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INCIDENCE OF LEAF WEBBER (*DIAPHANIA PULVERULENTALIS*) ON MULBERRY – A STUDY

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Abstract: Leaf webber is one of the major leaf eating pests of Mulberry, the only food source of Silkworm *Bombyx mori* L. Especially during post rainy season in the months of November to January this pest is becoming a major problem in the sericulture areas. This pest lays one or two eggs on each and every leaf of mulberry and the young larvae secrete a silky and gluey substance that binds both the ends of the leaf and make a roll and reside in side the rolled leaf and feed on the leaf. The infestation is resulting in the shortage of leaf for silkworm rearing during this season. Hence the present study which is aimed to find out the intensity of infestation and qualitative loss, helps in taking timely measures to reduce the leaf webber infestation.

Keywords: Leaf webber, Mulberry leaf, Qualitative loss, Infestation levels

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AN ECONOMIC ANALYSIS OF INCOME, EMPLOYMENT AND EXPENDITURE IN RAJNANDGAON DISTRICT OF CHHATTISGARH STATE

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Abstracts: Consumption, in economic theory, means the final use of goods and services to satisfy human wants, needs and desires. It is a process of deriving utility from goods and services. Consumption is defined as total value of expenditure incurred on goods and services for the use by the households. Consumption pattern provides the structure for everyday material life, and this structure creates economic distance across classes. People belonging to different classes of income have different pattern of consumption. Rich people spend more in absolute term, and low in percentage term of incomes for food and basic needs while poor people spend higher percentage of income on food and basic needs. In short, the propensity to consume is always higher for poor as compared to the people blowing higher income.

Keywords: Economic analysis, Income, Rajnandgaon, Employment

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A REVIEW ON ESTIMATES OF VARIABILITY FOR YIELD AND SOME YIELD ATTRIBUTES IN MUNGBEAN

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Abstracts: Mungbean (*Vigna radiata* (L.) Wilczek) (2n=2x=22), is a leading pulse of Asia after chickpea and pigeonpea. It is also called as mung, green gram, moong, mungo, mungbean, chicksaw pea and Oregon pea. It belongs to fabaceae family. It is a short duration legume having wider adaptability, low input requirement and has ability to fix the atmospheric nitrogen (50-109 Kg ha⁻¹) in symbiotic association with rhizobium bacteria, which not only enables it to meet its own nitrogen requirement but also benefits the succeeding crops. It is consumed in the form of several food products such as bean sprouts,

dhal, soup *etc.* Being rich in nutritional profile, mungbean is an inseparable ingredient in the diets of vast majority of population in Indian sub continent.

Keywords: Mungbean, Green gram, Production, Yield

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STUDY OF CORRELATION COEFFICIENT AND PATH COEFFICIENT ANALYSIS IN GLADIOLUS (*GLADIOLUS HYBRIDUS* HORT.)

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Abstract: Correlation coefficient and path analysis in fifteen genotypically diverse genotypes of gladiolus (*Gladiolus hybridus* Hort.) were studied at Horticultural Research Centre (HRC) of SVPUAT, Meerut, U.P. during the years 2013-14 for seventeenth important characters. Number of corms per plant showed positive and significant genotypic and phenotypic associations with diameter of corm, number of spikes per corm and flower. Path coefficient analysis provides an effective means of a critical examination of specific force action to produce a given correlation and measure the relative importance of each factor. Path results showed that maximum positive direct effect was observed for length of rachis followed by, leaf length, visibility of spike and spikes per corm and rest of the characters showed negative correlation at genotypic and phenotypic level.

Keywords: Gladiolus, Correlation, Path analysis, Flower characters

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SIGNIFICANCE OF DIFFERENT FUNGICIDES FOR THE CONTROL OF POWDERY MILDEW DISEASE (*SPHAEROTHECA* SP.) OF NIGER (*GUIZOTIA ABYSSINICA* CASS) A TRADITIONAL TRIBAL CROP

