo</b> .....	541-544
Toxicity effect of culture filtrates of some fungi on seed germination and seedling growth of <i>solanum melongena</i> Var. <i>Esculenta</i> nees — <b>D.K. Jain, Kumkum Gupta, Reena Bansal, Gunjan Joshi and P.N. Singh</b> .....	545-547
Indian citrus ring spot disease : Effect on the quality of production in fruits of resistant and susceptible varieties of Kinnow ( <i>citrus reticulata</i> ) and its control measures. — <b>Anima Dixit and Jitendra Mohan</b> .....	549-552
Yield attributes of mungbean ( <i>phaseolus aureus roxb.</i> ) As influenced by different cultivars and nutrient management — <b>Nilesh rao, Manish Kumar Singh, S.N. Khajanji, Priyanka Singh</b> .....	553-557
Incidence of fruit flies on cucumber in Kasmir Valley (India) — <b>S. A. Ganie, Z. H. Khan, Shamim A. Padder and Rayees A. Ahanger</b> .....	559-561
Allelopathic effect of aqueous leaf extract of <i>parthenium hysterophorus</i> L. on seed germination and seedling growth of <i>daucus carota</i> — <b>Princee Gupta, Amisha Kem and Asha</b> .....	563-568
Economics of mungbean ( <i>phaseolus aureus roxb.</i> ) Cultivars under different interaction between nutrient management and genotypes — <b>Nilesh Rao, Manish Kumar Singh, S.N. Khajanji, Priyanka Singh</b> .....	569-571
Role of supplemental UV-B radiation on flower and pod formation in Pea ( <i>pisum sativum</i> L.). — <b>Rajesh Kumar, Rakesh Kumar and A.K. Goyal</b> .....	573-577
Effect of optimal, sub optimal and integrated nutrient management on productivity and energetics of Rice ( <i>oryza sativa</i> ) in Rice-Wheat ( <i>triticum aestivum</i> ) cropping system — <b>Chandrashekhar Khare, Shrikant Chitale, Manish Kumar Singh, Kanhaiya Lal Patel and Priyanka Singh</b> .....	579-581
Production potential and energetics of mungbean ( <i>phaseolus aureus roxb.</i> ) As influenced by different cultivars and nutrient management — <b>Nilesh Rao, Manish Kumar Singh, S.N. Khajanji, Priyanka Singh</b> .....	583-586
<i>In vitro</i> evaluation of different physical factors for optimum growth and sporulation and toxin production by <i>alternaria cyamopsidis</i> causing leaf blight of guar [ <i>cyamopsis tetragonoloba</i> (L.) Taub.] — <b>M.K. Meena, Dr. B.B.L. Thakore and R.S. Jatav</b> .....	587-591

Yield and profit of soybean ( <i>glycine max</i> L. Merrill) as influenced by integrated nutrient management under <i>vertisols</i> of Chhattisgarh plains — <b>Rahul Kumar, T.R. Sonkar, S.S. Sengar and R.N. Singh</b> .....	593-597
Growth and growth attributes character and productivity of early duration, medium duration and hybrid rice on <i>inceptisols</i> — <b>Manish Kumar Singh, Shrikant Chitale and Priyanka Singh</b> .....	599-601
Weed studies, productivity and economics of early duration, medium duration and hybrid rice on <i>inceptisols</i> in Chhattisgarh — <b>Manish Kumar Singh, Shrikant Chitale and Priyanka Singh</b> .....	603-604
Profile of farmers and their attitude towards mass information sources — <b>Dilip Kumar, K.K. Shrivastava, P. Shrivastava, and R.K. Shori</b> .....	605-611
Attitude of farmers regarding adoption of control measure practices of various weeds of rice crop in Chhattisgarh state — <b>R.K. Shori, K.K. Shrivastava, A.P. Singh, Dilip Kumar and P. Shrivastava</b> .....	613-617
Progression of <i>alternaria</i> blight on different varieties of clusterbean in relation to weather parameters — <b>A. K.Meena, S.L. Godara, S. Gangopadhyay, R.S. Jatav and V.R. Meena</b> .....	619-627
Distribution pattern of available nutrients under Rice –Wheat cropping sequence in Daurala block of Meerut district (Uttar Pradesh) — <b>Satendra Kumar, Vaibhav Kumar, Pramod Kumar, Pardeep Kumar, U.P. Shahi, S.P. Singh, Ravindra Kumar and Amit Kumar</b> .....	629-633
Influence of nitrogen and zinc application with different water salinity on growth, yield and nutrient uptake of Rice — <b>V. P. Singh and M.K. Agrawal</b> .....	635-638
Evaluation of turmeric ( <i>curcuma longa</i> l.) Genotypes for yield and quality attributing traits under agro-climatic conditions of Chhattisgarh plains — <b>M. Dinkar, J. Singh, and P.C.Chaurasia</b> .....	639-644
Effect of the dye malachite green on soil mycobiota — <b>Permod Kumar and M.U. Charaya</b> .....	645-650
Impact of cluster approach through kvk's — <b>Arvind Saxena, D.S. Tomar and Aparna Jaiswal</b> .....	651-654
Quality evaluation of new hybrids of Rice ( <i>oryza sativa</i> L.) — <b>Devaraja C. N. Shivakumar and Jnanesha A.C.</b> .....	655-658
The study of the gemmisphere mycoflora of buckwheat ( <i>fagopyrum esculentum</i> moench.) — <b>D.K. Jain, Shagufta Naaz, Reena Bansal and P.N. Singh</b> .....	659-661
Impact of supplemental UV-B radiation on number of tillers in barley ( <i>hordeum vulgare</i> linn.) — <b>Rakesh Kumar, Suruchi Tyagi, A.K. Goyal and Rajesh Kumar</b> .....	663-664

Journal of Plant Development Sciences Vol. 4(4)

**STUDY ON EFFECT OF NATURAL GAS FLARING (LIGHT POLLUTION) ON SOIL HEALTH/ENVIRONMENT OF PADDY FIELD OF ASSAM NEAR THE VICINITY OF OIL WELLS UNDER OIL INDIA LIMITED**

**B. Kalita<sup>1</sup>, H.P. Sharma<sup>2</sup> and S. Bortahkur<sup>3</sup>**

*Department of Environmental Science, Gauhati University, Guwahati – 781 014 Assam (India)*

*<sup>1</sup>Subject Matter Specialist (Agronomy), KVK, East Kameng, Pampoli – 790102, Arunachal Pradesh, E-mail: binod\_kalita05@rediff.com (Corresponding author)*

*<sup>2</sup>Profesor and Head, Department of Environmental Science, Gauhati University, Guwahati – 781 014, Assam*

*<sup>3</sup>Programme Coordinator, KVK, East Kameng, Pampoli – 790102, Arunachal Pradesh*

**Abstract:** Pollution caused by disposal of associated gases through flaring is the most prevalent problems in the crop as well as soil environment. The effect of natural gas flaring (light pollution) on soil chemical properties, soil temperature and dehydrogenase enzyme activity were studied in the year 2010 and 2011 in the vicinity of eight (08) numbers of flare pits located near Oil Collecting Station's (OCS's), Early Processing Setup's (EPS's) and Quick Processing Setup's (QPS's) under Oil India Limited, Duliagan, Assam. It has been achieved a distance 0-25 m, 25-50 m, 50-75 m, 75-100 m and 100-125 m from the flare pits and soil sample were collected from the five distances of each flare pits according to method and soil sample were analyzed for chemical properties. Results obtained showed variation in chemical properties of soil, soil temperature and dehydrogenase enzyme activity as distance increases away from flare pits. In respect of soil pH, the study does not show significant effect of natural gas flaring with increase in distance from the flare pits up to 125 m. Significant difference in respect of soil temperature, soil organic carbon, available N, Available P<sub>2</sub>O<sub>5</sub>, available K<sub>2</sub>O and dehydrogenase enzyme activity was recorded with the distance from the flare pits which might be due to heat effect of natural gas flaring at the vicinity of flare pits. Correlation study revealed that soil temperature was negatively correlated with soil organic carbon, available N, Available P<sub>2</sub>O<sub>5</sub>, available K<sub>2</sub>O and dehydrogenase enzyme activity of soil i.e. all these parameters found to be reduced nearby the flare pit and increases with the distance from it.

**Keywords:** Natural gas, Environment, Paddy Field, Assam

Journal of Plant Development Sciences Vol. 4(4)

## A RESCUED TREE SPEAKS

**M.L. Kapoor**

*Retd. Head Division of Genetics and Tree Propagation, Forest Research Institute (ICFRE, Ministry of Environment and Forests, GOI), Dehradun, Uttarakhand, (India).*

*Email: mlkapoor@hotmail.com*

**Abstract :** The rescued tree tells that, "I am, a Bakain tree (*Melia azedarach* L.). I belong to family *Meliaceae* of Neem. I was born from a seed a pot. Mali watered me. With heat of earth and sun I sprouted to become a seedling with roots and shoot Then I was transplanted where I stay now. My roots hold me up and absorb water from soil to transport up to my branches and leaves. My green leaves photosynthesize and make food for me. God has made me a self sustaining living being. I can also feel like humans, but, they think me just a dumb wooden tree. I serve people from their cradle to death, but they cut me in pieces and injure me, because I do not fight and kill. Neither I steal, lie nor argue in the courts for justice, I serve people and beast equally throughout my life as per wish of the God. I serve the mother earth and protect the environment by providing fresh air to all, prepare wood, pulp, timber, food, fodder and fruits for all Some people love me but most of them think me a dead log and cut ruthlessly."

