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NUTRIENTS REQUIREMENT IN FENUGREEK FOR THEIR GROWTH AND YIELD

Surender Singh*, V.P.S. Panghal² and Raman Jangra³

¹Department of Biology G.S.S.S, Jahajpul, Hisar (Haryana)

²Department of Vegetable Science, CCS HAU, Hisar, Haryana (India)

³Raman Jangra, JRF

Email: singhsuren29@gmail.com

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Abstract: Fenugreek (*Trigonella foenum-graecum* L.) belongs to sub family papilionaceae of leguminous family. It is an important multipurpose crop commonly used as spice, condiment, food, fodder, soil renovator and medicine for a wide range of disease. It is a source of raw material for pharmaceutical and perfume industries. Increase in growth and quality through suitable management of farm practices could contribute to income of farm land industries. Plant growth depends upon metabolic process, which is governed by genetic makeup, climatic and edaphic factors. Therefore, appropriate farming practice involving optimum level of nutrients through different sources under different growth condition can help in widespread and economical cultivation of the crop. Studies indicate that the uses of appropriate fertilizers at right time are necessary to maximize overall performance of crop. To achieve the objective of sustainable crop production, the study undertaken by different workers on the effect of organic and inorganic nutrients on growth and yield of fenugreek is needs to be reviewed.

Keywords: Fenugreek, Nitrogen, Phosphorus, Vermicompost, Biofertilizer, Yield

USE OF ETHNO MEDICINAL PLANTS BY ETHNIC PEOPLE FOR THE TREATMENT OF DERMATOLOGICAL PROBLEMS

Vineeta*, Abha Manohar K., Gopal Shukla, Biplab C. Sarkar and Sumit Chakravarty

Department of Forestry, Uttar Banga Krishi Viswavidyalaya

Pundibari-736165, Cooch Behar (West Bengal)

Email: babra.vini@gmail.com

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Abstract: Medicinal plants are a rich source of active ingredients of secondary metabolites which provide a safer and cost effective way to treat diseases. The present article reviewed the published paper on ethno botanical plants used to treat the dermatological problems which are common in the West Bengal state of India and ethnic people of the state used locally available plant resources. A total of 74 plants belonging 69 genera and 36 families have been extracted for their therapeutic use against different skin related problems such as cuts, burns, infection, leucoderma, boils etc. Among all the plant parts, leaves were the most frequently utilized part of plant and most herbal remedies are prepared as paste, extract or juice and applied externally and were found to possess good healing property over a short period of time. The present study concluded that further clinical and phytochemical experimentation is needed.

Keywords: Medicinal plants, Ethnobotanical, Skin, Leucoderma, Juice, Ethnic

EFFECT OF WATER STRESS ON PRE-HARVEST CHARACTERS OF IRANIAN WHEAT LANDRACES UNDER IRRIGATED, RESTRICTED IRRIGATED AND RAIN-FED CONDITION

Amandeep Kaur* and Rashpal Singh Sarlach²

¹Department of Botany, Punjab Agricultural University, Ludhiana 141004

²Department of Plant Breeding & Genetics, Punjab Agricultural University, Ludhiana, 141004

Email: deepaman3305@gmail.com

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Abstract: Water stress is one of the most important abiotic stresses which severely affect plant growth and yield. With a view to understand the effects of drought stress on pre harvest components of wheat cultivars under field conditions, the present investigation was carried in the Department of Plant Breeding and Genetics with three replications under Randomized Block Design. Set of selected Iranian landraces from the preliminary screening experiment with the help of Polyethylene glycol (6000). Landraces were selected on the basis of vigor index and planted in the field along with commercial relevant checks in three environments Irrigated, Restricted irrigated and Rain-fed. Data of days to germination, flowering, maturity, plant height and tillers per meter row length were recorded. On the basis of performance, IWA 8600796, IWA 8600179, IWA 8606333 and IWA 8606258 considered as water stress tolerant. Identified landraces can be included in future breeding programmes for the wheat improvement for drought prone areas.