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Abstract: A field experiment with the four replications was conducted at the Niger Research Station (NRS) in Rabi, 2013-14 season at Navsari Agricultural University (NAU), Vanarasi, Navsari, Gujarat on the Powdery mildew disease of Niger cultivar. In this experiment, eight different fungicides have been evaluated for the control of Powdery mildew disease out of which, all the fungicidal treatments were significantly superior over the control. All the fungicidal treatments were significantly superior over the control to reduce the Powdery mildew disease. The least incidence of Powdery mildew disease (12.42 PDI) observed in T5 treatment containing Wettable Sulphur (0.2%) which, was followed by the T-2 Hexaconazole (0.1%) for (15.50 PDI) respectively. With respect to seed yield, Wettable Sulphur (0.2%) treatment recorded the highest seed yield (699 Kg/ha) followed by T-2 Hexaconazole (0.1%) 598 Kg/ha. This study concludes that foliar efficacy is an important step in controlling the above diseases.

Keywords: Niger, Powdery mildew, Fungicides, Crop

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EFFECT OF POLLINATION BY INDIAN HONEY BEE, *APIS CERANA INDICA* FABR. ON YIELD, YIELD ATTRIBUTING CHARACTERS AND OIL CONTENT OF NIGER, *GUIZOTIA ABYSSINICA* CASS

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Abstract: The effect of pollination by Indian honey bee, *Apis cerana indica* were under taken on different quantitative and qualitative parameters of niger during 2011-12. The higher number of capitulum plant⁻¹ was recorded in treatment total opened (35.17 capitulum⁻¹) however the lowest number of capitulum was recorded in treatment of total closed (28.32 capitulum plant⁻¹). The maximum capitulum weight was found in treatment control i.e. total opened (0.299 g) which was significantly superior but the minimum capitulum weight was observed in treatment, total closed (0.079 g). The maximum seed yield plant⁻¹ was recorded in control (total opened 2.473 g plant⁻¹) but the least seeds yield plant⁻¹ was recorded in

treatment with total closed (0.606 g plant⁻¹). The sterility per cent was noticed significantly superior in treatment with total closed (97.09 per cent) however lower sterility per cent was recorded in treatment with total opened (4.92 per cent). The significantly higher per cent of healthy seeds were found in control plot, total open (95.06 per cent) but the minimum per centage of healthy seeds were found in treatment total closed (2.89 per cent). Maximum seed weight (1000 seeds) was recorded in treatment total open (4.89 g) however the treatment total closed had minimum seed weight (3.28 g). The significantly highest yield was found in treatment total open (353.25 kg/ha⁻¹) but the lowest seed yield was observed in treatment total closed (79.50 kg/ha⁻¹). Significantly higher oil content was recorded in treatment with total open (33.50 per cent) the lowest oil content was found in treatment with total closed (26.73 per cent). Significantly higher niger seed germination was recorded in treatment with control (80.25 per cent) The lowest germination was found in treatment with total closed (64.25 per cent).

Keywords : Indian honey bee, *Apis cerana indica*, Oil content, Pollination, Yield parameters, Niger

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DISTRIBUTION PATTERN OF AVAILABLE NUTRIENTS UNDER MAIZE- POTATO - SUGARCANE CROPPING SEQUENCE IN DAURALA BLOCK OF MEERUT DISTRICT (UTTAR PRADESH)

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Abstract: The present investigation was undertaken to study of chemical properties of Daurala block Soil (district Meerut) under maize-potato - sugarcane cropping system. The depth wise soils samples in maize-potato - sugarcane cropping system at five different locations were analyzed for 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 1.01 % at surface and sub surface soil. The available N, P and K 161 to 220, 8.1 to 42.9 and 144 to 379 kg ha⁻¹ 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: Micro nutrients, Soil fertility, Maize, Potato

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THE INFLUENCE OF SILICON IN SUPPRESSING RICE DISEASE AND THEIR RESIDUAL EFFECT

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Abstract: Silica (Si) plays a significant role in improving yields in a wide range of crops by increasing resistance to stress and enhancing growth through a number of well-documented mechanisms. Silica is a most abundant mineral element (18%) in soil and plays a significant role in crop production and resistance crop diseases. Silicon can lower the electrolyte leakage from rice leaves and, therefore, promote greater photosynthetic activity in plants grown under water deficit or heat stress. Silicon increases the oxidation power of rice roots, decreases injury caused by climate stress such as typhoons and cool summer damage in rice, alleviates freezing damage in sugarcane, favours' super cooling of palm leaves, and increases tolerance to freezing stress in some plants. Silicon reduces the availability of toxic elements such as manganese, iron and aluminium to roots of plants such as rice and sugarcane and increases rice and barley resistance to salt stress. Silica results did show that there was a relationship between Si content and blast susceptibility and developed resistance of all cucurbitaceous family fungal diseases.