**Keywords :** Bakain tree, Rescue, Tree speaks

Journal of Plant Development Sciences Vol. 4(4)

## PATHOGENICITY OF *ROTYLENCHULUS RENIFORMIS* ON *HELIANTHUS ANNUUS* (CV. MORDEN)

**Suruchi Tyagi, Sunaina Singh**

*Department of Botany, M.M.H. College, Ghaziabad – 201 001 (U.P.)  
ss.sunaina @rediffmail.com*

**Abstract :** An experiment was conducted under glass house condition to determine the pathogenicity effect at different inoculum levels on sunflower (*Helianthus annuus*) Cv. Morden. Observation recorded after 75 DAI (Days after inoculation) revealed that all growth parameters were decreased with increasing inoculum levels except the lowest one (500 nematodes/kg soil). Reduction in plant growth parameters was more pronounced at 8000 inocula level in comparison to control. Significant reduction in nematode population was observed among different inoculum levels at crop maturity.

**Keywords :** *Helianthus annuus*, Pathogenicity, *Rotylenchulus reniformis*

## EFFECT OF BIOTIC DISTURBANCE ON SOIL CHARACTERISTICS OF A MIXED-OAK FOREST IN KUMAUN HIMALAYA

Raksha Pande, Kiran Bargali and Neerja Pande

*Department of Botany, DSB Campus, Nainital, Uttarakhand E mail: surendrakiran@rediffmail.com*

**Abstract :** A study was conducted in mixed oak forest zone of Nainital catchment (Uttarakhand) in the Kumaun Himalaya for determining the impact of biotic disturbance on physical and chemical characteristics of soil. Three sites viz. undisturbed, moderately disturbed and highly disturbed were selected in a mixed oak forest and each site was further divided into three sub sites; Hill Base, Hill Slope and Hill Top. The findings indicated that there was more accumulation of nutrients in the undisturbed site as compared to moderately and highly disturbed sites. Sand particle was maximum in highly disturbed site and minimum in undisturbed site while, silt and clay showed a reverse trend. Maximum organic carbon (2.19%) was observed in surface soil (0-10 cm) at hill top of undisturbed forest and minimum (1.01%) in deep soil (20-30 cm) at hill base of highly disturbed site. Maximum nitrogen (0.36%) and organic matter content (3.78%) was observed in undisturbed forest as compared to moderately and highly disturbed sites. Results of present study indicated that there is an urgent need of value addition protection, forestation and environmental awareness programme for local people so that forests, particularly in degraded or disturbed forest area, can be saved.

**Keywords :** Disturbance, Oak forest, Kumaun Himalaya, Soil characteristics, Soil nutrients.

## ETHNOBOTANICAL OBSERVATIONS IN TRANS-HIMALAYAN REGION OF LADAKH

Konchok Dorjey, Sonam Tamchos and Sanjeev Kumar

*Department of Botany, University of Jammu, Jammu, J&K, India-180006*

*E. mail: sanjeevkoul222@gmail.com*

**Abstract :** An ethno botanical survey of Ladakh region in Jammu and Kashmir State, India was made to document the traditional knowledge and usage pattern of indigenous medicinal plants used by local communities. Based on the survey, information on 40 high altitude plants species, belonging to 35 genera and 21 families has been documented in the present paper. All the forty plants species are traditionally consumed by the local inhabitants of Ladakh either as traditional food, medicine, as fuel and fodder and possess ornamental and sacred value. Owing to rapid urbanization, over-exploitation and unplanned anthropogenic activities, many wild flora and their indigenous folk knowledge are under serious threat of disappearing, indicating an urgent need of their documentation with traditional practices and recommendation for their conservation and sustainable uses.

**Keywords :** Ethnobotany, Ladakh, Traditional knowledge, Local communities

## ANTICARCINOGENIC ASSESSMENT OF *MORINGA OLEIFERA* AND ITS ISOLATED SAPONIN IN ATTENUATION OF 7, 12-DIMETHYLBENZ[A]ANTHRAcene INDUCED HEPATIC CARCINOGENESIS

Veena Sharma\*, Ritu Paliwal and Lokendra Singh#

*Department of Bioscience and Biotechnology, Banasthali University, Banasthali-304022, Rajasthan, India*

*#Department of Botany, Meerut College Meerut*

*E-mail: drvshs@gmail.com, paliwal.ritu18@gmail.com*

**Abstract:** The present investigation was carried out to elucidate anticarcinogenic potential of hydro-ethanolic extract of *M. oleifera* (MOHE) and its isolated saponin (SM) in attenuation of 7, 12-dimethylbenz[a]anthracene (DMBA) induced hepatocarcinogenesis in male mice. Single oral administration of DMBA (15 mg/kg) to mice resulted in elevated levels of xenobiotic enzymes, hepatic malondialdehyde, with reduction in hepatic glutathione content, superoxide dismutase, catalase and phase-II metabolizing enzymes such as glutathione-S-transferase. The status of hepatic biochemical markers and total protein content were also found to be decreased along with increase in total cholesterol in DMBA administered mice. Pretreatment with the *Moringa oleifera* and its isolated saponin orally for 21 days offered almost complete protection against

DMBA induced tissue toxicity. The current investigation supports *Moringa oleifera* and its isolated saponin as a potent chemopreventive agent and suppresses DMBA-induced hepatic carcinogenesis in mice that might be due to decreased free radical generation.

**Keywords:** *Moringa oleifera*; 7, 12 dimethyl benz[a]anthracene, Hepatocarcinogenesis; Saponin, Xenobiotic, Mice

Journal of Plant Development Sciences Vol. 4(4)

**“TULSI” *OCIMUM SANCTUM* L. AS GERMICIDAL  
Lalit Kumar, S.C. Dhiman<sup>1</sup>, Poonam Tyagi and Durgesh<sup>2</sup>**

*Department Of Chemistry, <sup>1</sup>Department of Zoology,  
M.S. (P.G.) College, Saharanpur-247001, <sup>2</sup>Govt. PG College, Thalissain, Pauri, UK.  
Lalit\_kumar04@yahoo.com*

**Abstract :** Phytochemicals are non-nutritive plant chemicals that have protective or disease preventive properties. There are more than thousand known phytochemical and some of are lycopene in tomatoes, isoflavones in soy and flavanoids in fruits. “Holy Basil” (*Ocimum sanctum*) or “Tulsi” is undoubtedly the best medicinal herb ever known. It has endless miraculous and medicinal values and is being worshipped in India since thousands of years. It is an excellent germicidal herb. They are quite effective in treatment of dysentery and can rid toxins from the body. Our studies have shown that extract of tulsi leaves kills *Salmonella* and *E.coli* tests clearly depicted zone of inhibition of 3mm to 14mm for *Salmonella* and 0mm to 14mm for *E.coli*. On the basis of the results obtained for the MIC determination by disc diffusion assay on LB agar media, it was observed that for the Protein Fraction up 1/10000 dilution factor in fraction against *Salmonella typhi* and *E. coli*. For protein fraction the MIC was found to be 1/10000 dilution factor against *S. typhi* and *E. coli*.

**Keywords :** “Tulsi” (*Ocimum sanctum*), Phytochemicals, Antibiotic, Germicidal, *Salmonella typhi* and *E.coli*.

Journal of Plant Development Sciences Vol. 4(4)

**THE IMPACT OF NUCLEAR-PLASMA GENE INTERACTION GOVERNING  
HETEROISIS IN WHEAT (*TRITICUM AESTIVUM* L.)  
Satyapal Singh\*, N.R. Rangare and P.C. Chaurasiya**

*Department of Genetics and Plant Breeding Allahabad School of Agriculture,  
Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad-211007  
(U.P.), India  
\*Email : spsinghikv@gmail.com*

**Abstract :** The present investigation consists of 28 genotypes of wheat, which were procured from Wheat Breeding Programme, Directorate of Research, Sam Higginbottom Institute of Agriculture, Technology and Sciences, (Deemed to be University), Allahabad, UP, India. The experiment was conducted during Rabi 2008-10 in RBD having three replications. The data were recorded on twelve characters to study the variability, heterosis and contribution of plasma gene determining the heterosis. The significant mean sum of squares for all the 12 characters indicated the presence of substantial amount of variability. *Per se* performance for grain yield and its components depicted that genotypes GIANT-3, AAI-347 and RAJ-4026 was found to be best for introduction of male sterility either through chemical hybridizing agent (CHA) or through transfer of ms gene from the wild sources or alien genes through biotechnological techniques in hybrid breeding programme in wheat. This hybrid showed highest positive significant heterobeltiosis (hb) and economic heterosis (he) values for grain yield per plant, number of grains per spike, number of effective tillers per plant and biological yield due to plasma gene effect in reciprocal crosses. The highest heterobeltiosis (hb) and economic heterosis (he) value for grain yield per plant was depicted by direct cross GIANT-3 x AAI-347 and reciprocal cross PBW-343 x GIANT-3.

**Keywords:** Heterosis, male sterility, nuclear gene, plasma gene, wheat.

Journal of Plant Development Sciences Vol. 4(4)

**STUDY OF POLLEN FERTILITY IN FIVE VARIETIES OF *IMPATIENS BALSAMINA*  
Aruna Katiyar<sup>1</sup>, Bharati Singh<sup>2</sup> and Deepmala Katiyar<sup>2\*</sup>**

*<sup>1</sup>Departments of Botany, Faculty of Sciences, University of Lucknow, Lucknow, India  
<sup>2</sup>Vitaegen Biotech- Educational and Research Institute, Varanasi, India*

E- mail: [deepmala.katiyar@gmail.com](mailto:deepmala.katiyar@gmail.com)

**Abstract:** *Impatiens* is a widely cultivated ornamental plant, belonging to family Balsaminaceae. Nearly 91% of Indian species of *Impatiens* are endemic. *Impatiens balsamina* L. also known as Gulmehndi is one of the popular species of North India. The present communication is an account of study of pollen fertility in different varieties of *Impatiens balsamina*. There was a statistically significant difference between varieties as determined by one way analysis of variance of pollen fertility indicates significant difference due to variety. The result showed that orange variety pollen fertility significantly highest from each of the other varieties and lowest in pink variety.