Keywords : Water stress, Iranian wheat landraces, Pre-harvest characters

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RELATIONSHIP BETWEEN INDEPENDENT AND DEPENDENT VARIABLES OF RECOMMENDED MAIZE PRODUCTION TECHNOLOGY

P.K. Netam*, Basanti Netam and A. Qureshi

¹Department of Agricultural Extension CARS, Kanker, IGKV, Raipur, Chhattisgarh

²Department of Senior Agriculture Development Officer, Dhamtari, Chhattisgarh

³Department of Agronomy CARS, Kanker, IGKV, Raipur, Chhattisgarh

Email: pknetam49@gmail.com

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Abstracts: This investigation was carried out in three district of Bastar plateau of Chhattisgarh State to assess the relationship between independent and dependent variables of recommended maize production technology. 270 farmers were considering as respondents for this study. Respondents were interviewed through personal interview. Collected data were analyzed with the help of suitable statistical methods. The analysis of the results showed that relationship between independent and dependent variables of recommended maize production technology, Farming experience, family size, land size, occupation, annual income, irrigation facility, source of information, contact with extension personnel, participation in extension activities, overall marketing, opinion about maize production, risk orientation, scientific orientation and knowledge had significant correlation with adoption of maize, whereas, farming experience, family size, occupation, annual income, irrigation facility, overall marketing, opinion about maize production, risk orientation, scientific orientation, knowledge and land size had significant correlation with productivity of maize.

Keywords: Association, Adoption, Productivity, *Zea mays*

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MORPHOLOGICAL VARIATION OF TENDU (*DIOSPYROS MELANOXYLON*) LEAVES IN DHAMTRI DISTRICT OF CHHATTISGARH, INDIA

Pratap Toppo¹, R.K. Prajapati¹, M.L. Lakhera² and Abhishek Raj^{3*}

¹Department of Forestry, College of agriculture Raipur, Chhattisgarh-INDIA

²Department of Agricultural Statistics, College of agriculture Raipur, Chhattisgarh-INDIA

³Department of Forestry, Faculty of Agriculture and Veterinary Sciences, Mewar University, Chittaurgarh (Rajasthan) - 312901

Email: ranger0392@gmail.com

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Abstract: In the present study, morphological variation of tendu (*Diospyros melanoxylon*) leaves Dhamtari district were analyzed. The highest length of petiole was observed in year 2016 in site-2 (Nagri) (1.82 cm), followed by Site-1(Dugli) (1.8 cm) in year 2015. Minimum length of petiole was recorded in Site -1 (Dugli) (1.5 cm) in year 2016. The highest diameter of petiole was observed in year 2016 in site-1 (Dugli) (1.33 cm), followed by Site-2 (Nagri) (1.3 cm) in year 2015. Minimum diameter of petiole was recorded in Site -2 (Nagri) (1.2 cm) in year 2016. The highest length of leaf was observed in year 2016 in site-2 (Nagri) (14.27 cm), followed by Site-2 (Nagri) (13.57 cm) in year 2015. Minimum length of leaf was recorded in Site -1 (Dugli) (13.34 cm) in year 2016. The highest Width of leaf was observed in year 2016 in site-2 (Nagri) (7.97 cm) ,followed by Site-2 (Nagri) (7.02 cm) in year 2015. Minimum Width of leaf was recorded in Site -1 (Dugli) (6.62 cm) in year 2016. The highest leaf area was observed in year 2016 in site-1 (Dugli) (72.92 cm), followed by Site-2 (Nagri) (72.7 cm) in year 2015. Minimum leaf area was recorded in Site -1 (Dugli) (86.18 cm) in year 2015.

