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LOW BUDGET NATURAL WAY FARMING (AKA.VRIKSHAYURVEDIC FARMING) - TREES ARE THE NATURAL AGROCHEMICALS PRODUCERS FOR SUSTAINABLE FOOD PRODUCTION

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Abstract: Nowadays, people are looking for "organic" labels on food due to the harmful ill effects of indiscriminate agrochemical usage. Organic farming, natural farming, etc., to ensure eco-friendly foods. Here, a novel, yet traditional, way of food production using only trees and their parts and products to cultivate crops and maintain soil fertility is discussed. *vrikshayurvedic farming* is a traditional Indian system of farming to produce quality food. Here, indigenous and introduced leguminous tree leaves serve as soil fertility builders and leaf extracts serve as foliar nutrition for crops and protection from pests and diseases. This article extracts information from different sources (Fig. 1) and presents it in a nutshell to facilitate a paradigm shift in farming research.

Keywords: Biomass transfer technique, Green leaf manure, Leaf tea, LBNF, *Vrikshayurvedic farming*, Crop yields

LIVELIHOOD SIGNIFICANCE OF HOMEGARDEN AGROFORESTRY RESOURCES IN BLOCK LAR OF DISTRICT GANDEBAL, J.&K., INDIA

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Abstract: The study investigated the Livelihood significance of homegarden agroforestry resources in block Lar of district Ganderbal. Multi – stage random sampling technique was used to select the villages and households. For collection of data 5 village's viz., Barsoo, Manigam, Benhama, Watlar, Dangar pora were selected by using procedure of simple random sampling. A total of 118 households were selected from the sampled villages having 12 percent sampling intensity by simple random sampling technique for the field study. The findings revealed that people are in underprivileged condition in all respects as reflected by their low socioeconomic and homegarden resource characteristics. A total of 25 species belongs to 15 families were mostly founded in study area out of which agricultural components has the highest position i.e.15, followed by 6 fruit component, 3 medicinal plants and one tree component. The family *Brassicaceae* and *Rosaceae* has the highest representation of four home garden species. Most of the species were used for Vegetables, Fruits, Fuelwood and Fodder for the Household purposes which is followed by medicines etc. Vegetables, Fruits, Fodder and Fuelwood are the prime resources collected by almost all the households (91.52%) from homegardens whereas the involvement of households in collection of medicines and others is comparatively low (10.16 %). The study concluded that the homegardens plays a crucial role in livelihood security of rural people by providing fuelwood, fodder, fruits, vegetables, medicines etc and contributing significantly to the gross annual income and employment opportunities. The livelihood support from home garden resources depends on multitude of household socio- economic and homegarden resource characteristics such as education, type of family, size of land holding, livestock possession, main occupation, gross annual income.

Keywords: Homegarden, Socioeconomic, Livelihood, Kashmir

EVALUATE THE EFFICACY OF INSECTICIDES FOR MANAGEMENT OF RICE GALL MIDGE, (*ORSEOLIA ORYZAE* WOOD-MASON) IN RICE FIELD IN NORTHERN HILL OF CHHATTISGARH

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Abstract: A field experiment was conducted at Research-cum-Instructional Farm of Raj Mohini Devi College of Agriculture & Research Station, Ambikapur (C.G.) during Kharif -2021, to study the field efficacy of insecticides (which are listed in Table 1) for the management of rice gall midge, *Orseolia oryzae*. The results revealed that chlorantraniliprole 0.4% GR against the rice gall midge, *Orseolia oryzae* was found to be most effective treatment and recorded significantly lowest per cent of silver shoot *i.e.* 3.03% treatment given as main field alone at 25 DAT followed by fipronil 0.3% GR + chlorantraniliprole 0.4% GR *i.e.* 4.57% SS and carbofuran 3% CG + [cartap hydrochloride 4% + fipronil 0.5% CG] *i.e.* 4.78% SS whereas both the treatments were given in nursery at one week before transplantation + main field at 25 DAT. Rests of the treatments were moderately effective in terms of minimum damage of gall midge but also superior over untreated control. However, the maximum per cent of gall midge infestations (9.10% SS) was recorded in untreated control.

