Journal of Plant Development Sciences

(An International Monthly Refereed Research Journal)

Volume 11 Number 2 February 2019

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EFFECT OF SEED TREATMENT ON GERMINATION AND SURVIVABILITY OF CUSTARD APPLE

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Received-02.02.2019, Revised-27.02.2019

Abstract: The experiment comprised of 14 treatments, viz. T_1 (control/without water soaking), T_2 (Water soaking), Gibberellic acid concentrations -T_3 (200 ppm), T_4 (300 ppm), T_5 (400 ppm), and chemicals viz.T_6 (Thiourea 0.5%), T_7 (Thiourea 0.75%), T_8 (Thiourea 1.00%), T_9 (KNO_3 0.5%), T_{10} (KNO_3 0.75%), T_{11} (KNO_3 1.00%), T_{12} (Sodium thiosulphet-150 ppm), T_{13} (Sodium thiosulphet-200ppm), T_{14} (Sodium thiosulphet-250 ppm) was conducted to study the effect of chemicals and plant growth regulators on germination, vigour of seedling and survivability of custard apple. Among the various treatments, GA_3, concentration at 400 ppm (T_5) was proved superior in respect to germination of custard apple seed as well as growth parameter and survival of custard apple seedling.

Keywords: Custard Apple, Chemicals, Plant growth regulators, Germination, Survival

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MANAGEMENT OF SOIL SYSTEM USING PRECISION AGRICULTURE TECHNOLOGY

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Received-05.02.2019, Revised-26.02.2019

Abstract: To maximize the productivity from the limited natural resources on a sustainable manner, the only way left is to increase the resource input use efficiency. It is also certain that even in developing countries, availability of labour for agricultural activities is going to be in short supply in future. The time has now arrived to exploit all the modern tools available by bringing information technology and agricultural science together for improved economic and environmentally sustainable crop production. In this context, Precision agriculture merges the new technologies borne of the information age with a mature agricultural industry. It is an integrated crop management system that attempts to match the kind and amount of inputs with the actual crop needs for small areas within a farm field. This goal is not new, but new technologies now available, allow the concept of precision agriculture to be realized in a practical production setting.

Keywords: Management, Precision agriculture, Soil system

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FINE ROOT BIOMASS AND SOIL PHYSICO-CHEMICAL PROPERTIES IN ACHANAKMAR-AMARKANTAK BIOSPHERE RESERVE

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Received-04.02.2019, Revised-23.02.2019

Abstract: The present study was aimed to assess the fine root biomass and soil physico-chemical properties in Achanakmar-Amarkantak Biosphere Reserve. Four sites characterized by varying vegetation attribute and representative of the region were selected. The belowground plant material (stand fine roots < 5 mm diameter) was sampled from 10 monoliths (15 x 15 x 15 cm) on each site. Proportions of live and dead fine roots were estimated on the basis of visual observations such as colour, texture, etc. Sample were dried at 80^0C to constant weight and weighed. Fine root biomass varied between 0.95 - 3.85 t ha^{-1}, respectively Organic C in soil ranged from 0.62 - 2.1 %, total N from 0.06 - 0.18 % and total P from 0.029 - 0.037 %. Available Pi ranged from 0.0002 - 0.00028 %. The exchangeable K ranged between 0.025 - 0.288 %. The short-lived components of the ecosystem viz., foliage, herbs and fine roots play a significant and dominant role in the functioning (relative contribution to nutrient cycling) of the present tropical deciduous forest.

Keywords: Fine root biomass, Nutrient cycling, Physico-chemical properties, Soil sample, Tropical deciduous forest

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YIELD AND ECONOMICS OF CROSSANDRA (*CROSSANDRA INFUNDIBULUFORMIS* L.) AS INFLUENCED BY NITROGEN AND POTASSIUM LEVELS

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Received-07.02.2019, Revised-26.02.2019

Abstract: The results of the experiment indicated that, the application of nitrogen + potassium @ 150 kg + 60 kg followed by 100 kg + 120 kg significantly improved yield parameters (number of spikes per plant, spike length, number of florets per spike, floret length and flower yield per plant) and B: C ratio.

Keywords: B: C ratio, Crossandra, NK levels, Yield

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EFFECT OF POST EMERGENCE HERBICIDES ON GROWTH AND YIELD OF SOYBEAN

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Received-02.02.2019, Revised-24.02.2019

Abstract: Soybean (*Glycine max* L. Merrill) is one of the commercial crops in India. It grown as *kharif* crop, but weed infestation is the major constraint in soybean produce in rainy season A field experiment was conducted at Research farm, Department of Agronomy, Jawaharlal Nehru Kirshi Vishwa Vidyalaya, Jabalpur (M.P.) during *kharif* 2016 to evaluate the bio-efficacy of post emergence herbicides against weed control in soybean. Among all herbicidal treatment the post emergence application of Imazethapyr+Propaquizafop 75.0+62.5 g/ha recorded highest number of pods/plant (26.10), higher number of seed/pod (2.40), 100 seed weight (9.93), seed yield (2100 kg/ha), haulm yield (3900 kg/ha), net returns (26585 Rs/ha) and B:C ratio (1.75), which was comparable with the application of Imazethapyr + Bentazone 75+75 g/ha.