**Keywords:** *Impatiens balsamina*, Pollen fertility, varieties

## PROBLEMS IN ADOPTION OF RECOMMENDED FINGER MILLET PRODUCTION TECHNOLOGY AMONG THE TRIBAL FARMER'S OF CHHATTISGARH

Romash Kumar Suryawanshi and Kedar Nath Yadav

Department of Agricultural Extension, Indira Gandhi Krishi Vishwavidyalaya, Raipur – 492 012  
(C.G.), India

Email: [kedari03@gmail.com](mailto:kedari03@gmail.com)

**Abstract :** This study was conducted on 150 tribal farmers who were selected from three blocks of Bastar district of Chhattisgarh state to ascertain the constraints in adoption recommended finger millet production technology. The study reveals that the majority (82.67%) of the respondents had reported lack of marketing facilities for selling of their produce as the major problem faced by them, followed by lack of training facilities regarding finger millets production technology, less contact with extension officers, non-availability of information sources in proper time for finger millet production, etc. Majority of the respondents (76.66%) suggested that the marketability of finger millet may be increased by promoting the nutritional value and exploiting the export potential. About 65 per cent respondents suggested that the finger millet growers may be motivated by persistent efforts of extension personnel like RAEO's, ADO's, SMS, etc. to adopt advanced finger millet production technology by demonstrating the proven benefits of finger millet production.

**Keywords :** Bastar district, Chhattisgarh, Constraints, Finger millet production, Suggestions, Tribal farmers

Journal of Plant Development Sciences Vol. 4(4)

## CHARACTERISTICS OF FARMERS INFLUENCING USE OF INFORMATION SOURCES

P.K. Sangode<sup>1</sup>, Dilip Kumar<sup>2</sup> and P. Shrivastava<sup>3</sup>

<sup>1</sup> Deptt. of Agril. Extension, College of Agriculture, IGKV, Raipur (C.G.).

<sup>2</sup> Deptt. of Agril. Extension, College of Agriculture, IGKV, Raipur (C.G.).

<sup>3</sup> KVK, Chhattarpur, JNKVV, Jabalpur (M.P.)

**Abstract:** Agricultural education needs to be evolved in a very rapid manner to meet the expectation of the society. Under this situation Rural Agricultural Work Experience (RAWE) Programme is an important competence and confidence building programme introduced in all SAUs in India. In this regard a survey was done by interviewing eighty adopted farmers of Parsada village of Arang block of Raipur district of Chhattisgarh. The primary data were collected with the help of structured interview schedule and the statistical analysis was done with the help of computer. It was found that majority of the farmers interviewed were middle aged (27 to 49 years) belonged to other backward class (75.00%) had medium size (78.75%) and nuclear family (71.25%). 43.75 per cent of them had marginal land holding (less than 1 ha), less than half of them (48.75%) had tube well as the source of irrigation; and slightly more than half of them (52.50%) had agriculture alone as their principal occupation. Most of the farmers surveyed (47.50%) had annual income between Rs. 35,001 to 60,000/-. It was observed that a considerable majority of the farmers (77.50%) had medium overall contact with extension personnel. As regard to the overall use of information sources by the respondents, the data revealed that majority of them (43.75%) had medium overall use of information sources. Out of the nine independent variables under study only four variables viz. age, size of land holding, annual income and contact with extension personnel had positive and highly significant correlation with use of information sources; while the variables size of family and occupation had positive and significant relationship with use of information sources. The remaining three variables viz. caste, type of family and sources of irrigation had non significant correlation with use of information sources. On multiple regression analysis it was found that the variables age, annual income and contact with extension personnel had positive and highly significant contribution towards use of information sources; whereas the variables size of family, size of land holding and occupation had positive and significant contribution towards use of information sources.

**Keywords :** Agriculture education, Farmers, Chhattisgarh, information sources

## KNOWLEDGE LEVEL OF TRIBAL FARMERS ABOUT ORGANIC FARMING PRACTICES IN PADDY CULTIVATION

Satish Kumar Verma, R.S. Sengar and Kedar Nath Yadaw

*Department of Agricultural Extension,  
Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.)-492 012  
Email: kedar.ri03@gmail.com*

**Abstract :** This study was carried in Kanker district of Chhattisgarh state. Kanker district has 7 blocks, out of which, 3 blocks namely Kanker, Narharpur and Antagarh, was selected purposively because the majority of tribal farmers are practicing organic farming in these blocks. From each block 40 tribal farmers were randomly selected hence a total 120 respondents were interviewed personally. The study aimed to know the knowledge level of the farmers regarding organic farming in paddy cultivation. The findings revealed that, around 60 per cent of respondents were having medium knowledge about organic farming. Among the selected characteristics nine characteristics viz. education, total number of family members involved in farming, social participation, number of training programme attended, extension contact, sources of information, cosmopolitaness, annual income and risk bearing capacity had positive and significant correlated with their knowledge about organic farming practices. Multiple regression analysis indicated that, the seventeen independent variables put together had contributed to 67.30 per cent ( $R^2=0.673$ ) variation in level of knowledge about organic farming practices in paddy.

**Keywords :** Knowledge level, Organic farming, Paddy cultivation, Tribal farmers

## EFFECT OF INORGANIC AND ORGANIC SOURCES OF NUTRIENTS ON YIELD AND YIELD ATTRIBUTES OF LEMON GRASS (*CYMBOPOGON FLEXUOSUS L.*) UNDER SALT AFFECTED SOILS IN BALIA DISTRICT OF U.P.

V. B. Shahii, P. N. Singhi and Pardeep Kumar

*<sup>1</sup>Department of Ag. Chemistry and Soil Science, S. M. M. Town P. G. College, Ballia -277 001 (UP)*

*<sup>2</sup>Department of Soil Science, College of Agriculture S.V.P.U.A.T., Meerut 250 110*

**Abstract :** Field experiments were conducted at the Agricultural Research farm Nidharia of Sree Murali Manohar Town Post Graduate College district, Balliah, during 2005-2006 and 2006-2007 to evaluate the effect of different organic manures viz., FYM, green leaf manure, vermicompost and poultry manure. The treatments were applied at the time of field preparation as T<sub>1</sub> – 100% NPK as RDF (40:60:40 Kg ha<sup>-1</sup>), T<sub>2</sub> – 50% NPK + 5t FYM/ ha<sup>-1</sup>, T<sub>3</sub> – GLM (Green leaf manuring) 10t / ha<sup>-1</sup>.+10t FYM, T<sub>4</sub> – 100% N through vermi compost ha<sup>-1</sup> and T<sub>5</sub> – 100% N through poultry manure ha<sup>-1</sup>. All the treatments increased the herbage yield, maximum herbage (lemon grass) yield under T<sub>5</sub>. Content in plants and their uptake in lemon grass were highest under T<sub>5</sub> followed by T<sub>4</sub>, T<sub>1</sub>, T<sub>2</sub>, and T<sub>3</sub> indicating thereby superiority of T<sub>5</sub> over all the treatments. Thus the effect of farmyard manure, green leaf manure, vermi compost, poultry manure and NPK alone or in combination with very useful in enhancing the status of N, P, K, Ca, Mg and S of crops.

**Keywords :** FYM, Green leaf manure, Vermicompost and Poultry manure

## SOCIO-ECONOMIC STATUS OF HYBRID RICE GROWERS IN SURGUJA DISTRICT OF CHHATTISGARH

P. K. Lakra\*, M.K. Chaturvedi, Kedar Nath Yadaw and L. R. Verma

*Department of Agricultural Extension,  
Indira Gandhi Krishi Vishwavidyalaya, Raipur – 492012 (C.G.), India  
\*Email: bhedusahu52@gmail.com*

**Abstract:** This study was carried out in selected blocks of Surguja district of Chhattisgarh during 2011-12. A total of 160 tribal farmers were selected randomly as respondents. The study aimed to determine the socio-economic status of the hybrid rice growers. The data were collected through personal interview method with the help of well structured and pre-tested interview schedule. The findings of this study revealed that majority of the respondents were found in middle age group and educated up to primary level having medium size of family (6 to 10 members) with membership in more than one



organization. Majority (66.25%) of the respondents had medium experience of hybrid rice cultivation and they were involved in Agriculture + Labour works. Maximum number of the respondents were having medium size of land holdings and surviving with the range of Rs. 20,001 to Rs. 40,000 annual income. Majority of the respondents had also obtained short term credit from co-operative societies.

**Keywords:** Adoption, Socio-economic status, Hybrid rice growers.

Journal of Plant Development Sciences Vol. 4(4)

**INTERACTION EFFECT OF METHOD AND DEPTH OF SOWING ON GROWTH AND YIELD CHARACTERS OF SOYBEAN (*GLYCINE MAX*) Ashish Kumar Chandrakar\*, Chandresh Kumar Chandrakar, Chetan Kumar Dewangan and Deepshikha Manu**

*Department of Agronomy, Jawahar Lal Nehru Krishi Vishwavidyalaya, Jabalpur, 482004 (Madhya Praesh), India \*Email of corresponding author - [chandrakar22@gmail.com](mailto:chandrakar22@gmail.com)*

**Abstract:** The field experiment was conducted during *kharif* season of 2008-09 at Research Farm of *Jawahar Lal Nehru Krishi Vishwavidyalaya, Jabalpur*, College of Agriculture, Indore for evaluating the interaction effect of method and depth of sowing on growth and yield characters of soybean [*Glycine max* (L.) Merrill.]. Ridge method of sowing and 5 cm depth of sowing (M<sub>1</sub>D<sub>2</sub>) showed promising effect on growth parameters and yield attributes with 30 cm x 10 cm planting geometry of soybean over rest of the treatments. Thus it can be concluded that soybean crop raised with ridge method at 30 cm x 10 cm plant spacing with 5 cm depth could be beneficial.