Keywords: Efficacy, Insecticides, Management, Rice gall midge, *Orseolia oryzae*

SCREENING OF PIGEONPEA GENOTYPES AGAINST POD BORER (*HELICOVERPA ARMIGERA* HUBNER)

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Abstract: The present investigation entitled "Screening of pigeonpea (*Cajanus cajan* L.) genotypes against pod borer (*Helicoverpa armigera* Hubner) was conducted at the research-cum Instruction farm of Raj Mohini Devi College of Agriculture (C.G.) during Kharif season 2021-22. Pod borer (*Helicoverpa armigera* Hubner) was one of the major damaging pests of pigeonpea crop. Damaging stage of pod borer was caterpillar. Pod borer was recorded weekly interval that is 53 SMW (26th December to 1st January) and 1 SMW (2nd January to 8th January) then pod damage per cent reached minimum CG Arhar 1-ch with 5.38 per cent followed by RP 1, Rajeevlochan-ch, RPS 2014-35, RPS 2014-29, RPS 2014-6, RPS 2014-1 and CG Arhar 2-ch, RPS 2014-22, RPS 2014-23, RPS 2014-30, RPS 2014-21, RPS 2014-8, RPS 2014-10, RPS 2014-19 and RPS 2014-11 with 7.32, 8.55, 10.19, 10.87, 12.19, 13.97, 16.10, 17.18, 18.53, 19.34, 20.50, 21.07, 22.86 and 24.36 per cent pod damage respectively, whereas the maximum pod damage was observed in RPS 2014-11 with 26.88 per cent. Grain damage per cent which varied from 6.34 to 25.65 per cent. the check genotype minimum grain damage by *H. armigera* Hubner was observed in genotype CG Arhar 1-ch with 6.34 per cent followed by RP 1, Rajeevlochan- ch, RPS 2014-35, RPS 2014-29, RPS 2014-6, RPS 2014-1, CG Arhar 2-ch, RPS 2014-22, RPS 2014-23, RPS 2014-30, RPS 2014-21, RPS 2014-8, RPS 2014-10, RPS 2014-19 and RPS 2014-11 with 6.89, 7.69, 9.17, 10.57, 12.32, 12.97, 13.52, 15.61, 16.76, 16.98, 17.33, 17.99, 19.42, 23.89 Per cent grain damage respectively, whereas the maximum grain damage was observed in RPS 2014-11 with 25.65 per cent.

Keywords: Grain damage, *Helicoverpa armigera* Hubner, Pod damage, Genotypes

EFFECT OF SOWING TIME AND SEED RATE ON THE SEED YIELD OF OATS(AVENA SATIVAL.)

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Abstract: A field experiment was conducted during the *rabi* season of 2021-22 at Agricultural Research Farm, School of Agricultural Sciences and Technology, RIMT University, Mandi Gobindgarh, Punjab to study the effect of sowing time and seed rates on grain yield of oats (*Avena sativa* L.). The experiment was laid out in a randomized complete block design (RCBD) and replicated thrice. The treatments comprised of three sowing dates (5th November, 25th November and 15th December) and three seed rate (50,62.5 and 75 kg/ha). The variety OL-14 was used during the experiment. The crop sown on 25th November recorded the highest plant height (149.82 cm), more effective tillers per meter row length (133.70), panicle length (37.90 cm), grains per panicle (81.30), grain weight per panicle (2.90 g) which was significantly higher over 5th November but at par with 15th December sown crop. The highest grain yield was observed in crop sown on 25th November (24.20 q/ha) which was significantly higher over 5th November (21.66 q/ha) sown crop but at par with 15th December (23.02 q/ha) sown crop. The crop sown with seed rate of 75 kg/ha produce more plant height (150.07 cm) which is significantly higher over 50 kg/ha seed rate (142.18 cm) but at par with 62.5 kg/ha (145.39cm) sown crop. Whereas 62.5 kg/ha produce significantly higher grain yield (25.22q/ha) over 50 kg/ha (20.18 q/ha) but at par with 75 kg/ha (23.47q/ha). Interaction effect between sowing dates and seed rates was found to be non-significant in all the parameters.

