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ROLE OF CONSERVATIONAL AGRICULTURE IN SUSTAINABLE FARMING

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Abstract: Conservation tillage has been considered an established technology for growing farm income, but its implementation is still uncertain in the semi-arid part of western India. The most pronounced impact of conservation tillage is on the cost-saving compartment, but since conservation tillage / zero tillage / no-tillage (CT / ZT / NT) wheat farmers were able to sow the crop much earlier than their conventional counterparts, yield increases by 8%. Crop-rotations and household considerations were influencing ZT adoption. Although there are a range of constraints for continuous adoption of ZT, such as excess moisture, undulated plots, limited landholding and residue management difficulties for *kharif* crops (pearl millet, cotton). The ZT technology was also found to be efficient in reducing the farmer dependency on external inputs and ensures sustainable production of wheat.

Keywords: Crop-rotations, Physico-chemical properties, Microbiological properties, Zero-tillage

FORAGING BEHAVIOR OF DIFFERENT BEE SPECIES ON CORIANDER FLOWERS

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Abstract: A field experiment was conducted to study the foraging behaviour of honey bees. The maximum foraging activity of *Apis cerana indica* (6.57 bee/5min/m²), *Apis dorsata* (5.99 bee/5min/m²) and *Apis mellifera* (5.50 bee/5min/m²) were noticed 1000-1200hrs during 4th observation on 29 January first week of February 2019. While the lowest activity of *Apis dorsata* (1.09 bee/5min/m²) was recorded at 1400-1600hrs on (08 February second week of February) when the activity of *Apis cerana indica* (1.25 bee/5min/m²) and *Apis mellifera* (1.00 bee/5min/m²) at 1400-1600hrs were observed on third week of February 2019. Hence it can be concluded that the highest and lowest foraging activity was observed during 1000-1200hrs and 1400-1600hrs of the day respectively.

Keywords: Foraging behaviour, *Apis cerana indica*, *Apis dorsata*, *Apis mellifera*, Coriander crop

EFFECT OF INOCULATION OF AM AND AZOTOBACTER ON N, P, K STATUS OF POST HARVEST SOIL AND UPTAKE BY MAIZE (*ZEA MAYS* L.)

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Abstract: A field experiment was undertaken to find out the effect of inoculation of AM and Azotobacter on N, P, K status on post harvest soil and uptake by maize (*Zea mays* L.) at BAU experimental Farm, Ranchi during rabi season 2015-16 on sandy clay loam soil. The experiment was laid out in a Factorial RBD with three levels of inoculants i.e. Arbuscular Mycorrhiza, Azotobacter and AM + Azotobacter were applied along with four levels of plant nutrients i.e. 0, 50, 75 and 100% recommended dose of fertilizer with combination of 12 treatments: 50% NPK + AM, 50% NPK + Azotobacter, 50% NPK + AM + Azotobacter, 75% NPK + AM, 75% NPK + Azotobacter, 75% NPK + AM + Azotobacter, 100% NPK + AM, 100% NPK + Azotobacter, 100% NPK + AM + Azotobacter, AM alone, Azotobacter alone and AM + Azotobacter, replicated thrice. The initial soil properties was EC (0.149 dSm^{-1}), acidic soil (pH 5.4), low in organic carbon (3.3 g kg^{-1}), available nitrogen (189 kg ha^{-1}), medium in available phosphorus (20 kg ha^{-1}) and available potassium (130 kg ha^{-1}). The results revealed that the application of 100% NPK + AM + Azotobacter significantly increase the available nitrogen (214.7 kg ha^{-1}) and phosphorus (27.9 kg ha^{-1}) in post harvest soil and also increased availability of potassium (153.7 kg ha^{-1}) in soil but not significantly. It also significantly increased total uptake of nitrogen (92.53 kg ha^{-1}) and phosphorus (19.50 kg ha^{-1}) except potassium (83.36 kg ha^{-1}).

Keywords: AM, Azotobacter, Maize, NPK Uptake etc.