**Keyword:** Sowing depth, Sowing method, Soybean, Spacing

Journal of Plant Development Sciences Vol. 4(4)

**SELECTION STRATEGY FOR PRODUCTIVE PLANT TYPE IN DOLICHOS BEAN (*DOLICHOS LABLAB* L.) FOR CHHATTISGARH PLAINS  
Kanhaiya Lal Patel, Nandan Mehta and G.L. Sharma**

*Department of Horticulture, Indira Gandhi Krishi Viswavidlaya, Raipur (Chhattisgarh) – 492 006  
E-mail-mehta.igkv@gmail.com, hehapatel@gmail.com*

**Abstracts :** In Chhattisgarh, a field experiment was carried out at Department of Horticulture, where sixty three genotypes of Dolichos bean (*Dolichos lablab* L.) were evaluated for green pod yield and its contributing characters. The genetic variability analysis revealed that wide range of variability was observed for all the characters viz. leaf length, leaf width, inflorescence length, number of flower per inflorescence, number of pod per inflorescence, pod length, pod width, number of pod plant, hundred seed weight and pod yield. It was also revealed that relative magnitude of phenotypic coefficient of variation was higher than the genotypic coefficient of variation under the study, higher heritability estimates coupled with high genetic advance as percent of mean were observed for hundred seed weight (98.11%) followed by pod length (97.29%), pod width (96.20%) number of flower per inflorescence (94.53%), length of inflorescence (94.24%) and number of pods per inflorescence (78.05%). Correlation revealed that number of pod per plant highly significant and positive association with pod width, pod length and marketable green pods yield per plant at phenotypic and genotypic level.

**Keywords :** Dolichos bean, Vegetable, Cultivation, Sem

Journal of Plant Development Sciences Vol. 4(4)

**GENETIC VARIABILITY, HERITABILITY AND GENETIC ADVANCE IN TOMATO  
Abhilash Swaroop Mahapatra, \*Anand K. Singh, V. Manju Vani, Ramanand Mishra and  
B. K. Singh**

*Department of Horticulture, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi  
\* Correspondence*

**Abstract:** 68 genotypes of tomato were assessed for genetic variability, heritability and genetic advance studies at Vegetable Research Farm, Department of Horticulture, Institute of Agricultural Sciences, B. H. U., Varanasi during rabi season 2009-10. All the characters studied for all the genotypes showed highly significant variation. General coefficient of variation at phenotypic level was higher in magnitude than corresponding genotypic level though the differences were not much in all the cases. Maximum PCV (49.55) and GCV (47.30) were registered for shelf life while days to 50% flowering had the

lowest PCV (8.66) and GCV (7.40). The range of heritability was observed between 73.10 to 99.60 %. Highest value of heritability 99.60 was observed for fruit yield per plant and fruit yield per hectare, while it was lowest for days to 50% flowering (73.10). Highest genetic gain was recorded for shelf life followed by fruit yield per plant, fruit yield per hectare, whereas days to 50% flowering exhibited moderate genetic gain.

**Keywords:** Tomato, *Lycopersicon esculentum*, Variability heritability, Genetic advance

Journal of Plant Development Sciences Vol. 4(4)

## **NEW PEACH ROOTSTOCKS UNDER CHANGING CLIMATIC SCENARIO** **Naira Ashraf, M. K. Sharma and Moieza Ashraf**

*<sup>3</sup>Department of Fruit Science, S.K. University of Agriculture Science and Technology of Kashmir, Shalimar, Srinagar 191121 <sup>3</sup>Department of Environmental Science, Kashmir University, J. & K.*

**Abstract :** In India, peach occupies third rank after apple and pear in terms of area and production among temperate fruits. It is grown commercially in Jammu and Kashmir, Himachal Pradesh and Uttarakhand. In limited scale, it is also grown in the hills of south India and north- eastern parts of the country. Low chilling peaches are also grown in sub-mountainous regions of Punjab, Haryana and western Uttar Pradesh. Rootstock influences various characteristics of the scion cultivar. New rootstocks with desirable characteristics are needed the world over under climatic change scenario. Breeding programmes are presently active the world over for the selection of such rootstocks. Number of new peach rootstocks have been evolved which can be adopted under varied climatic conditions. Some of these are Bailey, Lovel, Stark Red Leaf, Penta, Garnem, Kuban 86, Sharpe and Greenpac etc.

**Keywords :** Peach, Rootstocks, Climatic conditions, Cultivation

Journal of Plant Development Sciences Vol. 4(4)

## **YIELD ADVANTAGE OF OPTIMAL, SUB OPTIMAL AND INTEGRATED NUTRIENT MANAGEMENT ON YIELD POTENTIAL AND ECONOMICS OF RICE (*ORYZA SATIVA*) IN RICE-WHEAT (*TRITICUM AESTIVUM*) CROPPING SYSTEM** **Chandrashekhar Khare <sup>1</sup>, Shrikant Chitale <sup>2\*</sup>, Manish Kumar Singh <sup>3</sup>, Kanhaiya Lal Patel <sup>4</sup> and Priyanka Singh <sup>5</sup>**

*<sup>1,2,3,4</sup>Deptt. Of Agronomy, I.G.K.V., Raipur, Chhattisgarh-492 006*

*<sup>5</sup>S.O.S. in Chemistry, Pt.R.S.U., Raipur, Chhattisgarh-492 010*

*\* Corresponding author Email: shrikantchitale029@gmail.com*

**Abstract :** The present investigation was carried out at IGKV., Raipur (C.G.) during *kharif* season of 2010. The soil of experimental field was „*Inceptisols*“ locally known as *Matasi*. The experiment was laid out in randomized block design with 3 replications. The results revealed that T<sub>10</sub> consisting of 50% RDF + 50% N through green manuring recorded the highest growth and yield attributing characters and recorded maximum net return (Rs. 46,117 ha<sup>-1</sup>) and NPK content in soil under investigation. Application of 100% RDF (80:60:40 kg NPK ha<sup>-1</sup>) also proved superior over other integrated nutrient management systems consisting of farmyard manure and rice residues for yield (55.19 qha<sup>-1</sup>), net return (Rs.44,962 ha<sup>-1</sup>) and B:C ratio (2.52). Sub-optimal doses of nutrients failed to provide considerable yield advantage and nutrients build-up in soil as compared to optimal level or integrated nutrient management options.

**Keywords :** Economics, Integrated nutrient management, Nutrient uptake, Rice-wheat cropping system, Yield potential.

Journal of Plant Development Sciences Vol. 4(4)

## **EFFECT OF STORAGE ON PHYSICO-CHEMICAL CONSTITUENT OF AONLA (*EMBLICA OFFICINALIS* GAERTN.) SAUCE** **Sarita Sahu**

*Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.)*

**Abstract :** An experiment was conducted during 2008-09 on storage of aonla sauce under ambient condition at Raipur. There was a gradual decrease in organoleptic quality of aonla sauce during storage. It was found that the acceptability on hedonic rating test decrease gradually upto 120 days (7.16) storage. The chemical changes such as total soluble solids gradually decreased from 28.00 per cent (0 day) to 23.867 per cent (135 days). Similarly the ascorbic acid content of aonla sauce also decreased during the storage period from 448.333 mg/100g (0 day) to 416.667 mg/ 100g (135 days). The acidity

was however observed to increase with the advancement of storage from 1.26 per cent (0 day) to 1.58 per cent (135 days). The total sugar content of aonla sauce increased from 9.673 per cent (0 day) to 13.433 per cent (135 days). Similarly the reducing sugar increased from 2.937 per cent (0 day) to 7.91 per cent (135 days) while the non-reducing sugar decreased during storage from 6.727 per cent (0 day) to 5.523 per cent (135 days). The non-enzymatic browning (440 nm) of aonla sauce was found to increase from 0.086 (0 day) to 0.474 (135 days).

**Keywords :** Aonla, Ascorbic acid, Phsico-chemical constituent

Journal of Plant Development Sciences Vol. 4(4)

**TOTAL MONOMERIC ANTHOCYANIN COMPOSITION OF SOME  
UNDEREXPLOITED FRUITS USED BY KANI TRIBAL COMMUNITY OF  
AGASTHYAMALAI BIOSPHERE RESERVE.**

**R.D. Arun Raj\* and M. Reginald Appavoo**

*Dept. of Botany & Research Centre, Scott Christian College (Autonomous), Nagercoil, Tamilnadu.*

*Corresponding Author R. D. Arun Raj*

*Dept. of Botany & Research centre, Scott Christian College (Autonomous)*

*Nagercoil - 629003, Kanyakumari district, Tamil Nadu, India.*

*email: arunrajrd@gmail.com*

*Mobile: +919744356244*

*Phone: 0471-2255780*

**Abstract :** Total monomeric anthocyanin (CGE) composition of 10 underutilized fruits used by *Kanis*, an ethnic community of Agasthyamalai Biosphere Reserve was quantified using pH-differential method. The values obtained were ranged from 23.32 mg/L for *A. lindleyana* to 304.26 mg/L for *R. glomeratus*. 5 of the 10 fruits studied showed level of above 150 mg/L. The result proves that, these fruits are rich in anthocyanin, which is even comparable to the commercially cultivated counterparts known to be good sources of this pigment.

**Keywords :** Agasthyamalai Biosphere Reserve, Anthocyanin, *Kanis*, Wild fruits.

Journal of Plant Development Sciences Vol. 4(4)

**TOXICITY EFFECT OF CULTURE FILTRATES OF SOME FUNGI ON SEED  
GERMINATION AND SEEDLING GROWTH OF SOLANUM MELONGENA VAR.  
ESCULENTA NEES**

**D.K. Jain, Kumkum Gupta, Reena Bansal, Gunjan Joshi and P.N. Singh**

*Department of Botany, Meerut College, Meerut (U.P.)*

**Abstract :** Culture filtrate of all the fungi tested, e.g. *Alternaria alternata*, *Aspergillus flavus*, *A.niger*, *Chaetomium brasiliense*, *Curvularia lunata*, *Cladosporium herbarum*, *Fusarium oxysporum*, *Macrophomina phaseoli*, *Myrothecium roridum* and *Trichoderma viride* adversely affected the seed germination and seedling growth. The maximum reduction in seed germination percentage of seeds was observed in the culture filtrates of *Trichoderma viride* followed by that of *Aspergillus flavus*, *Myrothecium roridum*, *Macrophomina phaseoli* and *Fusarium oxysporum*. Boiled filtrates were more effective than the unboiled ones. In general, roots were more susceptible to toxins.