Keywords: Oats, Sowing time, Seed rates, Growth parameters, Yield attributes

SCREENING OF BLACKGRAM GENOTYPES AGAINST POD BORER (*HELICOVERPA ARMIGERA* HUBNER)

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Abstract: The research was carried out to investigate the screening of blackgram genotypes against pod borer (*Helicoverpa armigera* Hubner) during *Kharif* season 2021 at experimental area of Research-cum-Instructional Farm of Raj Mohini Devi College of Agriculture and Research Station, Ambikapur, Surguja district of Chhattisgarh. The experiment was conducted in Randomized block design with three replications comprising of twelve genotypes and one check variety viz., Indira urd-1. The damage caused by pod borer was recorded at weekly interval i.e., 41 SMW (14th - 20th October) and 42nd SMW (21st - 27th October). All twelve genotypes were showed significantly difference with each other which ranges between 7.21 to 24.06 percent pod damage. Among blackgram genotypes minimum pod damage by *H. armigera* was observed in genotype IU 03-52 with 7.21 percent and categorized as resistant (R) while maximum pod damage was recorded in genotypes IU 02-1-3 with 24.06 percent were categorized as moderately resistant (MR). The data on grain damage were recorded at the time of harvest and was recorded minimum in IU 03-52 with 6.47 percent and maximum in IU 02-1-3 with 11.90 percent.

Keywords: Black gram, Genotypes, Pod damage, Pod borer, Screening, *Vigna mungo*

ASSESSMENT OF GENETIC VARIABILITY PARAMETERS IN BLACK GRAM [*VIGNA MUNGO* (L) HEPPER] GENOTYPES

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Abstract: The present investigation was conducted during *kharif*-2021 at Agricultural Research Station, Umedganj, Kota (Agriculture University, Kota), to examine 40 black gram diverse genotypes in Randomize Block Design with three replications. The estimates of phenotypic coefficient of variation (PCV) and genotypic coefficient of variation (GCV) were observed high for number of primary branches per plant, number of clusters per plant, number of pods per plant, biological yield per plant, harvest index and seed yield per plant. High heritability coupled with high genetic advance as per cent of mean was obtained for number of primary branches per plant, number of clusters per plant, number of pods per plant, biological yield per plant, harvest index and seed yield per plant. Based on the mean performance of the genotypes, KPU 1097, KPU410-31, KPU1102, KPU1116 and KPU12-155 were superior not only for seed yield per plant but also for other yield contributing traits.

Keywords: Black gram, Genetic variability, Heritability, Genetic advance

EFFECT OF AGRONOMIC WEED MANAGEMENT PRACTICES ON GROWTH, YIELD ATTRIBUTES AND YIELD OF BARLEY (*HORDEUM VULGARE* L.)

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Received-03.08.2022, Revised-14.08.2022, Accepted-30.08.2022

Abstract: A field experiment was carried out during rabi 2021-22 to study the effect of agronomic weed management practices on growth, yield attributes and yield of barley (*Hordeum vulgare* L.). The experiment was laid out in randomized complete block design with eight treatments replicated thrice. The weed control treatments comprised of weedy check, weed free, weed free for 15, 30 and 45 days and weedy up to 15, 30 and 45 days. The highest weed density (66.6 plants/m²) and weed dry weight (63.0 g/m²) were recorded in weedy check whereas, weed free recorded minimum (0.70 plants/m² and 0.70 g/m² respectively). Weedy check treatments recorded higher weed density and weed dry weight however weed free treatments recorded lower weed density and weed dry weight. Weed free for 15, 30 and 45 days and weedy upto 15 days recorded significantly lower weed index however weedy check for 30 and 45 days recorded higher weed index. The highest grain yield (45.3 q/ha) was recorded in weed free which was significantly higher than weedy check, weedy up to 15, 30 and 45 days (32.0 q/ha, 38.0 q/ha, 36.3 q/ha and 34.7 q/ha respectively) but was at par with rest of the treatments. Similar trend was also observed in growth parameters and yield attributes.

