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Contents

REVIEW ARTICLE

Power operated paddy seeder for dry and wet seeding

—**Umesh Kumar Dhruw and Ajay Verma**----- 311-315

RESEARCH ARTICLE

Comparative study of estimation of soil erodibility factor for the lower transact of Ranikhola watershed of east Sikkim

—**Susanta Das, Ratan Sarkar and P.K. Bora**----- 317-322

Incidence of shoot and fruit borer, *Leucinodes orbonalis* Guen. on Brinjal in relation to weather parameters in Allahabad region

—**Nitesh Kumar Maru and Ashwani Kumar**----- 323-330

A linear programming approach to crops and livestock enterprises planning in sugarcane based farming system for medium category of farms in district Meerut of Uttar Pradesh

—**Subhash Kumar Jawla, Babu Singh, Tesu Kumar, Sharad Sachan and Arun Pal**----- 331-335

Sensory characteristics of fresh extruded *Peda*

—**Kushal Kumar Sandey, Bhawtosh Goel, Subramaniam Karthikeyan, Ashok Kumar Agrawal, Sudhir Uprit and Krishan Kumar Choudhary**----- 337-342

Impact of pricing policy on domestic prices of sugar in India

—**Kavita, R.K. Grover, Sunita and Raj Kumar**----- 343-347

Existing cultivation practices of turmeric by the turmeric growers

—**Y.S. Dhruw, H.K. Awasthi and M.A. Khan**----- 349-353

Effect of plant growth regulators on quality parameters of sweet potato (*Ipomoea batatas* (L.) Lam.)

—**Sibabrata Behera, C.N. Hanchinamani, H.P. Hadimani, Revanappa, S. Meti and S.M. Prasanna**----- 355-358

Effect of 2-benzoxazolinone (boa) on morpho-physiological and biochemical aspects of *Cassia Occidentalis* L.

—**Vijay Veer Singh and Abha Arora**----- 359-361

Screening of different maize genotypes to Curvularia leaf spot

—**Vidya Palaki and P.V. Patil**----- 363-366

POWER OPERATED PADDY SEEDER FOR DRY AND WET SEEDING

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Abstract: Power operated paddy seeder is an important Seeding device of pre-germinated rice seed and dry seed increasingly considers and alternate to manual transplanting because of reduce labour and drudgeries, higher profit and comparable yields. The developed the power operated paddy seeder unit could be useful in eliminating drudgery in transplanting or pulling of manual drum seeder besides other advantages of pre-germinated line seeding. It is possible to reduce the seeding rate variation by maintaining a desirable drum fill condition. The crop and yield parameter of crop sown by develop unit, were comparable to transplanted and manual drum seeded crop; whereas they were better in comparison to broadcasted crop.

Keywords: Power operated paddy seeder, Pre-germinated, Dry seeding, Metering device

COMPARATIVE STUDY OF ESTIMATION OF SOIL ERODIBILITY FACTOR FOR THE LOWER TRANSACT OF RANIKHOLA WATERSHED OF EAST SIKKIM

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Abstract: Soil erosion is a two phase process consisting of the detachment of individual particles from soil mass and their transport by erosive agents such as running water and wind. When sufficient energy is no longer available to transport the particles, a third phase (deposition) occurs. The amount of erosion from raindrops has been linked to the rainfall characteristics such as the rainfall intensity, drop diameter, impact velocity and rainfall kinetic energy. The size, distribution and shape of rain drops influence the energy, amount and erosivity of rainstorm. On the other hand, the soil properties, particles size distribution and organic matter content determine whether soil can be detached and transported. Soils with faster infiltration rates, higher levels of organic matter and improved structure have a greater resistance to erosion. Hence soil erodibility is another important parameter in the estimation of soil erosion. In the present study the main objective was to determine the soil erodibility indices of Ranikhola watershed area so that the values of the soil erodibility index can be established for future works. Runoff Plot method and Soil Physical Properties Analysis method was used for determination of 'K' factor in transact of Ranikhola watershed (Sikkim). The range of 'K' factor in study area varied from 0.0086 to 0.034 with an average value of 0.025 (t ha h/ha mm MJ) by Runoff Plot method. Using Soil Physical Properties Analysis method, the 'K' values were found in between 0.051 to 0.073 with an average value of 0.064 (t ha h/ha mm MJ). From the study it was concluded that the study areas falls under low erodibility (K) class. Among the both methods, the runoff plot methods were under estimated than the other method. Soil textural analyses revealed all the important soil components affecting directly soil inherent properties to resist erosion or to become susceptible to erosion, hence the 'K' values as obtained from Soil Physical Properties Analysis method was considered appropriate for the lower transact of Ranikhola watershed.