**Keywords :** Germination, Fungi, *Solanum melongena*

Journal of Plant Development Sciences Vol. 4(4)

**INDIAN CITRUS RING SPOT DISEASE: EFFECT ON THE QUALITY OF  
PRODUCTION IN FRUITS OF RESISTANT AND SUSCEPTIBLE VARIETIES OF  
KINNOW (*CITRUS RETICULATA*) AND ITS CONTROL MEASURES.**

**Anima Dixit and Jitendra Mohan**

*Department of Botany, Microbiology and Bioinformatics, J.V. College, Baraut- 250 611 (U.P.)*

**Abstract :** Viral diseases are considered as the most dangerous of all diseases in the modern fruit production industry which have been highly developed in last few decades. Kinnow (*Citrus reticulata*) which is a variety of citrus fruits grown in

Pakistan, India, Indonesia, China, Spain, Japan and Brazil etc. and there are so many varieties of Kinnow to be relished for their distinctive and sweet flavor, easy peeling, wide range of adaptability and high nutritious values. But the production of fruits is profusely affected by the different pests and diseases, in which viral diseases cost a lot of damage amongst all. Virus infected fruit trees are subjected to permanent damage of fruit quality and yield, a general decline of tree growth and even death. The damage by viral infections can only be checked by delivering adequate and precise information about viral diseases to the fruit growers, because if they are not managed in time, they can even wipeout the whole citrus industry.

**Keywords :** Citrus, Ring spot diseases Kinnow

Journal of Plant Development Sciences Vol. 4(4)

### **YIELD ATTRIBUTES OF MUNGBEAN (*PHASEOLUS AUREUS ROXB.*) AS INFLUENCED BY DIFFERENT CULTIVARS AND NUTRIENT MANAGEMENT**

**Nilesh Rao <sup>1</sup>, Manish Kumar Singh <sup>2</sup>, S.N. Khajanji <sup>3</sup>, Priyanka Singh <sup>4</sup>**

*1,2,3 Deptt. of Agronomy, I.G.K.V.V., Raipur, Chhattisgarh - 492 006*

*4 S.O.S. in Chemistry, Pt. R.S.U., Raipur, Chhattisgarh - 492 010*

*\* Corresponding author Email : khajanji.sn@gmail.com*

**Abstract:** The present experiment was carried out during *kharif* season of 2010 under *Vertisols* soil at the Instructional cum Research Farm (*Bharri*), IGKV, Raipur (C.G). The experiment was laid out as factorial randomized block design with three replications. The results revealed that various growth parameters and yield attributing characters were recorded highest with the application of 100% RDF + FYM 5 t ha<sup>-1</sup> + DAP 2% foliar spray twice at flowering and at 15 days interval + PSB + NAA 40 ppm foliar spray at 30 and 40 DAS (F<sub>7</sub>). Between the two genotypes, (V<sub>1</sub>) RM-03-71 was found to produce higher seed and stover yield. The interaction effect between genotypes and nutrient management revealed that combination of V<sub>1</sub> (RM-03-71) X treatment F<sub>7</sub> registered significantly higher seed yield as comparable to other combination.

**Keywords:** Mungbean, Nutrient management, Production potential, Yield attributes

Journal of Plant Development Sciences Vol. 4(4)

### **INCIDENCE OF FRUIT FLIES ON CUCUMBER IN KASHMIR VALLEY (INDIA)**

**S. A. Ganie, Z. H. Khan, Shamim A. Padder and Rayees A. Ahanger**

*Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir  
Division of Entomology, Shalimar Campus, Srinagar*

**Abstract :** The study was carried out during 2008- 2009 at six locations namely Batamaloo, Dal and Shalimar in district Srinagar, Chadoora, Bugam and Narkara in district Budgam. Four species of fruit flies on cucumber namely *Bactrocera cucurbitae*, *B. dorsalis*, *B. tau* and *B. scutellaris* were found that infest the cucumber crop. The maximum incidence of fruit damage (9.18%) on cucumber was recorded on 41<sup>st</sup> standard week and minimum incidence of 1.98 per cent was recorded on 29<sup>th</sup> standard week in Srinagar, while as in Budgam, the incidence of fruit damage on cucumber was maximum (9.55%) on 41<sup>st</sup> standard week and minimum 2.18 per cent during 29<sup>th</sup> standard week. The per cent incidence of fruit flies on cucumber was recorded highest (6.23 and 5.32%) at Batamaloo (Srinagar) and Chadoora (Budgam) respectively.

**Keywords :** Incidence, Cucumber, Kashmir (India)

Journal of Plant Development Sciences Vol. 4(4)

### **ALLELOPATHIC EFFECT OF AQUEOUS LEAF EXTRACT OF *PARTHENIUM HYSTEROPHORUS* L. ON SEED GERMINATION AND SEEDLING GROWTH OF *DAUCUS CAROTA***

**Princee Gupta, Amisha Kem and Asha**

*Department of Botany, Meerut College, Meerut-250 001, (U.P.) INDIA*

**Abstract :** Allelopathic effects of aqueous extract of *Parthenium hysterophorus* leaves were studied on seed germination and seedling growth of *Daucus carota*. The adverse impact of weed extracts on seed germination percentage, seedling growth (root and shoot lengths) with germination speed, growth index and tolerance index. Inhibitory effect of this weed extract on these parameters of test plant followed the order: control < 3% < 5% < 7% < 9%. The percentage of aqueous extract negatively correlated with the said parameters. The extract had variable effects (additive, antagonistic and synergistic) on the growth. However phytotoxicity percentage increased in treatment sets as compared to control.

**Keywords :** Allelopathic, Weed, *Daucus carota*, leaves extract

Journal of Plant Development Sciences Vol. 4(4)

### **ECONOMICS OF MUNGBEAN (*PHASEOLUS AUREUS ROXB.*) CULTIVARS UNDER DIFFERENT INTERACTION BETWEEN NUTRIENT MANAGEMENT AND GENOTYPES**

**Nilesh Raoi, Manish Kumar Singh <sup>2</sup>, S.N. Khajanji <sup>3</sup>, Priyanka Singh <sup>4</sup>**

<sup>1,2,3</sup>Deptt. of Agronomy, I.G.K.V.V., Raipur, Chhattisgarh - 492 006

<sup>4</sup>S.O.S. in Chemistry, Pt. R.S.U., Raipur, Chhattisgarh - 492 010

\* Corresponding author Email: khajanji.sn@gmail.com

**Abstract :** The present investigation was carried out during *kharif* season of 2010 at the Instructional cum Research Farm (Bharri), IGKV, Raipur (C.G). The soil of experimental field was clayey (*Vertisols*) in texture. The experiment was laid out factorial randomized block design with three replications. The highest gross return, net return and B: C ratio was recorded with genotype (V<sub>1</sub>) RM-03-71. The interaction effect between genotypes and nutrient management revealed that combination of V<sub>1</sub> (RM-03-71) X treatment F<sub>7</sub> (100% RDF + FYM 5 t ha<sup>-1</sup> + DAP 2% foliar spray twice at flowering and at 15 days interval + PSB + NAA 40 ppm foliar spray at 30 and 40 DAS) registered significantly higher seed yield as comparable to other combination. The gross return, net return and B: C ratio also higher in above treatment combination.

**Keyword :** Economics, Genotypes, Mungbean, Nutrient management

Journal of Plant Development Sciences Vol. 4(4)

### **ROLE OF SUPPLEMENTAL UV-B RADIATION ON FLOWER AND POD FORMATION IN PEA (*PISUM SATIVUM L.*).**

**Rajesh Kumar, Rakesh Kumar and A.K. Goyal\***

Department of Botany, M.M.H. College, Ghaziabad U.P. 201001.

\*Principal, Km. Mayawati Govt. Girls Post Graduate College, Badalpur U.P. 203207.

**Abstract :** Sun is the basic source of energy on the planet earth. It emits UV rays along with solar radiation. These UV rays (UV-B) increase the average temperature of the earth and harmful for living beings. A field experiment was conducted to observe the impact of supplemental UV-B radiation on flower and pod formation in pea (*Pisum sativum L.*). Supplemental UV-B radiation was given to the plant for different time periods (0, 1 hour, 2 hour and 3 hour) by halogen lamps. First time treatment was given when germination started and it was continued upto the maturity of crop. The study revealed that exposure of supplemental UV-B showed promotary effect over control in terms of number, fresh and dry weight of flower and pod in *Pisum sativum L.*

**Keywords :** *Pisum sativum L.*, Supplemental UV-B radiation, flower, pod

Journal of Plant Development Sciences Vol. 4(4)

### **EFFECT OF OPTIMAL, SUB OPTIMAL AND INTEGRATED NUTRIENT MANAGEMENT ON PRODUCTIVITY AND ENERGETICS OF RICE (*ORYZA SATIVA*) IN RICE-WHEAT (*TRITICUM AESTIVUM*) CROPPING SYSTEM**

**Chandrashekhar Khare <sup>1</sup>, Shrikant Chitale <sup>2\*</sup>, Manish Kumar Singh <sup>3</sup>, Kanhaiya Lal Patel <sup>4</sup> and Priyanka Singh <sup>5</sup>**

<sup>1,2,3,4</sup>Deptt. Of Agronomy, I.G.K.V., Raipur, Chhattisgarh - 492 006

<sup>5</sup>S.O.S. in Chemistry, Pt. R.S.U., Raipur, Chhattisgarh - 492 010

\* Corresponding author Email: shrikantchitale029@gmail.com

**Abstract :** The present investigation was carried out at the Research Cum Instructional Farm IGKV., Raipur (C.G.) having *Inceptisols (Matasi)* soil during *kharif* season of 2010. The experiment was laid out in randomized block design with 3 replications. The results revealed that amongst the different optimal, sub-optimal and integrated nutrient management practices using green manure, farmyard manure and chemical fertilizers, T<sub>10</sub> consisting of 50% RDF + 50% N through green manuring recorded the highest growth, yield attributing characters and grain yield of rice (56.19 qha<sup>-1</sup>). T<sub>10</sub> also recorded maximum net return (Rs. 46,117 ha<sup>-1</sup>), energy output (178.38 MJ x 10<sup>3</sup>) and NPK content in soil. Application of 100% RDF

(80:60:40 kg NPK ha<sup>-1</sup>) also proved superior over other integrated nutrient management systems consisting farmyard manure and rice residues for yield (55.19 qha<sup>-1</sup>) and energy output (176.75 MJ x 10<sup>3</sup>).