Keywords: *Diospyros melanoxylon*, Forest, Petiole, Tribes, Heterogeneity

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COMPATIBILITY OF ENTOMOPATHOGENIC FUNGI WITH BUPROFEZIN FOR MANAGEMENT OF BROWN PLANTHOPPER, *NILAPARVATA LUGENS* STAL (DELPHACIDAE: HEMIPTERA) IN RICE

B. Nagendra Reddy*, V. Jhansi Lakshmi¹, G.S. Laha² and T. Uma Maheswari³

¹*Division of Entomology, Indian Institute of Rice Research, Rajendranagar, Hyderabad- 500030, Telengana India,*

²*Division of Plant Pathology, Indian Institute of Rice Research, Rajendranagar, Hyderabad- 500030, Telengana India*

³*Department of Entomology, College of Agriculture, Rajendranagar, PJTSAU, Hyderabad- 500030, Telengana India;
Email: nagendrabobbiti@gmail.com*

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Abstract: Compatibility between Buprofezin 25SC and entomopathogenic fungi studies were conducted at IIRR (Indian Institute of Rice Research), Hyderabad. Buprofezin 25 SC was tested at three concentrations viz., recommended concentration (RC), sub lethal concentration (0.5 RC) and more than recommended concentration (1.5 RC) against three entomopathogenic fungi viz., *Beauveria bassiana*, *Metarhiziumanisopliae* and *Lecanicilliumlecanii* (*Verticilliumlecani*) by using poison food technique under laboratory conditions. Buprofezin 25 SC was harmless to all three tested entomopathogenic fungi at 0.5 RC and RC recorded 5.53 to 15.96 per cent inhibition of the entomopathogenic fungi. At 1.5 RC buprofezin was harmless to *B. bassiana* (19.57 per cent inhibition in growth of the fungus) and slightly harmful to *M. anisopliae* and *L. Lecanii* recorded 20.21 and 23.40 per cent reduction in growth of the fungus respectively. Combined use of imidacloprid with entomopathogenic fungi at recommended concentrations against BPH under glasshouse conditions indicating buprofezin alone could cause 55.00 per cent mortality in BPH. Buprofezin combined with entomopathogenic fungi increased the mortality of BPH compared to buprofezin alone spray.

Keywords: *Beauveria*, Brown planthopper, Entomopathogenic fungi, *Lecanicillium*, *Metarhizium*, *Nilaparvata lugens*

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PRODUCTION, PRODUCTIVITY AND PROFITABILITY OF MAIZE (*ZEA MAYS*) AS INFLUENCED BY DIFFERENT AGRONOMIC PRACTICES

Urmila Painkra*, P.K. Bhagat, A.K. Paliwal, V.K. Singh and A. K. Sinha

*RMD College of Agriculture and Research Station, Indira Gandhi Krishi Vishwavidyalaya
Ambikapur, Surguja- 497001 (Chhattisgarh)
Email: amitksinha11@gmail.com*

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Abstract: A field experiment was carried out during the *kharif* season of 2018-19 at Research farm, Ambikapur, to study the effect of different agronomic management practices on production, productivity and profitability of maize. Different treatment combinations were included in the experiment viz. farmers' practice, ecological intensification (EI), EI- tillage practices, EI-nutrient management, EI- planting density, EI- water management, EI- weed management and EI- disease and insect management laid out in randomized block design and replicated thrice. The mean loss in kernel yield of maize due to EI- weed management was 28.76%. Ecological intensification recorded higher yield and yield attributes significantly higher over rest of the treatments. Ecological intensification recorded significantly minimum total weed density (7.94 m^{-2}) and weeds dry weight (3.98 g) as compared to all other treatments and recorded highest kernel and stover yield.

Keywords: Ecological intensification, Maize, Kernel yield, Weed management

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VARIETAL PERFORMANCE OF HIGH YIELDING VARIETY AND ECONOMICS OF RADISH (*RAPHANUS SATIVUS*) THROUGH FRONT LINE DEMONSTRATION (FLD) IN EAST KAMENG DISTRICT OF ARUNACHAL PRADESH