Keywords: Barley, Growth parameters, Weed, Yield attributes

EFFECT OF TRANSPLANTING DATES, CULTIVARS AND ZINC ON NUTRIENT CONTENT AND UPTAKE STUDIES IN ONION (*ALLIUM CEPA* L.) IN SEMI-ARID CONDITIONS OF RAJASTHAN

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Abstract: The experiment was conducted during 2020-21 & 2021-22 in *Rabi* season. The treatment combinations, was laid out in split-plot design with two transplanting dates (10th December and 01st January) and three cultivars (RO-01, RO-59 and Bhima Shakti) were kept in main plots. Four zinc application methods (control, Soil application of zinc sulphate @ 25 kg/ha, dipping of seedling in zinc solubilizer before transplanting, foliar spray of zinc sulphate @ 0.5% at 30 & 45 DAT) were applied in sub plots. As per results transplanting on 01st January and Bhima Shakti with foliar spray of ZnSO₄ @ 0.5% at 30 & 45 DAT (Z₃) significantly increased the nutrient content and uptake of nutrients in both years as well as in pooled analysis. Thus, findings were in conclusion that 01st January transplanting and Bhima Shakti cultivar with Z₃ have the potential effect to improve nutrient content and uptake of nutrients in onion.

Keywords: *Allium cepa*, Cultivar, Nutrients, Onion, Zinc

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INFLUENCE OF FOLIAR APPLICATION OF MICRONUTRIENT AND GROWTH REGULATOR ON GROWTH AND YIELD OF LEAFY ONION (*ALLIUM CEPA* L.)

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Abstract: To get higher production and economical purpose, each crop needs to maintain its fertilizer requirement and plant growth regulators application. Micronutrients play an essential role in the plant metabolic processes that helps to improve growth and quality of onion while growth regulators govern all the factors of development and growth within plants. The field experiments were conducted during the *rabi* season of 2019 at Main Vegetable Research Centre, Anand Agricultural University following RBD design with 12 treatment including control. to investigate the effect of foliar application of micronutrients and growth regulators on growth, yield and quality attributes during development stage of onion. The application of GA₃ and micronutrients like Zn, Fe and Si through foliar application significantly improve the growth parameters like plant height, number of leaves, leaf length, dry weight, fresh weight and yield parameters. The result showed that foliar application of Zn (1g/l) + Fe (1g/l) + GA₃ (100mg/l) at 30 DATP considered as the best treatment for higher phytochemical quality and yield production under Middle Gujarat agro-climatic condition.

Keywords: Onion, Foliar, Micronutrient, GA₃, Yield

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EFFECT OF DIFFERENT PLANTING TIME AND MULCHING MATERIALS ON GROWTH AND YIELD OF TOMATO

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Abstract: The experiment comprising of five planting time *viz.*, 15th December, 30th December, 15th January, 30th January and 15th February and three mulching materials, *i.e.*, black polyethylene, wheat straw and control, was conducted at Research Farm of the Department of Vegetable Science, CCS H.A.U, Hisar during *Rabi* season of 2014. The treatments were laid out in split plot design keeping date of sowing in main plot and mulching material in sub-plot with three replications. The seedlings were transplanted at a spacing of 60x45 cm in plots of 3.60x2.70 m size. The observations were recorded on plant height, number of branches per plant, days to 50% flowering, days to first fruit set, days to first harvesting, number of fruits per truss, total number of fruits per plant, number of trusses per plant, average fruit weight, yield per plot and total yield. Plant height and number of branches per plant decreased with the delay in planting. The tallest plant at 60, 90 and at final harvest (75.1, 86.6 and 105.4 cm, respectively) and maximum number of branches per plant (10.5) were recorded when the seedlings were transplanted on 30th December under black polyethylene mulch. The minimum number of days to 50% flowering, days to first fruit set and first picking (20.0, 25.1 and 50.5, respectively) was taken by the crop planted on 15th February under black polyethylene mulch but flowering, fruit set and first picking were significantly late in earlier planted crop. The maximum number of trusses per plant, fruits per truss, fruits per plant, fruit size and fruit yield per plot and per hectare (18.5, 6.5, 43.4, 54.9 g and 35.2 kg and 352.6 q) was recorded under 30th December planted crop in combination of black polyethylene mulch.

Keywords: Planting dates, Mulching, Tomato, Growth characters, Yield