Keywords: Herbicide, Benefit cost ratio, Net return, *Weed control efficiency*

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EFFECT OF NITROGEN LEVELS AND WEED CONTROL METHODS ON GROWTH, YIELD AND ECONOMICS OF RICE (*ORYZA SATIVA* L.)

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Received-07.02.2019, Revised-27.02.2019

Abstract: A field experiment was carried out during rainy seasons of 2015 at the Rajaula Agriculture Farm, MGCGVV, Satna (M.P.) to study the effect of N-levels and weed control methods on growth, yield and economics of rice. The application of 125 kg N/ha was found the best which produced maximum grain yield (22.58 q/ha) and net return (Rs.24889/ha) from transplanted rice var. PS-5. The weed control treatment W_6 (HW 20 & 40 DAS) proved the best which produced highest grain yield (25.44 q/ha) and net return (Rs.29470/ha) from rice. Among the treatment interactions, N_{125} with 2 HW performed the best by producing highest grain yield (27.78 q/ha) and net return (Rs.33018/ha) from transplanted rice var. PS-5. Butachlor 0.75 kg/ha + 2 HW stood the second best (rice grain yield 23.86 q/ha, income Rs.24963/ha). The best substitute of 2 HW with or without butachlor was butachlor + 2, 4-D 0.80 kg/ha or butachlor + bispyribac sodium (20 g/ha) which equally yielded 20.57 to 21.82 q/ha rice grain and gave net income from Rs.22531 to Rs.25334/ha.

Keywords: Nitrogen levels, Weed control methods, Growth, Yield, Economics, Rice

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TECHNOLOGY TRANSFER THROUGH FIELD TRIALS FOR INCREASING PRODUCTIVITY AND PROFITABILITY OF PIGEON PEA

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Received-03.02.2019, Revised-22.02.2019

Abstract: Pigeon pea is one of the major *kharif* crop grown in district. Farm Science Centre known as KrishiVigyan Kendra laid down Front Line Demonstration in the year 2017-18 to 2018-19introducing new and high yielding variety "Rajiv Lochan" applying scientific practices in their cultivation. The FLDs were carried out in different villages of Surguja district. The productivity and economic returns of pigeon pea in improved technologies were calculated and compared with the corresponding farmer's practices (local check). Improved practices recorded higher yield as compared to farmer's practices. The improved technology recorded higher yield of 17.47 over farmers practice 9.89 q/ha. In spite of increase in yield of pigeon pea, technology gap, extension gap and technology index existed. The variation in per cent increase in the yield was found due to the lack of knowledge, and poor socio economic condition. It is concluded that the FLDs programmes were effective in changing attitude, skill and knowledge of improved package and practices of HYV of pigeon pea adoption.

Keywords: Pigeon Pea, FLDs, Economic impact, Adoption

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EFFECT OF AGRONOMIC MANAGEMENT PRACTICES ON GROWTH, YIELD AND ECONOMICS OF GREENGRAM (*VIGNA RADIATA* (L.) WILCZEK)

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Received-06.02.2019, Revised-25.02.2019

Abstract: A field experiment was carried out during summer season 2014 at the Research Farm, JNKVV College of Agriculture, Tikamgarh (M.P.) to study the effect of agronomic management practices on growth, yield and economics of greengram. Amongst the agronomic management practices, application of $N_{20}P_{50}K_{20}$ alongwith one or two hand weedings and spraying of insecticides (two spray each of quinlosphos 2 ml/litre and dimethoate 2 ml/litre) i.e. T_{11} and T_{12} brought about equally maximum growth and yield attributes thereby highest yield of greengram var. SML 668 (693 to 712 kg/ha) and net income (Rs.30479 to Rs.30539/ha). The findings indicate that the combined input of fertilizer (RDF), hand weeding and insecticidal spray is essential to obtain maximum benefit from greengram sown in the summer season.

Keywords: Agronomic management practices, Greengram

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EFFECT OF DATES OF SOWING ON GROWTH, YIELD AND ECONOMICS OF SMALL MILLETS

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Received-07.02.2019, Revised-26.02.2019

Abstract: A field experiment was carried out during rainy season 2017 at the Instructional Farm, JNKVV College of Agriculture, Rewa (M.P.).To study the effect of dates of sowing on growth, yield and economics of small millets. The growth and development of kodo millet was found superior followed by little millet and then barnyard millet under the influence of normal sowing date. The 15 July (normal sowing) was found the best sowing date for mitigating the climatic changes on kodo millet, little millet and barnyard millet, followed by early sowing and late sowing dates. The maximum grain yield (17.75 q/ha) and net income (Rs 33962/ha) was obtained when kodo millet was sown on 15th July.

Keywords: Dates of sowing, Growth, Yield, Economics, Small millets