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CANNABIS CONSUMPTION AND THE MOST FREQUENT HEALTH PROBLEMS IN PEOPLE WITH HIV: A QUANTITATIVE-QUALITATIVE-MIXED APPROACH

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Abstract: People with HIV face multiple illnesses derived from psychological, social, behavioral and medical factors., the health problems they face include sleep disturbances, anxiety, depression, malnutrition and tuberculosis. Thus, they resort to the use of substances as an alternative to solve these problems or to improve their quality of life. There is evidence of cannabis use to treat HIV symptoms such as nausea, lack of appetite, pain and anxiety. However, governments have not approved its use because the benefits must be greater than the risks of its consumption. The present study was designed to determine the association of cannabis consumption with the most frequent health problems in people with HIV in order to establish if cannabis consumption has a protective or risk effect. Material and methods: The methodology used in this study was qualitative based on the development of health surveys for people with HIV, and logistic regression analysis to model the association among health variables. Results: Participants who reported frequent cannabis use are convinced that the benefits of cannabis use in their health condition are greater than the risks. This plant is attributed effects on the control of hypertension, diabetes, anxiety, sleep disturbances and depression. Conclusions: There is an association among the variables under study, although it was not possible to sustain it statistically. It should be noted that a risk association was found between the use of cannabis and tuberculosis (aOR 9.32 p <0.05).

Keywords: Cannabis consumption, Health, HIV, Risk factors, Tuberculosis, Qualitative methodology

MATURITY INDICES OF SWEET SORGHUM 'WANI' VARIETY UTILIZED IN PAUK PROCESSING

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Abstract: Sorghum is considered as versatile crop, use for; feed, food and industrial purpose. *Rabi* sweet sorghum 'wani' variety was reported for *pauk* purpose. Green, tender, roasted and threshed clean grain of sweet sorghum is known as *pauk*. Experiment related to maturity of *wani* was carried out at MSRS-NAU, Surat with four treatments and seven replications in simple RBC design. Non-significant change was observed in plant height ($2429\pm 1\text{mm}$); plant leaves (8Nos), top stalk length ($678\pm 1.5\text{mm}$) and top stalk weight ($112\pm 1.21\text{g}$) between 90–120DAS. Maximum length, diameter, volume, weight of head, were observed significantly high at 110DAS with value 292mm, 60.3mm, 2800ml and 106.8g, respectively. Mean diameter, sphericity, weight of thousand grains, volume of thousand grains and bulk density of grain were observed $3.33\pm 0.7\text{mm}$, 0.6954 ± 0.023 , $28\pm 7.1\text{g}$, $22.7\pm 2.2\text{cc}$ and $1.217\pm 0.212\text{g/cc}$, respectively with elliptical shape. At 110DAS, all sensory parameters were recorded significantly high and then reduced, except tenderness. Proximate composition increased where as the moisture and sugars of plant as well as grain reduced with respect to maturity. Plant hormones like; GA changes with respect to maturity where as IAA and ABA was found increasing. These plant hormones could be determined using derived equations. Result related to maturity of *wani* revealed that, sorghum was at its maximum physical, biochemical and physiological maturity between 90–120DAS. Further, the sweet sorghum grain could be processed for *pauk* processing purpose between 90–110DAS otherwise it loose its quality. The collected maturity related data could be useful for further studies on *pauk* processing and its machineries development.

Keyword: Sweet Sorghum, *Wani*, Maturity Indices, *Hurda*, *Pauk*, GA

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DIVERSITY OF INSECT VISITORS/POLLINATORS IN PIGEONPEA

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Abstract: A field experiment was undertaken to study the diversity of insect visitors/pollinators in pigeonpea during *Kharif* 2020-21 at Raj Mohini Devi College of Agriculture and Research Station, Ambikapur. The pigeonpea crop attracted twelve species of pollinators represented by family Apidae (73.98%), Megachilidae(13.36%), Vespidae,(2.64%) belonging to a order hymenoptera; Muscidae (2.60%)belonging to a order Diptera; Lycaenidae(5.15%), Erebidae (1.55%) belonging to a order Lepidoptera; and Pyrrhocoridae (1.01%) belonging to a order Hemiptera .Species wise diversity indicated that *Tetragonula iridipennis* was the most dominant one(35.88%). followed by *Apis mellifera* (20.62%), *Apis dorsata* (11.23%), *Megachile lanata* (9.43%), *Lampides boeticus* (5.15%), *Megachile disjuncta* (3.93%), *Apis cerana indica* (3.47%), *Xylocopa latipes* (2.78%), *Vespa velutina*(2.64%), *Musca domestica* (2.60%), *Amata phegea* (1.55%) and *Dysdercus cingulatus* (0.73%). All the visitors/pollinators were active during the mid flowering stage except *Megachile disjuncta*, *Dysdercus cingulatus* which were more active at the late flowering stage. At peak activity period *i.e* mid flowering stage, *Tetragonula iridipennis* with 7.58 bees/m²/5min followed by *Apis mellifera* 4.90 bees/m²/5min and also at late flowering stage, *Tetragonula iridipennis* 5.66 bees/m²/5 min followed by *Apis mellifera* 2.60 bees/m²/5min outnumbered the other pollinators. Among the species, the insect pollinators/ visitors abundance were more at 10.00a.m.-11.00 a.m. (2.25 bee/m²/5 min) followed by at 13.00-14.00 p.m. (1.73 bee/m²/5 min).