Keywords: Silica, Disease resistance, Rice, Soil minerals

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PHYTOPLASMA DISEASES ASSOCIATED WITH *CLEOME VISCOSA* AND *BORRERIA HISPIDA* WEEDS IN ANDHRA PRADESH, INDIA

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Abstract: Phytoplasma was detected in *Cleome viscosa* and *Borreria hispida* weeds by direct and nested polymerase chain reaction using universal primers P1/P7 and R16F2n/R16R2 specific to 16SrRNA gene of phytoplasma. Running of 1% agarose gel electrophoresis for confirmation of phytoplasma associated with these two weeds.

Keywords: Nested PCR, *Cleome viscosa*, *Borreria hispida*, Phytoplasma specific primers, 1% AGE

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SEED PROTEIN PROFILING THROUGH ELECTROPHORESIS IN MUNGBEAN [*VIGNA RADIATA* (L.) WILCZEK]

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Abstract: Mungbean (*Vigna radiata* (L.) Wilczek) is an important pulse crop in India with advancement and development of hundreds of varieties and introduction of intellectual property rights it is necessary to identify them individually for identification and registration purposes. The present investigation was carried out during 2012-2013 in biotechnology lab, Department of genetics & Plant Breeding, C.S. Azad university of agriculture and technology, Kanpur with 13 genotypes of Mungbean K851, SML-683, KM 2272, PDM 51, T- 44, KM-2260, HUM-12, HUM-6, Pusa Vishal, IPM 02-3, IPM 2-14, KM-2241, PDM-139, for protein profiling through SDS-PAGE. In present investigation, 13 varieties of Mungbean were studied for varietal identification through electrophoresis. Protein was extracted from dry seed of mungbean varieties and analysed by SDS-PAGE. On the basis of photographs, electrophoregrams, R_m values and dendograms (UPGMA cluster analysis) of banding patterns through SDS-PAGE, results found that the number of protein bands found in 13 genotypes ranged from 10 to 17 with R_m value 0.08 to 0.97 for tris soluble proteins. Protein banding pattern of tris soluble proteins was found more distinct in SDS-PAGE. In UPGMA cluster analysis all the genotypes fall in seven cluster groups. SDS-PAGE for tris soluble proteins found suitable for testing distinctness, uniformity, stability of varieties for registration and identification. On the basis of results, this can be said for characterization and identification of genotypes of mungbean, that electrophoretic profile for tris soluble proteins through SDS-PAGE was resulted distinct banding pattern and act as 'genotypic finger printing'. Therefore, electrophoregram of tris soluble protein in SDS-PAGE was found much better for identification of genotypes in mungbean.

Keywords: Mungbean, SDS-PAGE, Varietal identification, UPGMA

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PARTICIPATION OF ELECTED WOMEN PANCHAYAT SAMITI MEMBERS IN PANCHAYATI RAJ INSTITUTION

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Abstract: The present study was an effort to know the extent of Participation of elected women Panchayat Samiti members in Panchayati Raj Institution. A total 23 women representative "s randomly selected from Pusa & Kalyanpur Block of Samastipur district in Bihar. In which 40 villages were selected from these two selected block (20 villages from each block). A schedule was used to collect the data by personal interview method. In order to determine the condition governing the extent of Participation of elected women Panchayat Samiti members, the data were subjected to multiple correlation regression and Path analysis. Participation was taken as dependent variable. The findings revealed that maximum 21.73 Percent of EWPSMs were "always" participated with regard to health, welfare and development followed by 17.39 percent of respondents were participated to construction, repair and maintenance and only 8.69 percent of respondents were with regard to poverty alleviation related activities. Maximum 8 respondents performed supervisory duty three times for road construction work. The association of participation by EWPSMs in Panahayati Raj was positively and significantly

correlated with marital status, family income, interaction style, developmental constraints and size of land holding at 1 percent level of probability. The t - value of only marital status was positive and significant at 5 percent level of probability. The direct effect of independent variables on participation was substantial in case of Personal Education, Marital Status, Knowledge, Size of Land Holding, Interaction Style, Development Constraints, Caste, Social Linkage, Occupation, Family Size, Family Education House Type, Family Income and Material Possession.