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IMPACT OF SEED INVIGORATION TREATMENTS ON SEED YIELD AND YIELD PARAMETERS OF AGED SEED OF GREENGRAM CULTIVAR LGG-460

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Abstract: In order to evaluate the effect of seed invigoration treatments on seed yield and yield parameters, the study was conducted at Agricultural Research Station (ARS), Jangamaheswarapuram, Guntur. The aged revalidated seed of greengram cv. LGG-460 was taken from each treatment and was given invigoration treatments. The invigorated seed along with the control (aged seed & fresh seed) were sown in the field. The observations were recorded on days to 50% flowering, no. of pods per plant, no. of seeds per plant, seed yield per plant, harvest index, shelling percentage and 100 seed weight. The results indicate that all invigoration treatments exhibited significant increase over the aged seed. Among the treatments bleaching powder @ 2g/kg of seed, hydroprimed and dry dressed with thiram @ 0.25 % and red chilli powder @ 1g/kg of seed improved the yield and yield parameters of aged seed of greengram and can be recommended for improving the yield of greengram.

Keywords: Greengram, Invigoration, Hydropriming

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ECONOMIC VIABILITY OF SWEET CORN (*ZEA MAYS* L. *SACCHARATA*) CULTIVATION AS INFLUENCED BY INTEGRATED NUTRIENT MANAGEMENT

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Abstract: A field experiment entitled “Economic viability of Sweet corn (*Zea mays* L. *saccharata*) cultivation as influenced by integrated nutrient management” was conducted during the *kharif* season of 2019-20 at Research farm of Ambikapur. The experiment constituted of nine treatment combinations consisting three levels of organic manures (0 t, 3 t vermicompost and 5 t FYM) and three levels of inorganic fertilizers (50%, 75% and 100% RDF, where RDF is $120:60:40 \text{ kg ha}^{-1}$ N, P_2O_5 and K_2O) and replicated thrice. Growth and yield attributes, husked, dehusked cob and fodder yield were influenced significantly due to organic and inorganic sources of nutrients. Maximum cob yield and fodder yield were recorded with 3 t ha^{-1}

vermicompost followed by 5 t ha⁻¹ FYM, both were proved significantly superior to control. However 100% RDF recorded higher value of such parameters, which was significantly fair over 75% RDF and 50% RDF. Application of 5 t FYM ha⁻¹ and 100% recommended dose of nutrients was economically viable as these produced significantly more net return.

Keywords: Sweet corn, Vermicompost, Integrated nutrient management

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INFLUENCE OF ZINC AND BORON ON GROWTH, UPTAKE AND YIELD OF BRINJAL (*SOLANUM MELONGENA* L.)

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Abstract: An experiment in pots was conducted to study Effect of Zinc and Boron on Growth, Yield and Quality of Brinjal (*Solanum melongena* L.). The experiment consisted of 9 treatments laid out in randomized block design with three replications 3 times the important finding of present investigation is given below. The individual treatment of 4 mg Zinc, 9 mg Zinc, 4 mg Boron and 9 mg Boron and treatments combination 4 mg Zn + 4 mg B, 4 mg Zn + 9 mg B, 9 mg Zn + 4 mg B and 9 mg Zn + 9 mg B per Kg soil was given in Brinjal pots the growth parameters like tallest plants, maximum number of plant, number of leafs, number of branches and tallest plant maximum number of flower per plant and yield parameters like maximum number of fruit per plant and maximum fresh weight and dry weight per fruit was obtained in yield Brinjal influenced by treatments T₈ (9 mg Zn + 9 mg B) and was significantly superior over rest of the treatments. The physiological parameters like the Chlorophyll a, b, carotenoid, anthocyanin and protein was recorded maximum in treatment T₈ (9 mg Zn + 9 mg B) and was significantly superior over rest of the treatment.

Keywords: Boron, Growth, *Solanum melongena*, Zinc

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INFLUENCED OF NUTRIENTS AND PLANT GROWTH REGULATORS ON ECONOMIC OF ONION (*ALLIUM CEPA* L.)