Manoj Kumar Singh*, Narendra Deo Singh, B.M. Singh and C.K. Singh

Krishi Vigyan Kendra, Pampoli, East Kameng district, Arunachal Pradesh

Krishi Vigyan Kendra, Dirang, West Kameng district, Arunachal Pradesh

Krishi Vigyan Kendra, Pashighat, East Siang district, Arunachal Pradesh

Krishi Vigyan Kendra, Tawang district, Arunachal Pradesh

Email: mr.mksingh2008@rediffmail.com

Received-07.01.2020, Revised-27.01.2020

Abstract: The Krishi Vigyan Kendra of East Kameng district of Arunachal Pradesh has conducted Front Line Demonstrations with introduction of High Yielding Variety (HYV) of Radish viz., Arka Nishant, Arka hansh, Kashi sweta and Kashi hansh variety in five villages during 2016-17 and 2017-18. The varieties introduced were Arka Nishant, Arka hansh, Kashi sweta and Kashi hansh against local check. Kashi hansh variety recorded the highest yield (175 q/ha) followed by Kashi sweta (150 q/ha), Arka hansh (145 q/ha) and Arka Nishant (140q/ha). The increase in yield percentage over local check variety was recorded to be the highest against Kashi Hansh (35%) followed by Kashi sweta (30%), Arka hansh (25%) and Arka Nishant (24%). Benefit cost ratio was found to be the highest in case of the variety Kashi hansh (2.22:1) followed by var. Kashi sweta (2.16:1), Arka Nishant (2.08:1) and Arka hansh (1.98:1). Thus, all the four varieties had shown better performance as compared to the local check variety in respect of yield and yield attributing characteristic and benefit cost ratio.

Keywords: Varietal performance, Yield, Net income, B:C ratio

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EFFECT ON PRODUCTION AND PROFITABILITY OF HYBRID RICE (*ORYZA SATIVA* L.) THROUGH NUTRIENT MANAGEMENT PRACTICES

Kishan Singh, D.K. Gupta*, V.K. Singh, A.K. Paliwal and N. Chouksey

Raj Mohini Devi College of Agriculture and Research Station, Ambikapur (C.G.), India

Email: gupta_dinesh11@yahoo.co.in

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Abstract: The field experiment was conducted at Research-cum-instructional farm of Raj Mohini Devi College of Agriculture and Research Station, Ajirma, Ambikapur, Chhattisgarh during *kharif* 2018 to study the effect of "Effect on production and profitability of hybrid rice (*Oryza sativa* L.) through nutrient management practices". The experiment was laid out with 02 hybrid rice varieties as main plot (V₁: IRH-103, V₂: IRH-111.) and 05 nutrient management practices as sub plot T₁- 100% RDF (Standard check), T₂- 75% RDF through inorganic and organic {Topdressing of (Vermicompost @2q/ha+ DAP@ 25kg/ha) at 25-30 DAT and remaining NPK through inorganic}, T₃- 100% RDF through inorganic and organic {Topdressing of (vermicompost @2q/ha+ DAP@ 25 kg/ha) at 25-30 DAT and remaining NPK through inorganic}, T₄- 150% RDF through inorganic and organic {Topdressing of (Vermicompost @2q/ha+ DAP@ 25 kg/ha) at 25-30 DAT and remaining NPK through inorganic}, T₅- 150% RDF in split plot design with four replications. The result

revealed that hybrid rice variety IRH-103 on significantly higher grain yield (67.98q/ha), HI% (48.26 %) and test weight (24.21g) comprised to IRH-111. Among the nutrient management practices were significantly higher grain yield (65.11 q/ha), HI% (44.23 %) and test weight (24.46 g) on 150% RDF through inorganic and organic {Topdressing of Vermicompost @2q/ha+ DAP@ 25 kg/ha) at 25-30 DAT and remaining NPK through inorganic} and statistically at par with 150% RDF through inorganic. In case of monetary higher gross return (184697.76₹/ha), net return (138771.78₹/ha) and B: C ratio (3.02) were also observed in hybrid rice variety IRH-103 than IRH-111 and nutrient management practices application of 150% RDF through inorganic and organic {Topdressing of (Vermicompost @2q/ha+ DAP@ 25 kg/ha) at 25-30 DAT and remaining NPK through inorganic} recorded significantly higher gross return (177034.36₹/ha), net return (129526.86₹/ha) and B: C ratio (2.73) and which was on par with 150% RDF through inorganic.

Keywords: Hybrid, Nutrient, Management practices, Rice

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HERITABILITY AND GENETIC ADVANCE STUDIES FOR GRAIN YIELD AND RELATED ATTRIBUTES IN HUSKED BARLEY (*HORDEUM VULGARE L.*)

Arun Kumar Singh* and Javed Ahmed Siddiqui

Department of Botany, D.A-V College, Kanpur- 208001 (U.P.)