Keywords: Participation, Panchayat Samiti members, Elected women, Panchayati Raj Institution

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HONEY BEE FLORA AND FLORAL CALENDER IN NORTH ZONE OF CHHATTISGARH

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Abstract: A study was conducted at Surguja district of Chhattisgarh during 2014-15 to identify the bee flora and to develop the floral calendar for honey bee. Based on the interview with the beekeepers and visual observations, some important plant species were identified as a major source of flora for honey bee. Spring season (March to June) autumn season (July to October) identified as critical dearth period with a few flowering plants. Winter season (November to February) identified as honey flow period having a number of floral plants viz. *Guizotia abyssinica*, *Brassica spp.*, *Citrus spp.*, *Cajanus cajan*, *Eucaliptus*, Mango, Shisham, Semal, Pea, ornamental plants-Popy, Calendula, Nastertium, Holyhock, *Justicia*, *Berbina*, weed flora *Ageratum conyzoides*, *Bidens pilosa*, and medicinal plants like Adusa, Bhiring raj, *Justicia*, aswagandha, karanj were the major bee flora. This season was identified as the most suitable for initiation and promotion of beekeeping practices.

Keywords: Bee Flora, Beekeeping, Floral calendar

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EFFECT OF INORGANIC FERTILIZERS, BIOFERTILIZERS AND ORGANICS ON GROWTH, YIELD AND ECONOMICS OF ONION (*ALLIUM CEPA* L.) CV. N-53

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Abstract: The present investigation entitled Effect of inorganic fertilizers, biofertilizers and organics on growth, yield and economics of onion (*Allium cepa* L.) cv.N-53 was conducted with the aim to understand the better utilization of nutrients for growth, yield and quality improvement of onion. A field experiment was conducted at the Department of Vegetable Science, College of Agriculture, Orissa University of Agriculture & Technology, Bhubaneswar (Odisha), during the *Rabi* season of the year 2012-13 under Randomized Block Design with ten treatments and three replications. The results revealed that the growth characters, like plant height, number of leaves per plant, leaf length, leaf width, dry weight of leaf and neck length; yield- attributing characters such as bulb weight, polar diameter and equatorial diameter of bulb were positively influenced under treatment T₉ i.e., Lime @ 0.2 LR + (*Azotobacter* + *Azospirillum* + P.S.B) @ 4 kg per ha each + Vermicompost @ 5t per ha + RDF (120:60:60 kg per ha), while no fertilizer was applied in control. Maximum bulb yield (27.13 t ha⁻¹) was recorded in the same treatment (T₉), which was due to the sum total effect of different growth and yield-attributing characters. Highest B:C ratio was found in treatment T₇ i.e., (Lime + Biofertilizers +RDF).

Keywords: Recommended dose of fertilizer, Vermicompost, Phosphobacteria, Azotobacter, Onion, Bulb yield, Economics

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FRUIT CHARACTERISTICS AND MORPHOLOGY RESPONSIBLE FOR RESISTANCE AGAINST BRINJAL SHOOT AND FRUIT BORER *LEUCINODES ORBONALIS* GUENEE

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Abstract: In the present study fifty four genotypes of brinjal were screened for their resistance against shoot and fruit borer *Leucinodes orbonalis* Guenee and grouped into various categories based on fruit characters. Genotypes with purple coloured fruits were most infested with 41.7 percent damaged fruits. Whereas, genotypes with white coloured fruits were least infested with 34.21 percent fruit damage. Similarly genotypes with solitary fruiting (39.56 percent), compact seed

arrangement in mesocarp (40.58 percent) and round fruits with 42.55 percent fruit damage. While genotypes with fruiting in cluster, loose arrangement of seed in mesocarp and oblong fruits were least preferred. Based on observations on fruit morphology, genotypes with comparatively longer fruits (31.08 percent), larger fruit and calyx diameter (50.46 percent) were most susceptible to fruit borer than genotypes with shorter fruits, lesser fruit and calyx diameter with 30.92, 37.15 and 37.97 percent fruit damage respectively. Genotype IBR-9 with round shaped fruits, compact arrangement of seeds in the mesocarp and fruiting singly was most attacked with 61.65 percent damaged fruits as compare to least fruit damage recorded in genotype IBR-109 with oblong shaped fruits, loose arrangement of seeds in mesocarp and fruiting in cluster. Longer fruits and larger diameter of calyx and fruit were more susceptible to fruit borer attack. Correlation coefficient of fruit and calyx diameter on percent fruit damage by number was significantly positive ($r = 0.8482$)