Keywords: Soil Erodibility, USLE, Runoff plot, Sikkim

INCIDENCE OF SHOOT AND FRUIT BORER, *LEUCINODES ORBONALIS* GUEN. ON BRINJAL IN RELATION TO WEATHER PARAMETERS IN ALLAHABAD REGION

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Abstract: The seasonal incidence of *Leucinodes orbonalis* Guen. (Brinjal Shoot and Fruit Borer) on brinjal was studied at Central Research Farm of the Department of Entomology, Naini Agricultural Institute, SHUATS, Allahabad during 2017. The results revealed that initial incidence of the BSFB on shoot was occurred on the 40th standard week (First week of October) and reached the peak in the 43th standard week (Last week of October - 1st week of November); whereas initial incidence of the BSFB on fruit was occurred on the 42nd standard week (Third week of October) and reached the peak in the 45th standard week (2nd week of November). BSFB incidence on shoot showed significant positive correlation with Maximum temperature ($r=0.591$) and sun shine hours ($r=0.657$). It was negatively correlated with Evening Relative Humidity ($r=-0.610$). BSFB incidence on fruit showed significant positive correlation with maximum temperature ($r = 0.488$, on number basis and $r = 0.493$, on weight basis) and sun shine hours ($r = 0.641$, on number basis and $r = 0.645$, on weight basis); whereas it had negative correlation with evening relative humidity ($r = -0.650$, on number basis and $r = 0.655$, on weight basis) and evening cloud cover ($r = -0.475$, on number basis and $r = 0.471$, on weight basis). The statistically significant values indicated that occurrence of brinjal shoot and fruit borer was influenced by the prevailing ecological conditions specially Temperature, Relative Humidity, wind speed and sun shine hours. Hence the management of brinjal pest during rabi sown crop under central plain agro-climatic zone should therefore be promoted and tailored from September onwards using an integrated approach.

Keywords: Brinjal, *Leucinodes orbonalis*, Seasonal incidence, Correlation, Weather parameters, Allahabad

Journal of Plant Development Sciences Vol. 10(6)

A LINEAR PROGRAMMING APPROACH TO CROPS AND LIVESTOCK ENTERPRISES PLANNING IN SUGARCANE BASED FARMING SYSTEM FOR MEDIUM CATEGORY OF FARMS IN DISTRICT MEERUT OF UTTAR PRADESH

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Abstract: A livelihood system is the full range of activities available to the medium category of farms. The farmers are often faced with the problem of how to select the optimal cropping patterns that significantly contribute to sustainable production. The present study was conducted during the year 2013-14 in District Meerut of Uttar Pradesh to know the possibilities of optimum combination of different enterprises for the enhancement of the farms income and employment of medium category of farms household's. Multi stage stratified random sampling design was used to collect the primary data from; a sample of 19 respondents was selected on the basis of probability proportion to size of holdings. In this study, a linear program that reflects these choices by selecting a combination of farm activities that is feasible given a set of fixed farm constraints and that maximizes income while achieving other goals such as food security is developed. The results obtained by using the linear programming model are more superior. The difference in gross income is 25.08 per cent higher than the existing farm plan and labour man days 37.01 per cent higher compare to the existing farm plan.

Keywords: Linear programming, Whole-farm plan, Employment generation

Journal of Plant Development Sciences Vol. 10(6)

SENSORY CHARACTERISTICS OF FRESH EXTRUDED PEDA

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Abstract: The traditional dairy products carry value in the Indian society as they are nutritious and have become the inevitable part of feasts, celebrations, festivals and religious rites. *Peda* is one of the most popular khoa based traditional dairy sweets enjoyed by everyone due to its taste and health aspects. Traditionally, it is prepared by heating a mixture of *khoa* and sugar in a *karahi* (iron pan) with the help of *khunti* until the desired granular, hard texture and flavour develops. Present study was undertaken to investigate the possibilities of inducting extrusion technology for production of acceptable quality *peda*. The extruded *peda* were prepared by introducing product mixes C₀ (70% *khoa* & 30% sugar); C₁ (60% *khoa*, 05% SMP, 05% *ghee* & 30% sugar); C₂ (55% *khoa*, 10% SMP, 05% *ghee* & 30% sugar) and C₃ (50% *khoa*, 15% SMP, 05% *ghee* & 30% sugar) into the extruder system and processed at barrel temperature of 60, 70 & 80°C and screw speed 14, 21 & 28 rpm. Among different set of treatment combinations, product mix C₂ (i.e. 55% *khoa*, 10% SMP, 05% *ghee* & 30% sugar) processed at 80°C barrel temperature and 28 rpm screw speed resulted in most acceptable extruded *peda* in terms of sensory characteristics.