**Keywords :** Energetic, Integrated nutrient management, Productivity, Rice-wheat cropping system, Yield potential

Journal of Plant Development Sciences Vol. 4(4)

### **PRODUCTION POTENTIAL AND ENERGETICS OF MUNGBEAN (*PHASEOLUS AUREUS ROXB.*) AS INFLUENCED BY DIFFERENT CULTIVARS AND NUTRIENT MANAGEMENT**

**Nilesh Rao <sup>1</sup>, Manish Kumar Singh <sup>2</sup>, S.N. Khajanji <sup>3</sup> and Priyanka Singh <sup>4</sup>**

<sup>1,2,3</sup> Deptt. of Agronomy, I.G.K.V.V., Raipur, Chhattisgarh - 492 006

<sup>4</sup> S.O.S. in Chemistry, Pt. R.S.U., Raipur, Chhattisgarh - 492 010

\* Corresponding author Email : khajanji.sn@gmail.com

**Abstract :** The present experiment was carried out during *kharif* season of 2010 at the Instructional cum Research Farm (Bharri), IGKV, Raipur (C.G) on clayey (*Vertisols*) soil. The experiment was laid out as factorial randomized block design with three replications. The results revealed that various growth parameters and yield attributing characters were highest with the application of 100% RDF + FYM 5 t ha<sup>-1</sup> + DAP 2% foliar spray twice at flowering and at 15 days interval + PSB + NAA 40 ppm foliar spray at 30 and 40 DAS (F<sub>7</sub>). The highest energy output and output: input ratio were also recorded under the application of 100% RDF + FYM 5 t ha<sup>-1</sup> + DAP 2% foliar spray twice at flowering and at 15 days interval + PSB + NAA 40 ppm foliar spray at 30 and 40 DAS (F<sub>7</sub>).

**Keywords:** Energetic, Mungbean, Nutrient management, Production potential, Yield attributes

Journal of Plant Development Sciences Vol. 4(4)

### **IN VITRO EVALUATION OF DIFFERENT PHYSICAL FACTORS FOR OPTIMUM GROWTH AND SPORULATION AND TOXIN PRODUCTION BY *ALTERNARIA CYAMOPSISIDIS* CAUSING LEAF BLIGHT OF GUAR [*CYAMOPSIS TETRAGONOLOBA* (L.) TAUB.]**

**M.K. Meena\*, B.B.L. Thakore\*\* and R.S. Jatav\*\*\***

Department of Plant Pathology, Rajasthan College of Agriculture, Maharana Pratap University of Agriculture & Technology Udaipur- 3 13001

E mail : mkmeena879@gmail.com

\* P.G. Scholar, Department of Plant Pathology, RCA, MPUA&T, Udaipur (Rajasthan)-313001

\*\* Professor & Head, Department of Plant Pathology, RCA, MPUA&T, Udaipur (Rajasthan)-313001

\*\*\* Ph.D. Scholar, Department of Plant Pathology, RCA, MPUA&T, Udaipur (Rajasthan)-313001

**Abstract :** Studies were conducted *in vitro* to evaluation of different media, temperatures, lights and pH on growth and sporulation and production of toxic metabolites by *Alternaria cyamopsisidis* causing leaf blight of cluster bean during 2003 at Department of Plant Pathology, Rajasthan College of Agriculture, Udaipur. Guar blight is more common disease in guar growing regions of Rajasthan and cause considerable losses (Singh, 1970). The optimum growth and sporulation of the pathogen were highly favoured in potato dextrose agar medium (88 mm) and potato dextrose broth medium (384.46 mg) and the temperature 30±2°C (78.67 mm) and pH 6.5 (830 mg) were more suitable for maximum growth and sporulation of the fungus. Good growth and sporulation were obtained in red and green light treatment. Crude toxin of the pathogen derived from 15 days old culture filtrate of *A. cyamopsisidis* by which typical symptoms of blight were produced on guar leaves in bioassay test.

**Keywords :** *A. cyamopsisidis*, Cluster bean, Cultural media, Light, pH, Temperature, Toxin

Journal of Plant Development Sciences Vol. 4(4)

### **IN VITRO EVALUATION OF DIFFERENT PHYSICAL FACTORS FOR OPTIMUM GROWTH AND SPORULATION AND TOXIN PRODUCTION BY *ALTERNARIA CYAMOPSISIDIS* CAUSING LEAF BLIGHT OF GUAR [*CYAMOPSIS TETRAGONOLOBA* (L.) TAUB.]**

**M.K. Meena\*, B.B.L. Thakore\*\* and R.S. Jatav\*\*\***

Department of Plant Pathology, Rajasthan College of Agriculture, Maharana Pratap University of Agriculture & Technology Udaipur- 313001

E mail : mkmeeena879@gmail.com

\* P.G. Scholar, Department of Plant Pathology, RCA, MPUA&T, Udaipur (Rajasthan)-313001

\*\* Professor & Head, Department of Plant Pathology, RCA, MPUA&T, Udaipur (Rajasthan)-313001

\*\*\* Ph.D. Scholar, Department of Plant Pathology, RCA, MPUA&T, Udaipur (Rajasthan)-313001

**Abstract :** Studies were conducted *in vitro* to evaluation of different media, temperatures, lights and pH on growth and sporulation and production of toxic metabolites by *Alternaria cyamopsidis* causing leaf blight of cluster bean during 2003 at Department of Plant Pathology, Rajasthan College of Agriculture, Udaipur. Guar blight is more common disease in guar growing regions of Rajasthan and cause considerable losses (Singh, 1970). The optimum growth and sporulation of the pathogen were highly favored in potato dextrose agar medium (88 mm) and potato dextrose broth medium (384.46 mg) and the temperature  $30\pm 2^{\circ}\text{C}$  (78.67 mm) and pH 6.5 (830 mg) were more suitable for maximum growth and sporulation of the fungus. Good growth and sporulation were obtained in red and green light treatment. Crude toxin of the pathogen derived from 15 days old culture filtrate of *A. cyamopsidis* by which typical symptoms of blight were produced on guar leaves in bioassay test.

**Keywords :** *A. cyamopsidis*, Cluster bean, Cultural media, Light, pH, Temperature, Toxin

Journal of Plant Development Sciences Vol. 4(4)

## **GROWTH AND GROWTH ATTRIBUTES CHARACTER AND PRODUCTIVITY OF EARLY DURATION, MEDIUM DURATION AND HYBRID RICE ON INCEPTISOLS**

**Manish Kumar Singh <sup>1</sup>, Shrikant Chitale <sup>2</sup> and Priyanka Singh <sup>3</sup>**

<sup>1,2</sup> Deptt. of Agronomy, I.G.K.V.V., Raipur, Chhattisgarh - 492 006

<sup>3</sup> S.O.S. in Chemistry, Pt. R.S.U., Raipur, Chhattisgarh - 492 010

\* Corresponding author Email: shrikantchitale029@gmail.com

**Abstract :** The tallest plant at harvest was observed under T<sub>6</sub> (105.07 cm), which was at par with T<sub>7</sub> (103.83 cm). At harvest, a system with Mahamaya rice (T<sub>4</sub> and T<sub>5</sub>) has produced as much as dry matter (30.48 and 30.52 g plant<sup>-1</sup>) to that of Hybrid rice (30.72 and 30.64 under T<sub>6</sub> and T<sub>7</sub>, respectively). At 30 DAT, the highest leaf area index (2.52) was found in T<sub>6</sub>. At 60 DAT, the highest leaf area index (5.41 g plant<sup>-1</sup>) was found in T<sub>4</sub>. At 90 DAT, the highest leaf area index was found in T<sub>4</sub> system (5.89 g plant<sup>-1</sup>). The maximum grain yield of rice (49.90 q ha<sup>-1</sup>) was recorded under T<sub>4</sub> and the maximum straw yield (67.09 q ha<sup>-1</sup>) was recorded in T<sub>4</sub>. Harvest index did not differ significantly among all the three rice varieties.

