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EFFECT OF CYTOKININ PRECONDITIONING ON *IN-VITRO* MULTIPLE SHOOT REGENERATION OF LENTIL CULTIVAR

Anil Kumar Chawla, P. Cheena Chawla and Seema Chaudhary*

Chimera Gentec Pvt. Ltd, 34, Knowledge Park 1, Greater Noida, Uttar Pradesh- 201310
Email: puja.smp@gmail.com

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Abstract: This study was aimed to establish a protocol for enhancing shoot proliferation, rooting percentage during the regeneration of lentil cultivar and also to demonstrate that **pre-culturing of seedlings** stimulates production of multiple shoots from cotyledonary nodes and shoot tips of Lentil cultivar. The highest direct shoot regeneration (79%) with an average of 15-16 shoots/explant were obtained when cotyledonary node explants were excised from seedlings germinated on Murashige and Skoog modified (MSM) media supplemented with benzyl adenine (BAP) 5 mg l⁻¹, and subsequently cultured on MS modified media with 0.5 mg l⁻¹ benzyl adenine (BAP). Pre-culturing of seedlings, at the time of seed germination with high BAP concentration results in fast and multiple shoot regeneration followed by culturing the explants on lower concentration of BAP. For rooting, different concentration of IBA, IAA and NAA were used and highest rooting was recorded on half strength MS medium supplemented with 0.3mg l⁻¹ IBA. The rooted plantlets were hardened initially in culture room at 27±2°C and then transferred to *in-vivo* environment. The highly regenerative system developed in the present investigation for this important legume crop could be a useful tool for genetic transformation.

Keywords: Cotyledonary node, *In vitro*, Lentil L-4076, Multiple shoots, Roots regeneration

SEASONAL COVERAGE ANALYSIS OF SPATIO-TEMPORAL SATELLITE DATA OF INDIA

Avadhesh Kumar Koshal* and Sanjay Kumar¹

P.D.F.S.R., Modipuram, Meerut

¹Deptt. of Botany, Janta Vedic College, Baraut, Baghpat (U.P.)

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Abstract: The decadal analysis of total cereal crops area and production with climatic factors viz. temperature and rainfall of India observed status of rabi and kharif season. India lies to the north of the equator between 6° 44'N and 35° 30'N latitude and 68° 7'E and 97° 25'E longitude. The analysis of time series (2000-01 to 2009-10) data of maximum and minimum temperatures of India R² values observed 0.003 and 0.013. The actual rainfall data analysis of 10 years R² value 0.002 and average rainfall observed 1120mm. The actual rainfall showed decreasing trend 972.8 mm in year 2009-10 and 981.4 mm in year 2002-03. The rainfall data variability observed due to changing of rainfall trend in India. The satellite imageries of SPOT VGT are used for crop coverage study of India. The overall analyses of decadal data are observed 58.1% for agricultural coverage and 41.9% for non-agricultural coverage uses. The Kharif (August) and Rabi (March) season agricultural coverage and Non-agricultural coverage observed 57.6% and 57.9% and 42.2% and 42.1% respectively. The brightness values based breakpoints were divided into two lands cover categories: Non-agricultural coverage and agricultural coverage. The distribution of tonal value (red to radish and yellow to greenish) visually observed on time series images, which are assigned a DN range from 0 to 255 for Non-agricultural and agricultural coverage. The decadal analysis of total cereal crops area and production with climatic factors viz. temperature and rainfall of India observed status of rabi and kharif season. The seasonal time series remote sensing SPOT VGT data is useful for understand changing of land use coverage in India

Keywords: DN Value, Rainfall, SPOT, VGT, Temperature

EVALUATION OF DIFFERENT INSECTICIDES AND PLANT PRODUCT AGAINST CHILLI THIRPS, *SCIRTOTHRIPS DORSALIS* AND THEIR EFFECT ON NATURAL ENEMIES