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Abstract: The field experiment was conducted to study the “Effect of Nutrients and Plant Growth Regulators on Growth, Yield, Quality and Storage Life of Onion (*Allium cepa* L.)” in loamy sand soils of the Research Farm, Rajasthan Agricultural Research Institute Durgapura (Jaipur, Rajasthan) during *rabi* season 2016-17 and 2017-18. The experiment consisted four nutrient combination (NP, NPK, NPKS and NPKSB) and four treatment were nutrient and plant growth regulators (Control, CaCl_2 @ 0.5%, ethephon @ 3000 ppm and mepiquat chloride @ 750 ppm) under three curing methods (Field curing, curing under 60% shade and curing under poly tunnel) thereby making forty-eight treatment combinations tested in factorial randomized block design with three replications. Results indicated that economics of maximum net returns Rs 475439.31 /ha and Rs 466819.98 were recorded with combined application of NPKSB, mepiquat chloride along with field curing and NPKSB, mepiquat chloride along with 60% shade net curing during 2016-17 and 2017-18 respectively. Maximum B: C ratio 6.11 and 6.01 was recorded with combined application of NPKSB, mepiquat chloride along with 60% shade net curing during 2016-17 and 2017-18 respectively.

Keywords: B: C ratio, Net returns, Nutrients onion, Plant growth regulators

INPUT MANAGEMENT OF RESOURCES BY FARMERS IN PURI DISTRICT, ODISHA, INDIA

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Abstract: A study was carried out in Puri district of Odisha. Multi stage and proportionate stratified random sampling technique was followed to select the sample size of 142 farmers. The study reveals that the nature of use of livestock produce was 65%, Control on the land resource was 85% and no full control on labour, usefulness of Land was 100%, Knowledge on efficient use of saving 72%, timely availability of crop produce was 33%, 72.6% agricultural produce were conserved for future use and farmers' own decision on animal produce was 68%. The resource use pattern of the farmers can be used for identifying the availability of resources to the farmers and the resources delivery to the farmers can be improved for development of agriculture in the region.

Keywords: Crop, Farmer, Management, Nature, Resources

IMPROVEMENT IN SEED GERMINATION IN SENNA (CASSIA ANGUSTIFOLIA) THROUGH PRETREATMENTS

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Abstract: *Cassia angustifolia* popularly known as Senna is a valuable plant drug in Ayurvedic and modern system of medicine. Leaves and pods are used as natural laxative. Leaves of this plant contain sennosides A, B, C and D and are in demand internationally and preferred as ingredient of herbal tea in Europe. The drug is used as the most reliable and least harmful laxative agent. Pods and leaves are also used in the form of decoction, powder and many other herbal preparations. Senna is a sun-loving crop and requires bright sunshine for its successful growth. The crop is raised from seed and has a hard and tough seed coat. Poor germination of seeds affects nursery production for its mass propagation. Therefore pre-treatment of seeds is necessary to induce quick germination. The improvement in seed germination through chemical pre-treatments was reported in the present study that was conducted under completely randomized block design under polyhouse at Experimental farm, College of Horticulture and Forestry Neri- Hamirpur, Himachal Pradesh. The statistical analysis revealed significant effect on seed germination due to different pre-treatments. Pre-treatment T₄ i.e.GA₃ 10ppm for 24 hrs soaking resulted in maximum germination (68.00 per cent) which was followed by GA₃ 5ppm (60.00 percent) and minimum germination (28.00 per cent) was recorded in control. There was 142 per cent increase in germination percentage in treatment T₄ over control.

Keywords: Senna, Pre-treatments, Germination, Laxative, Sennosides

IDENTIFICATION OF CONSTRAINTS AND SUGGESTION OF MAIZE GROWERS OF BASTAR PLATEAU OF CHHATTISGARH

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Abstracts: This investigation was carried out in three districts of the Bastar plateau of Chhattisgarh State to identify the major constraints faced by the maize growers and their suggestions to overcome them. 270 farmers were considered as respondents for this study. Respondents were interviewed through personal interviews. Collected data were analyzed with the help of suitable statistical methods. The analysis of the results showed that constraints recognized under the technological category were poor knowledge about the seed treatment and ranked first, followed by lack of storage facilities, poor knowledge about proper diagnosis of insect, pest and disease, poor knowledge about application of balanced fertilizer. Major suggestions suggested by the respondents were that a maize thresher should be provided by the government.

Keywords: Production, Adoption, Maize growers constraints and Suggestion