**Keywords :** Early and medium duration rice, Growth attributes, Hybrid rice, Productivity

Journal of Plant Development Sciences Vol. 4(4)

## **WEED STUDIES, PRODUCTIVITY AND ECONOMICS OF EARLY DURATION, MEDIUM DURATION AND HYBRID RICE ON INCEPTISOLS IN CHHATTISGARH**

**Manish Kumar Singh <sup>1</sup>, Shrikant Chitale <sup>2</sup> and Priyanka Singh <sup>3</sup>**

<sup>1,2</sup> Deptt. of Agronomy, I.G.K.V.V., Raipur, Chhattisgarh - 492 006

<sup>3</sup> S.O.S. in Chemistry, Pt. R.S.U., Raipur, Chhattisgarh - 492 010

\* Corresponding author Email: shrikantchitale029@gmail.com

**Abstract :** The present investigation was conducted under irrigated condition during 2009-10 at Indira Gandhi Krishi Vishwavidyalaya, Raipur under All India Coordinated Research Project on Integrated Farming Systems with eight treatments. T<sub>2</sub> was highly infested by weed at 30 DAT (119 m<sup>-2</sup>) followed by T<sub>3</sub> (116.67 m<sup>-2</sup>). At 60 DAT, „Mahamaya<sub>6</sub> and „Indira Sona<sub>6</sub> were comparatively more infested by weeds to that of early maturing MTU-1010. The maximum grain yield of rice (49.90 q ha<sup>-1</sup>) was recorded under T<sub>4</sub> treatment. The maximum straw yield (67.09 q ha<sup>-1</sup>) was recorded in T<sub>4</sub>. The maximum net return (Rs 34,704 ha<sup>-1</sup>) was obtained from early duration rice „MTU-1010 in T<sub>3</sub>. The maximum B: C ratio (2.01) was recorded in T<sub>3</sub> followed by T<sub>2</sub> (1.97).

**Keywords :** Economics, Productivity, Weed studies, Yield attributes, Hybrid rice

Journal of Plant Development Sciences Vol. 4(4)

## PROFILE OF FARMERS AND THEIR ATTITUDE TOWARDS MASS INFORMATION SOURCES

Dilip Kumar<sup>1</sup>, K.K. Shrivastava<sup>2</sup>, P. Shrivastava<sup>3</sup>, and R.K. Shori<sup>4</sup>

1. Ph. D. Scholar, Deptt. of Agril. Extension, College of Agriculture, IGKV, Raipur (C.G.).
2. Professor, Deptt. of Agril. Extension, College of Agriculture, IGKV, Raipur (C.G.).
3. SMS, KVK, Chhattarpur, JNKVV, Jabalpur (M.P.)
4. P.G. Student, Deptt. of Agril. Extension, College of Agriculture, IGKV, Raipur (C.G.).

**Abstract :** The people normally accept new idea, practices, and innovations after several exposures with different media and information sources. The fast changing agricultural technology demands for more information to be transmitted to our increasing volume of clientele. Butt (2002) professed that emphasis should be laid upon the most modern agricultural techniques which is possible by dissemination of agricultural information among the farmers. Mass media including both the electronic as well as print media if effectively utilised can be very important instrument in provision of agricultural information. A research was undertaken to study the farmer's attitude towards use of information sources relevant to agricultural extension. Hundred farmers were randomly chosen from nine villages of Aarang and Dharsiwa blocks of Raipur district of Chhattisgarh, and personally interviewed with the help of structured interview schedule to collect the primary data. Linkert type attitude scale as suggested by Ray and Mondal (2011) was used to measure the attitude of the farmers towards use of information sources. The results of the study revealed that most of the farmers were in the age group of 34 to 56 years old, educated upto primary school, belonged to schedule caste with medium sized joint family and had no membership in any rural social organisation indicating very poor social participation. They had small sized land holdings and more than half of them (57.00%) had other sources of irrigation i.e. other than tube well, pond, well, canal *etc.* Majority of them had agriculture and labour as their primary occupation with just below half of them recording their annual income in between Rs. 35,001 to Rs. 60,000/-. Nearly fifty percent of the farmers interviewed sold their agricultural produce in the nearby mandies i.e. agricultural produce market. More than seventy per cent of them had medium overall use of information sources. As regards scientific orientation it was observed that majority of them had medium scientific orientation and moderately favourable attitude towards use of information sources. The variables education, size of land holding, sources of irrigation, annual income, marketing, contact with extension personnel, sources of information, use of information and scientific orientation were found positively and significantly correlated with attitude towards use of information sources. Whereas the variables education, sources of irrigation, contact with extension personnel, sources of information and scientific orientation was found to contribute positively and significantly towards attitude regarding use of information sources and all the fifteen variables jointly explained the variation in attitude towards use of information sources to the extent of 94.00 per cent.

**Keywords :** Attitude, Mass information, ICT, Scientific Orientation, Scio personal, Socio economic Characteristics

Journal of Plant Development Sciences Vol. 4(4)

## ATTITUDE OF FARMERS REGARDING ADOPTION OF CONTROL MEASURE PRACTICES OF VARIOUS WEEDS OF RICE CROP IN CHHATTISGARH STATE

R.K. Shori<sup>1</sup>, K.K. Shrivastava<sup>2</sup>, A.P. Singh<sup>3</sup>, Dilip Kumar<sup>4</sup> and P. Shrivastava<sup>5</sup>

- 1Dept. of Ag. Extension, COA, IGKV, Raipur (C.G.).
- 2Dept. of Ag. Extension, COA, IGKV, Raipur (C.G.).
- 3Dept. of Agronomy, COA, IGKV, Raipur (C.G.).
- 4Dept. of Ag. Extension, COA, IGKV, Raipur (C.G.).
- 5KVK, Chhattarpur, JNKVV, Jabalpur (M.P.)

**Abstract :** Rice plays a vital role in the national food security. India is the second largest producer of rice after China. Chhattisgarh is popularly known as the "Rice Bowl of India". The extent of yield reduction of rice due to weeds is estimated to be 15-90 per cent. Now a days timely unavailability of labours make weed control difficult, but the mechanical weeding and new pre and post emergence herbicides/weedicides for rice give an effective alternative to labour expensive way of weed control. A research was organised to determine the attitude of farmers regarding adoption of control measure practices of various weeds of rice crop. In all one hundred and sixty rice growing farmers were randomly selected from purposively chosen Dhamtari and Nagri blocks of Dhamtari district of Chhattisgarh and personally interviewed with the help of structured interview schedule to collect the relevant information from the respondents. The data were statistically analysed and logically presented in tabular form. The results of the study revealed that majority of the respondents were found to possess moderately favourable attitude regarding adoption of control measure practices of various weeds of rice crop. The variables education, size of family, social participation, land holding, annual income, contact with extension personnel, sources of information, scientific orientation and knowledge were found positively and significantly related with attitude regarding adoption of control measure practices of rice crop.

**Keywords :** Rice crops, Weeds, Chhattisgarh



### **PROGRESSION OF *ALTERNARIA* BLIGHT ON DIFFERENT VARIETIES OF CLUSTERBEAN IN RELATION TO WEATHER PARAMETERS**

**\*A. K. Meena<sup>1</sup>, S.L. Godara<sup>2</sup>, S. Gangopadhyay<sup>3</sup>,  
R.S. Jatav<sup>4</sup> and V.R. Meenas**

<sup>1, 2, & 3</sup> Department of Plant Pathology, College of Agriculture, Swami Keshwanand Rajasthan Agricultural University, Bikaner –India – 334 006

<sup>4</sup> Department of Plant Pathology, RCA, MPUA&T, Udaipur (Raj.) 313001

<sup>5</sup> Department of Ag. Entomology, RCA, MPUA&T, Udaipur (Raj.) 313001

Email: ak\_patho@rediffmail.com

**Abstract :** Progression of *Alternaria* blight of clusterbean [*Cyamopsis tetragonoloba* (L.) Taub] caused by *Alternaria cucumerina* var. *cyamopsidis* (Rangaswami and Rao) Simmons, was found to be greatly influenced by environmental factors prevalent conditions. The pooled data for both the years (2006 and 2007) revealed that there was periodical increase in blight intensity on all three varieties of clusterbean. However, this increase was more in susceptible variety, RGC-936 followed by moderately resistant, RGC-1003 and resistant, RGC-986. Relative humidity (morning and evening) were found significantly correlated with the progression of blight intensity.

**Keywords :** *Alternaria cucumerina* var. *cyamopsidis*, Clusterbean, Disease progression, Environment

### **DISTRIBUTION PATTERN OF AVAILABLE NUTRIENTS UNDER RICE –WHEAT CROPPING SEQUENCE IN DAURALA BLOCK OF MEERUT DISTRICT (UTTAR PRADESH)**

**Satendra Kumar, Vaibhav Kumar, Pramod Kumar, Pardeep Kumar\*, U.P. Shahi, S.P. Singh, Ravindra Kumar and Amit Kumar**

Department of Soil Science, S.V.P.U.A & T, Modipuram, Meerut-250110

\* Corresponding author (sehravat@gmail.com)

**Abstract :** The present investigation was undertaken to study of chemical properties of Daurala block Soil (district Meerut) under rice - wheat cropping system. The depth wise soils samples in rice wheat cropping system at five different locations were analyzed for like pH, EC, organic carbon, total nitrogen, macro and micronutrients. The surface and sub surface soil were in neutral to alkaline and none of the soil was found to be saline category. The organic matter content declined with soil depth, varied from 0.20 to 1.13 % at surface and sub surface soil. The available N, P and K 124 to 213, 8.8 to 38.6 and 169 to 450 kg ha<sup>-1</sup> at surface and sub surface soil and declined with increasing soil depth. Among the different micronutrients with exception of zinc and Fe, the availability of Cu and Mn micronutrients were in sufficient range. The availability of these micronutrients declined with increase in soil depth.

**Keywords :** Available N, P, K , Micro nutrients, Soil fertility and Rice - wheat cropping sequences

### **INFLUENCE OF NITROGEN AND ZINC APPLICATION WITH DIFFERENT WATER SALINITY ON GROWTH, YIELD AND NUTRIENT UPTAKE OF RICE**

**V. P. Singh\* and M.K. Agrawal\*\***

Department of Agriculture Chemistry and Soil Science R.B.S. College, Bichpuri, Agra (U.P.) 283105.

\*Department of Agri – K.L. Jain Inter College, Sasni, Hathras (UP)- 202139.