Mithlesh Kumar Sahu¹, Yugal Kishore Yadu² and Devender Verma*³

Indira Gandhi Agricultural University, Raipur, Chhattisgarh 492 006

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Abstract: Ten insecticides *viz.* fipronil 5% SC, emamectin benzoate 5 SG, profenofos 50 EC, chlorpyrifos 20 EC, dimethoate 30 EC, indoxacarb 15.8 EC, metasystox 25 EC, neem oil 1%, agroneem 1.5% and NSKE 5% were evaluated under the field condition for ascertaining their bio-efficacy against chilli thrips, *Scirtothrips dorsalis*. Among the insecticides tested fipronil 5 SC @ 1000ml and emamectin benzoate 5 SC @ 250gm were equally found to be most effective against thrips. The application of emamectin benzoate 5 SG, and neem products were found safer for natural enemies (coccinellid beetle, *Menochilus exmaculatus*, staphylinid beetle, *Paederus* spp. and spider). The insecticides like fipronil 5 SC @ 1000ml/ha, chlorpyrifos 20 EC @ 1250 ml/ha, dimethoate 30 EC @ 850 ml/ha, indoxacarb 15.8 EC @ 500 ml/ha and metasystox 25 EC @ 750 ml/ha were also not harmful to the natural enemies of chilli pest.

Keywords: Insecticides, Chilli thrips, Natural Enemies

RESPONSE OF OKRA [*ABELMOSCHUS ESCULENTUS* (L.) MOENCH.] TO INTRA-ROW SPACING IN NORTHERN HILLS OF CHHATTISGARH

Amit Dixit* and Okesh Chandrakar

*Department of Horticulture
Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) 492012
Email: amitdixit1872@yahoo.in*

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Abstract: Field experiments were conducted *Kharif* season, during the years 2010 and 2011 planting seasons at the northern hills of Ambikapur Chhattisgarh, to evaluate the response of 'Arka Anamika' variety of okra to different intra-row spacing and to determine the optimal intra-row spacing that would maximize yield under northern hills conditions. The treatments consisted of three intra-row spacing (35 cm, 30 cm and 25 cm), replicated four times in a randomized complete block design. Results of the study showed that while the tallest okra height was produced from the intra-row spacing of 30 cm, the number of branches per plant, leaf area, pod length, pod diameter, number of pods per plant, pod weight and yield decreased as intra-row spacing reduced. The greatest yield was obtained from the intra-row spacing of 35 cm. The yield produced from the intra-row spacing of 35 cm was significantly ($P < 0.05$) greater by 6.00 and 6.12 tone/ha respectively, in the year 2010 and 2011 compared to that obtained from the intra-row spacing of 30 cm and by 5.00 and 5.10 tone/ha respectively, in the year 2010 and 2011 compared to that produced from the intra-row spacing of 25 cm. The implication of this study showed that to maximize okra yield for variety 'Arka Anamika' the optimal intra-row spacing was found to be 35 cm and could therefore, be recommended for northern hills region of, Ambikapur C.G.

Keywords: Okra, Spacing, Yield, Variety

A STUDY OF MORPHOLOGICAL VARIATIONS IN OTOLITHS OF DIFFERENT SPECIES OF *LABEO* ON THE BASIS OF GROWTH AND GENDER

Neetu Singh, Seema Jain and Archana Arya*

Department of Zoology, R.G.(P.G.) College, Meerut (U.P.)

*Department of Basic Science, S.V.P. University of Ag. & Tech., Meerut (U.P.)

Email: archana.arya2012@gmail.com

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Abstract: A study was carried out to study the sexual and ecological age growth variations in the morphology of otoliths (sagitta) among various native species of the genus *Labeo* from Meerut region viz. *Labeoangra*, *Labeocalbasu*, *Labeogonius* and *Labeorohita*. The data obtained was photographed and statistically analysed. From the studies of sagitta of the four species of *Labeo* collected, it is clearly evident that otoliths (sagitta) are species specific in shape, size and structure. Based on the results of morphometric variations the Otoliths of the four species of *Labeo*, showed no significant differences between right & left sagitta ($P < 0.05$). The lack of significant differences between right & left sagittae is consistent with the observation that the pair of Otoliths are specular images of each other. Noticeable differences were observed among the four species in otolith morphometric variables.