Keywords: Brinjal, *Leucinodes orbonalis* Guenee, Shoot, Fruit borer

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MORPHOLOGICAL CHARACTERIZATION OF GLADIOLUS (*GLADIOLUS HYBRIDUS* HORT.) GERMPLASM

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Abstract: An experiment was conducted with 15 gladiolus cultivars at Horticultural Research Centre, SVPUAT, Meerut, UP, India during the year 2013-14. Results on different characteristics showed that cultivar Prabha gave the maximum plant height while cultivar Sylbia exhibited maximum number of leaves per plant, leaf length and leaf width. Maximum number of suckers per corm was noted with cultivar Aldebaran. Cultivar American Beauty showed maximum length of rachis and spike while cultivar Arka Gold produced maximum number of florets, flower diameter and weight of corm. However, minimum days required for visibility of spike and minimum days for opening of first flower noted in Punjab Glance and it was maximum observed with cultivar Prabha. Orange Ginger gave maximum number of spike and Aldebaran showed maximum diameter of corm and cormlets per plant whereas, highest number of corm was recorded in Pacific.

Keywords: Gladiolus, Evaluation, Genotypes, Performance, Morphological characterization

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ADOPTION LEVEL AND CONSTRAINTS IN SUMMER RICE PRODUCTION TECHNOLOGY

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Abstract: The study was carried out to determine the farmers' adoption behavior on summer rice production technology. The farmers were selected from Dhamtari District of Chhattisgarh during 2013-14. Findings of the study revealed that 67.36 per cent respondents had adopted high level followed by 23.61 per cent and 9.03 per cent respondents had adopted the summer rice production technology at medium and low level respectively. The major constraints among the several constraints lack of education, small size of land and home related problem, problem of grazing and others not adopted new technology, lack of motivation and guidance about summer rice cultivation, requirement of more investment for summer rice cultivation, no facility of crop insurance, credit is not available at proper time and lack of minimum support price, lack of extension services, lack of rice based industries and distance of krishi Upaj mandi.

Keywords: Adoption, Constraints, Production Technology

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TECHNOLOGICAL CONSTRAINTS FACED BY FARMERS IN ADOPTION OF COMPOSITE FISH CULTURE TECHNOLOGY

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Abstract: The study was conducted in Raipur district of Chhattisgarh. The major constraints perceived by the fish farmers were high cost of preparation, eradication of weeds, fertilizers feeds, and dragnet. Lack of knowledge, lack of availability of sources, lack of efficient marketing structure, lack of finance, high cost if lease, and aspect of recommended technology are some other major constraints reported by the respondents in adoption of recommended composite traditional practices of fish farming as a result the adoption rate of recommended technology was low (28.37 percent).

Keywords: Constraints in fish culture, Composite fish culture

**INFESTATION OF LEAF MINER (LEPIDOPTERA: LITHOCOLLECTIDAE) ON
KARANJ (*PONGAMIA PINNATA*) AT RAIPUR, CHHATTISGARH**

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Abstract: The leaf miner or leaf blotch miner, *Acrocercops anthrauris* [*Lithocollectis virgulata*] is a very serious and common pest on the plantation of karanj, *Pongamia pinnata* that observed at Agroforestry field, Igkv, Raipur. This pest damaged by done in larval stage. They make circular blotches on the upper surface of the leaves. Maximum number of blotches was recorded up to 12-16 blotch per leaf. In during the present investigation, studies on the various provenances of karanj, *P. pinnata* against blotch miner revealed that the Ambikapur provenances was more susceptible to the attack of this pest.

Keywords: Leaf blotch miner, Number, Provenances