Keywords: Khoa, Peda, Extruded peda, Extrusion technology

Journal of Plant Development Sciences Vol. 10(6)

IMPACT OF PRICING POLICY ON DOMESTIC PRICES OF SUGAR IN INDIA

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Abstract: The present study is based on secondary data collected from the various published sources, viz. various issues of Cooperative Sugar, Indian Sugar, Published by Indian Sugar Mills Association, Statistical Abstract of India, Indian Agriculture in Brief and Agriculture Prices in India, Data on various aspects including domestic prices of sugar, production of sugar and sugarcane, prices of sugarcane, consumption of sugar, stocks of sugar, quantity of sugar exported and sugar imported for the period 1947-48 to 2013-14 were collected. The main objective of paper is to analyse the impact of price policy on domestic prices of sugar in India. Multiple regression function was used to ascertain the impact of pricing policy on domestic prices of sugar. The study revealed that the increased sugar production had a negative impact on price of sugar. Positive and significant impact of sugarcane price on sugar was observed for all periods under study.

Keywords: Consumption, Export-import, Multiple Regression, Price policy, Sugar prices

Journal of Plant Development Sciences Vol. 10(6)

EXISTING CULTIVATION PRACTICES OF TURMERIC BY THE TURMERIC GROWERS

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Abstract: The study was undertaken on 'existing cultivation practices of turmeric by the turmeric growers' of Chhattisgarh Plains. A total of 320 farmers were considered as respondents for this study. Respondents were interviewed through personal interview. Collected data were analyzed with the help of suitable statistical methods for assessing the different components of turmeric cultivation like improved variety, recommended seed rate, recommended fungicide for seed treatment, fertilizers application and chemicals for plant protection.

Keywords: Existing, Cultivation practices, Turmeric growers, Turmeric cultivation

Journal of Plant Development Sciences Vol. 10(6)

EFFECT OF PLANT GROWTH REGULATORS ON QUALITY PARAMETERS OF SWEET POTATO (*IPOMOEA BATATAS* (L.) LAM.)

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Abstract: A field experiment was carried out during *kharif*2016-17 at Kittur Rani Channamma College of Horticulture, Arabhavi (Karnataka) to study the effect of growth regulators on quality parameters of sweet potato [*Ipomoea batatas* (L.) Lam.]. The maximum beta carotene content (7.65 mg) was recorded in combination of GA₃ @ 100 ppm and CCC @ 250 ppm (T₁₀), followed by single treatment GA₃ @ 100 ppm (T₃) (6.72 mg/100g). significantly maximum reducing sugar content (7.40%) was recorded in treatment combination of GA₃ @ 100 ppm and CCC @ 250 ppm (T₁₀), significantly maximum starch content (22.50%) was recorded in treatment combination of GA₃ @ 100 ppm and CCC @ 250 ppm (T₁₀),

Keywords: *Ipomoea batatas*, Plant growth regulators, Quality parameters

Journal of Plant Development Sciences Vol. 10(6)

EFFECT OF 2-BENZOXAZOLINONE (BOA) ON MORPHO-PHYSIOLOGICAL AND BIOCHEMICAL ASPECTS OF *CASSIA OCCIDENTALIS* L.

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Abstract: The present laboratory experimental study was carried about to evaluate the allelopathic potential of an allelochemical, 2-benzoxazolinone (BOA) on some morpho-physiological and biochemical parameters of *Cassia occidentalis*. 100, 500, 1000 µM concentrations of BOA were applied to determine their effect on morpho-physiological parameters (seed germination, root length, shoot length, fresh weight, dry weight etc.) and biochemical parameters (chlorophyll, carotenoids, protein and α-amylase) of test plant under laboratory condition. Study was conducted on 10 day seedlings of *Cassia occidentalis*. Not only seedling growth parameters even the chlorophyll, carotenoids, protein and α-amylase were appreciably reduced, thereby indicating that BOA negatively affects the growth of *Cassia occidentalis*. The study was concluded that BOA possesses weed suppressing ability.

Keywords: Allelopathy, Allelochemical, Weed, BOA, *Cassia occidentalis*

Journal of Plant Development Sciences Vol. 10(6)

SCREENING OF DIFFERENT MAIZE GENOTYPES TO CURVULARIA LEAF SPOT

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Abstract: A total of 55 genotypes of maize as listed below, were screened under field condition at ARS, Arabhavi. Each genotype was sown in a single row of 3 mt length with a spacing of 60 cm X 20 cm. The results revealed that, among 55 genotypes screened, none was found immune or highly resistant, one was found moderately resistant (CI 4), ten genotypes showed moderately susceptible reaction (KDMI 6, NAH 137, African Tall, MAH 974, MAH 957, GH 110204, KDMI 10, CM 111, GH 110145 and Pop corn), 25 genotypes were) and remaining 19 genotypes were found highly susceptible.

Keywords: Curvularia leaf spot, Maize genotypes, Screening