Keywords: *Labeo* sp., Otololith, Sagittae, Morphometry, Growth, Gender

BIONOMICS OF PREDATORY RED STINK BUG, *EUTHYRHYNCHUS FLORIDANUS* LINNAEUS (HEMIPTERA: PENTATOMIDAE) ON TURMERIC LEAF SKIPPER BUTTERFLY, *UDASPES FOLUS* AT RAIPUR (C.G.)

C.M. Sahu*, Y.P.S. Nirala, S.K. Ghirtlahre and J.L. Ganguli

Department of Entomology, College of Agriculture,

Indira Gandhi Agricultural University, Raipur(C.G.) 492012

*Email: chandrasahu2111@gmail.com

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Abstract: Studies on the biology of predatory red stink bug, *Euthyrhynchus floridanus* Linnaeus (Hemiptera: Pentatomidae) on Turmeric, *Curcuma longa* L. conducted under laboratory conditions at Raipur Chhattisgarh, revealed that the bug, *E.floridanus* was found predated on the larvae of *Udaspes folus* and observed to be an extremely beneficial insect which killed their prey by sucking the body contents through a long, stout proboscis. The eggs were laid on upper surface of leaves. The eggs were laid in cluster with 68-70 per cluster and about 80 % eggs hatchability. Eggs were hatched 2 to 3 days after egg laid. The 1st instar nymph was approximately 1.0 mm long along with a blue-black head and thorax with red abdomen having dark central and lateral "stripes" composed of dorsal and lateral dark colored plates. The first instar nymphs were lived in groups or masses but later instar lived in individually because later instar cannibalism was observed. The 5th instar nymph was medium sized, approximately 1.2 to 1.5 cm in length. It was mottled brown or grey in colour and could easily be recognised by the presence of sharp spines on either side of the thorax. Nymph passed through 5 instars in about 30 to 38 days. Their total life cycle took about 39-50 days. Population of *E. floridanus* observed maximum during the month of November last week, which was recorded to be 0.063 bug per plant and minimum population recorded to be 0.026 bug per plant during the month of December second week.

Keywords: Red stink bug, Eggs, Nymphs, Adults, Population

STUDY OF OPINIONS AND CHARACTERISTICS OF THE MEMBERS AND NON MEMBERS OF THE PANCHAYATS, IN BAGHPAT DISTRICT

Lokendra Kumar Singh*

Department of Agricultural Extension, Janta Vedic Collage Baraut, Baghpat

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Abstract: No doubt India lives in the villages and about 50 per cent of the 6.41 lac villages of the country are situated in different terrain characterized by poor socio-economic condition. Even a casual glimpse at the sub continent of India is sufficient to convince that ours is a land of villages. Good majorities of her people i.e. nearly 68.84 per cent lives in villages and are occupied in the agriculture. According to the latest census figures, there are only 7936 towns in India; whereas the numbers of villages are 6.41 Lac. The 'Rig-Veda' which is considered as the oldest book in Indian culture too, has not been devoid of mention of villages. The literature succeeding the Rig-Veda. -The Ramayana and the Gita- in the epic period, Buddha period, Maurya period, and Gupta period etc. are profuse in their description of village. Although the Panchayats have historically been an integral part of rural life in India, these Acts have institutionalized the Panchayati Raj Institutions (PRIs) at the village, Block, and district levels as the third tier of government. The aim has been to combine social justice with effective local governance, with an emphasis on reservation of seats for the deprived classes of population, including of the leadership positions. with political empowerment having been established through a system of regular election to the three tiers of the Panchayats in all the States except Jharkhand, the task at hand has been to accelerate, widen, and deepen the process of empowerment so that these institutions of self government become the 'principal authorities' for planning and implementation.