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Abstract : Twelve husked barley strains were intermated in diallel fashion, excluding reciprocals. Parents alongwith F₁S and F₂S were evaluated for plant height, days to reproductive phase, productive tillers per plant, length of spike, grains per spike, spikelets per spike, biological yield per plant, harvest index, grain yield per plant, grain weight per spike and 1000-kernel weight. The heritability and genetic advance were estimated for all the attributes in narrow sense using genetic components. High heritability (more than 30%) was observed for plant height, days to reproductive phase, grains per spike, spikelets per spike and harvest index in both the generations and for grain yield per plant in F₁ and biological yield per plant in F₂ generation. Moderate heritability (10 to 30 %) was noticed in productive tiller per plant, length of spike and 1000-kernel weight in both the generations and grain weight per spike in F₂ generation. Low heritability (less than 10%) was exhibited in grain weight per spike in F₁ generation. An advancement of 6.98 g based on F₁ and 5.92 g based on F₂ were expected per cycle of selection for grain yield per plant. For 1000-kernel weight it was approximately 3 g. The expectation for advancement in grain weight per spike and length of spike was quite meager. Considering comparative genetic advancement in percentage over mean, maximum advancement to the tune of, approximately, 42% was estimated for grains per spike, where as an approximation of 22-25% of mean were estimated for plant height, days to reproductive phase, harvest index and grain yield per plant. Genetic advance is conforming to the heritability estimates. In order to achieve expected genetic advance, the attributes which are highly heritable (above 30%) may be improved through progeny selection whereas, the attributes like grain weight per spike for which heritability estimates were moderate, hence bulk selection followed by progeny selection would be appropriate. Considering heritability estimates, the economic attribute like grain yield it was moderate to high quantified the involvement of non additive gene action in considerable proportion. Hence for improvement in grain yield the progeny selection followed by biparental mating would be appropriate.

Keywords: Barley, *Hordeum vulgare L.*, Heritability, Genetic advance, Grain yield

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EFFECT OF DIFFERENT VARIETIES AND PLANTING METHODS ON GROWTH, YIELD AND QUALITY OF SUGARCANE UNDER NORTHERN HILL ZONE OF CHHATTISGARH

Ramakant Singh Sidar*, S.S. Tuteja¹ and V.K. Singh

*Department of Agronomy, RMD College of Agriculture and Research Station,
Ambikapur (C.G.) – 497001*

¹*College of Agriculture Raipur, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.)*

Email: sidarrrks@gmail.com

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Abstract: A field experiment was conducted during cropping seasons of 2015–16 and 2016-17 at Instructional cum research farm RMD CARS Ambikapur to evaluate sugarcane mid–late varieties (Co 86032, Co 62175, CoT 8201) under 12 treatment combinations related to three sugarcane varieties viz. (V₁), CoT 8201, (V₂), Co-86032, (V₃), Co 62175 in main plots and four planting methods (P₁) Flat planting at 75 cm row spacing (P₂) Flat planting at 90 cm row spacing (P₃) Trench planting at 75 cm (P₄) Pit planting in sub plot were tested in split plot design with three replication. The result on sugarcane varieties exhibited no significant variation on growth attributes viz. Germination percentage, cane height, No. of shoots, No. of nodes, length of nodes, and yield attributes viz. No. of millable cane, cane weight, and cane yield were the highest with Co 86032 (V₂). Quality parameters were non-significant due to variety. Among the planting methods, pit planting (P₄) recorded maximum cane yield (96.74 t ha⁻¹) Highest NMC was (84.54x 10⁻³ ha⁻¹) under pit planting method. The sugarcane quality parameters in terms of pol %, purity %, Brix % were no significant variations due to various planting methods and varieties. In case of economics, gross income (Rs 290090 ha⁻¹) and maximum net income (Rs 215862 ha⁻¹) in pit planting and benefit cost ratio (3.07) was registered under (P₁) Flat planting at 75 cm row spacing.

Keywords: Sugarcane, Planting method, Chhattishgarh