\*\* Department of Agriculture Chemistry & Soil Science, Ch. C.S – S.D.S. (PG) College, Iglas Aligarh (UP)- 202124

Email – singhvirendra368@gmail.com

**Abstract :** A pot experiments was conducted with three doses of Nitrogen Viz 60, 120, 180 kg ha<sup>-1</sup> , four doses of Zinc Sulphate i.e., 0, 25, 50, 75 kg ha<sup>-1</sup> and three levels of EC i.e., 0, 8, 16 dSm<sup>-1</sup> during kharif season of 1998 and 1999. The plant height and grain and straw yield decreased significantly over untreated ones. The mean reduction was noted with E<sub>2</sub> (16 dSm<sup>-1</sup>) higher levels of salinity. The higher levels of Nitrogen and Zinc Sulphate enhanced significantly the plant height, growth and yield grain & straw yield of rice crops. Nitrogen application @ 120 kg ha<sup>-1</sup> (N<sub>2</sub>) more grain yield to extent of

23.57 and 26.94 % in previous year and second year over 60 kg ha<sup>-1</sup> (N<sub>1</sub>) and Zinc Sulphate @ 50 Kg ha<sup>-1</sup> (Zn<sub>3</sub>) increased grain yield to extent 44.20 and 40.93 % in previous year and second year over to control (Zn<sub>0</sub>) respectively. The uptake values of all nutrients decreased significantly with higher levels of saline irrigation water over lower levels of salinity. The N, P, K, Na and Zn uptake by grain and straw were increased with enhancing dose of Nitrogen.

**Keywords :** Salinity, Grain, Straw, yield, Uptake values, Nitrogen, Zinc

Journal of Plant Development Sciences Vol. 4(4)

## **EVALUATION OF TURMERIC (*CURCUMA LONGA* L.) GENOTYPES FOR YIELD AND QUALITY ATTRIBUTING TRAITS UNDER AGRO-CLIMATIC CONDITIONS OF CHHATTISGARH PLAINS**

**M. Dinkar\*, J. Singh, & P.C. Chaurasia**

*Department of Horticulture*

*Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G)*

*Correspondence author: mayaramdinkar@gmail.com*

**Abstract :** The study was conducted in *Kharif* and *Rabi* season during the year 2009-10 at Horticulture Research Farm, Department of Horticulture, Indira Gandhi Krishi Vishwa Vidyalaya, Raipur (C.G.). The experimental material consisted of twelve genotypes of turmeric, which were evaluated for yield and various growth and yield characters. The experiment was laid in Randomized Block Design (RBD) with three replications. The results revealed that all the genotypes different significantly for yield and various growth and yield characters under study. Based on the vegetative growth of the twelve genotypes under study, Shillong, Rajendra Sonia, Rashmi, BSR -2 and Roma were found to be vigorous types while RS -2, TCP-1 and TCP-2 were poor performers. Maximum height of plants was recorded in variety Roma (94.80 cm) which was followed by Rashmi (81.93 cm), BSR-2 (76.63) and Shillong (75.40). The lowest plant height was observed in Narendra haldi-1 (37.50 cm). The maximum numbers of tillers were recorded on genotype Shillong (5.73) which was closely followed by Rashmi (5.54) and Narendra haldi-1 (5.40) which was statistically at par with each other. The average performance of genotypes for fresh tuber yield revealed that Roma, BSR-2, Duggirala red and Shillong were higher yielders whereas, TCP-1, Narendra haldi-1 and RS-2 were average yielders and RS -1 was the poorest performer. Highest yield per hectare was recorded in Roma (17.51 t), it was followed by BSR-2 (15.04 t), Shillong (10.86 t) and Duggirala red (10.69 t).

**Keyword :** Genotypes, Quality, Turmeric

Journal of Plant Development Sciences Vol. 4(4)

## **EFFECT OF THE DYE MALACHITE GREEN ON SOIL MYCOBIOTA**

**Permod Kumar and M.U. Charaya**

*Microbiology Laboratory, Department of Botany, CCS University, Meerut- 250 005*

*e-mail: pkkalhra@gmail.com*

**Abstract :** Effect of the dye malachite green (MG) on soil mycobiota was evaluated with an aim to mark out fungal strains which might be able to remove MG from effluents by adsorption. Soil treated with different concentrations of solution of malachite green were screened for fungal isolates. On the whole, *Aspergillus flavus*, *Aspergillus fumigatus* and *Aspergillus niger* could survive malachite green treatment in soil to a reasonable extent and their sizeable populations were isolated from MG- amended soils throughout the period of study, even from the soil treated with as high as 2000 ppm concentration malachite green solution.

**Keywords :** Dye pollution, Malachite green, Dye-tolerant fungi, soil mycobiota.

Journal of Plant Development Sciences Vol. 4(4)

## **IMPACT OF CLUSTER APPROACH THROUGH KVK'S**

**Arvind Saxena, D.S. Tomar and Aparna Jaiswal**

*Department of Extension Education College of Agriculture, Ganjbasoda J.N.K.V.V*  
*ritupamika@gmail.com*

**Abstract :** Impact study of cluster approach through KVK on soybean production was conducted in Ujjain block of Ujjain district of Madhya Pradesh, where the TOT programmes were operational in 2009. The results of the study revealed that knowledge level of eight practices of soybean production namely; seed treatment, land preparation, seed inoculation,

planting geometry, weeding, plant protection, recommended dose of fertilizer and harvesting were improved by 100 per cent through the training programme of the centre whereas four practices namely, 'selection of variety, use of micro-nutrient (S&N), ridge & furrow system of sowing and marketing showed significant improvement. The study further revealed that soybean production namely "summer ploughing, germination test, seed treatment, weeding (post emergence and hand weeding), application of RDF, Use of sulphur and Zn, market survey done before soybean growing and use of short duration variety were 100 per cent adopted. . On the other hand, although remaining four practices namely; method of sowing, soil testing, weeding (pre-emergence), scheduling of insecticides could not be achieved upto 100 per cent. The impact of trainings was highly significant in terms of increased yield. This means that training and demonstrations on different cultivation practices viz; selection of variety, seed treatment, seed inoculation, plant geometry, weeding, use of micro-nutrients, scheduling of insecticides and marketing has helped the farmers to improve the additional yield at the rate of 8.50 q/ha. The constraints as perceived by the respondents that affected the adoption of improved soybean technology in the farmer's field were identified. Unavailability of quality seed was the major problem of adopting soybean technology followed by problem of labour availability, imbalanced use of fertilizers and indiscriminate use of insecticides. It was concluded that KVK played a main role for increase the adoption of appropriate suitable technologies for soybean production.

**Keywords :** Soybean, Production, Germination, Seed treatment

Journal of Plant Development Sciences Vol. 4(4)

**QUALITY EVALUATION OF NEW HYBRIDS OF RICE (*ORYZA SATIVA* L.)  
Devaraja C.\* N Shivakumar and Jnanesha A.C.**

*Zonal Agricultural Research Station, UAS Bangalore, VC Farm Mandya, Karnataka, India. \*E-mail: devaraj.kolar@gmail.com*

**Abstract :** The success of rice hybrid is primarily depends on good yield and good marketing quality in terms of physical characteristics such as hulling %, head rice recovery, grain type, cooking characteristics such as volume expansion and volume elongation ratio and chemical characteristics in terms of amylose content, gel consistency alkalispreading value and aroma of the 69 experimental; hybrids and 4 standard checks developed in zonal agricultural research station VC farm mandya, the hulling percentage varied from 51 -74%, l/b ratio ranged from 2.76 -4.53m gel consistency found to be highest in case of kcms35a/msn68 and amylose content ranged from 13.0 – 26.1%. Many hybrids had intermediate gelatinization temperature, the hybrids KCMS 31A/KMR-3, KCMS 33A/KMR-4, KCMS 34A/THANU and CRMS31A/KMR-3 proved good physical and cooking characteristics and also they scored high yield over standard commercial checks and hence they can be used for further breeding programme.

**Keywords :** Amylose, Quality, Hybrids

Journal of Plant Development Sciences Vol. 4(4)

**THE STUDY OF THE GEMMISPHERE MYCOFLORA OF BUCKWHEAT  
(*FAGOPYRUM ESCULENTUM* MOENCH.)  
D.K. Jain, Shagufta Naaz, Reena Bansal and P.N. Singh**

*Department of Botany, Meerut College, Meerut*

**Abstracts :** Frequently encountered fungi in all the phases of bud development were *Alternaria alternata*, *Aspergillus flavus*, *A.niger*, *Candida albicans*, *Chaetomium globosum*, *Cladosporium herbarum*, *Nigrospora sphaerica*, *Penicillium frequentans*, *Trichoderma viride* and *Trichothecium roseum*. Among which *Aspergillus flavus*, *A. niger*, *Candida albicans* and *Cladosporium herbarum* were by far most prevalent.

**Keywords :** Fungi, Mycoflora, Buckwheat

Journal of Plant Development Sciences Vol. 4(4)

**IMPACT OF SUPPLEMENTAL UV-B RADIATION ON NUMBER OF TILLERS IN  
BARLEY (*HORDEUM VULGARE* LINN.)  
Rakesh Kumar, Suruchi Tyagi, A.K. Goyal\* and Rajesh Kumar**

*Department of Botany, M.M.H. College, Ghaziabad*

*\*Principal, KMGGPG College, Badalpur, Gautam Buddha Nagar.*

**Abstract:** Sun is the basic source of energy on the planet earth. It emits UV rays along with solar radiation. These UV rays increase the average temperature of the earth and harmful for living beings. Ultraviolet radiation was given by UV lamps. The number of tillers in *Hordeum vulgare* was increased when plants are irradiated with longer duration in comparison to control. In all the observations, the number of tillers was recorded highest in T<sub>3</sub> (2 hour) then T<sub>4</sub> (3 hour) and T<sub>2</sub> (1 hour) treatments. This increase in the number of tillers is helpful in yielding the higher amount of seeds, grains and a good amount of fodder.

**Keywords:** *Hordeum vulgare* Linn., Tillers, Ultra violet radiation