Keyword: Panchayat, Opinion, Characteristics, Members, Villages

EFFECT OF DIFFERENT DOSES OF NPK ON TARGETED YIELD AND QUALITY OF SOYBEAN

Vaishali Sharma*, B. Sachidanand and S.S. Porte

*Department of Soil Science and Agricultural Chemistry,
Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur, (MP) India-482004*

Email: vaishali9488@gmail.com

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Abstract: A field experiment was conducted during kharif season on fine montmorillonitic, Hyperthermic, family of Typic Haplustert soil at research farm of the Soil Science Department, JNKVV, Jabalpur. In order to study the effects of different doses of NPK on targeted yield and quality of soybean, based on targeted yield was laidout in randomized block design with five treatments consisted of T₁= control, T₂= GRD (20.60.20), T₃= Targeted Yield (25 qha⁻¹), T₄= Targeted Yield (30 qha⁻¹) and T₅= Targeted Yield (35 qha⁻¹). The soil of experimental field was normal in soil reaction (pH 7.72), EC (0.305 dSm⁻¹) and 0.49 % OC with low in available N, medium in P, K, and S having 124, 12, 370 and 11.45 kgha⁻¹ respectively. The results indicated that different doses of fertilizers based on targeted yield affected the yield of soybean significantly over control and general recommended doses (GRD) of fertilizer for various set targeted yield. The highest yield of seed and Stover were recorded in treatment T₅ having 31.35 and 61.48 q ha⁻¹ respectively. Also, the highest nutrient content of NPK were 2.78, 0.17 and 0.78 percent at 30 DAS respectively. The analyzed quality of soybean such as oil and protein content was highest in T₄ i.e. 19.45 and 42.93 per cent, respectively. It was reckoned that for set of target yield based on soil test value, use of NPK fertilizers can be best practice for nutrient buildup and assimilation of higher seed protein and oil content. The targeted yield was increased by 32.25 percent over control. The available nitrogen, phosphorous and potash were found to increase with respect to initial status.

Keywords: Fertilizer, Soybean, Seed yield, Oil, Protein content

BIO-EFFICACY OF INSECTICIDE FORMULATIONS AGAINST TWO LEPIDOPTEROUS INSECTS OF RICE

Vikas Singh and Sonali Deole*

*Department of Entomology, College of Agriculture, Bhatapara
College of Agriculture, Raipur*
Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.)
Email: sonalideoleigkv@yahoo.com*

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Abstract: Extent of suppression of yellow stem borer *Scirpophaga incertulas* and leaf folder *Cnaphalocrocis medinalis* infestation on rice crop by six insecticides formulations was studied in the field conditions of rice variety swarna during two consecutive Kharif seasons of 2013 and 2014. Experiment was done following complete randomized block design and had three replications for each year. All treatments were significantly effective in checking stem borer infestation causing the decrease of both percent dead heart and folded leaves. Numerically least damage was recorded for profenophos + cypermethrin 44% @ 1000 ml/ha. during first and second spray for both 7 and 15 days after spraying as 3.83,4.50,7.16 and 7.84 percentage of dead heart/10 hills, respectively. In case of leaf folder during first and second spray for both 7 and 15 days after spraying the percentage folded leaves/10 hills noticed as 0.65,1.08,1.86 and 2.35 respectively with maximum yield of 49.64 q/ha.

Keywords: *Scirpophaga incertulas, Cnaphalocrocis medinalis*, Insecticide formulations

SAFETY OF CERTAIN NEW INSECTICIDES TO MIRIDBUG POPULATION IN RICE ECOSYSTEM

Swati Sharma*¹ and Ashish Kumar Sharma²

¹*Programme Assistant, KVK Kawardha, IGKV, Raipur*
²*Department of Entomology, IGKV, Raipur*

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Abstract: Field experiment was conducted at Research and Instructional Farm of Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G) during kharif of 2006-07. The major predator is found to be associated in the rice ecosystem were mirid bug is an important predator of rice. Evaluation of newer insecticides in combination with present and new formulations of older molecules was thrust point of investigation. The application of alika 247 ZC @33 g.a.i/ ha. is safer for mirid bug. Application of Spinosad 45SC@56 g.a.i/ha., alika 247 ZC@44 g.a.i/ha. And monocrown 36 WSC @500 g.a.i/ha. Were found harmful to mirid bug.

Keywords: Insecticides, Population, Rice, Ecosystem

ALLIUM ROYLEI STEARN – A PROMISING MINOR CROP SPECIES.

Beetika Kohli* and Veenu Kaul

*Department of Botany, University of Jammu 180006
Email: kohlibeetika@gmail.com*

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Abstracts: Recently Gopal (2014) in the meeting report on National Workshop on “Onion Improvement and Seed Production” laid emphasis on the prevention of onion shortage through genetic improvement. A number of bottlenecks brought to the fore included susceptibility to diseases, weather vagaries and non – availability of quality seeds. Among various remedial measures proposed to solve these problems; genetic improvement for better seed supply of onion was the most pronounced. Numerous gene transfer methods and breeding programmes were conducted and many are underway. The wild relatives of crop plants constitute important resource for improving agricultural production and also for maintaining sustainable agro-ecosystems. This, in turn, will ensure food security for the new millennium.

Keywords: Crop, Disease, Species, Onion

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COMMUNITY ANALYSIS OF NEMIC FAUNA AROUND THE RHIZOSPHERIC ZONE OF *MANGIFERA INDICA*

Harish Kumar and Heera Lal*

*Deptt. of Zoology, J.V.College, Baraut, Distt. – Baghpat – 250611 (U.P.)
Email: hlbharti73@gmail.com*

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Abstract: The plant Nematodes are microscopic animal and interact with other living and non-living components of soil environment for their energy requirement. Apart from the numerical superiority of nematodes, the species numbers are also unbelievable very high, close on the heels to that of insects. The latter; as is commonly known, make up nearly 80% or about 8,00,000 known species out of a total of a little over one million species of all groups of animals. The remaining 20% or about 2,00,000 species also include nematode species, that are known so far. (Jairajpuri, 1990). The study of population dynamics of all those types of nematodes. Parasitic, free living and predatory held on to analyse number of different nematodes at a definite distance. Plant parasitic and predatory nematodes found mostly in deep zone, around soft roots but more number of free-living nematodes present in 20-30 cm depth and take part in the decomposition of dead organic materials. Hence the choice of specific depth that taken in this study because-free-living found abundantly in 20-30 cm depth and concerned with the study of those types of nematodes population.

Keywords : Mango Orchard, Nemic Fauna

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EFFECT OF NITROGEN PHOSPHORUS AND SPACING ON GROWTH AND YIELD OF OKRA

A.K. Sharma*¹, D.K. Sharma², M. Kumar and R. Kumar³

¹*Deptt. of Horticulure, J.V.C. Baraut, Baghpat*

^{*}*Deptt. of microbiology, C.C.S. Univ. Meerut*

²*Deptt. of microbiology, J.V.C. Baraut, Baghpat*

³*Deptt. of Hort.A.S.C. Lakhaoti , BSR*

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Abstract: An experiment was conducted to determine the effect of nitrogen phosphorus and spacing on growth and yield of okra. It revealed that application of 85 kg/ha. Nitrogen and phosphorus 60 kg/ha. produced significantly maximum plant height, internodes length, diameter of fruit and green fruit yield compared to 60 kg/ha, 35 kg/h and 40 kg/ha and 20 kg/ha phosphorus. The population responded significantly to spacing 60x30 cm and higher plant height, diameter of fruit, leaf length, width, weight per fruit highest recorded. But spacing of 30x30 cm length of inter node and green fruit per hectare were recorded. The green fruit yield could be economical and profitable with application 85 kg/ha and 60 kg phosphorus when planted 30x30 cm spacing of okra in western Uttar Pradesh condition.

Keywords: Nitrogen, Phosphorus, Effect, Growth, Okra