Keywords: Honey bees, Pollinators/visitors, Pigeonpea, Wasps

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EFFECT OF COW URINE AND GA₃ ON GERMINATION OF SEEDS AND SEEDLING GROWTH OF KARONDA (*CARISSA CARANDAS L.*) UNDER POLYHOUSE CONDITION

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Abstract: The present investigation entitled “Effect of cow urine and GA₃ on germination of seeds and seedling growth of karonda (*carissa carandas* L.)” was conducted at under poly house condition during the year 2019- 20 at the Krishi Vigyan Kendra, College of Agriculture, Rewa (M.P.) It was conducted to study the individual effect as well as combined effect of seed soaking duration, cow urine and GA₃ concentration on seed germination and seedling growth of karonda. Hence, pre-sowing treatments with cow urine and plant growth regulators (GA₃) have a significantly role on the seed germination. The experiment was laid out in randomised block design with 7 treatments (T₁ - control, T₂ - GA₃ 100 ppm for 12 hours, T₃ – GA₃ 100 ppm for 24 hours, T₄ – GA₃ 100 ppm for 36 hours, T₅ - cow urine 25% for 12 hours, T₆ – cow urine 25% for 24 hours and T₇ – cow urine 25% for 36 hours). The treatment was replicated thrice. All the seed and treatments showed better germination and growth when compared to control. Among various combination, the effect of seed treatment with GA₃ 100 ppm 24 hours were more superior over the other combination with highest seed germination (6.55), complete germination (20.32), germination percentage (76.66%). Growth parameters at 30, 60, 90 and 120 DAS with seedling height (3.22, 6.21, 8.94 and 9.73 cm), diameter of shoot (0.63, 2.23, 3.04 and 3.23), number of leaves/ seedling (3.86, 10.66, 17.34 and 20.53/seedling), leaf area (2.09 cm²), fresh weight of leaves (1.22 g), dry weight of leaves (0.54 g), length of roots (20.67 cm), fresh weight of roots (0.64 g), dry weight of roots (0.30 g), seedling vigour index (1581.80 cm).

Keywords: Karonda, Seeds, Treatment, Germination, Growth

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GENETIC VARIABILITY, CORRELATION AND PATH ANALYSIS IN WHEAT

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Abstract: A field study was conducted in Punjab Agricultural University during 2016 under restricted irrigation condition to study the genetic variability, genetic advance, correlation and path analysis of yield contributing characters of 27 Iranian wheat landraces. Genotypic and phenotypic correlation studies reveals that tillers per metre row length, spikelet per spike, grains per spike, grain weight and harvest index is significantly and positive correlated with grain yield at 1% and 5% probability level. Therefore, these characters may be effective as selection indices during breeding programmes for improving grain yield. The result of path analysis signifies that tillers per metre row length, spikes per spike and grain weight have positive direct effect on grain yield whereas plant height and spikelet per spike have negative direct effect on grain yield. Furthermore, maximum heritability and genetic advance was recorded in grain weight and spikelet per spike. So, this character should be considered as suitable selection criteria for the development of high yielding varieties in wheat.

Keywords: Genetic variability, Correlation coefficient, Path analysis and Iranian wheat landraces

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KNOWLEDGE LEVEL OF FARMERS ON CASHEW CULTIVATION TECHNOLOGIES

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Abstract: This study attempts to measure the knowledge level of the cashew growers with regard to critical technologies in Cashew cultivation. The study was conducted at Ariyalur and Cuddalore districts of Tamil Nadu purposefully based on area and production. 120 respondents were selected through simple random sampling. Considering knowledge to be the dependent variable eighteen independent variables were identified and included in the study for better understanding on the factors influencing the knowledge level of the cashew farmers. Data were collected using a structured interview schedule and analysed using SPSS 21. Majority of the respondents had medium level of knowledge on cashew cultivation technologies,

followed by low and high knowledge level. The results could be possibly influenced by number of trainings under gone, mass media exposure, social participation, contact with extension agencies and farming experience.

Keywords: Cashew, Tamil Nadu, Knowledge level, Critical technologies, Ariyalur, Cuddalore

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ANALYSIS OF TREND AND SEASONALITY IN PRICES AND ARRIVALS OF SELECTED AGRICULTURAL COMMODITIES IN INDIA

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Abstract: To find out the fluctuation in the prices and arrivals of the selected agricultural commodities. The study was conducted for the period of 2004-2020 by collecting secondary data from CMIE database. The major agricultural commodities are selected purposively on the basis of high prices and arrivals in the market. The selection of the agricultural commodities for the present study includes Castor seeds, Coriander, Soybean, Jeera and Turmeric. For Castor seeds (Deesa), for Coriander (Kota), for Soybean (Akola), for Jeera (Unjha) and for Turmeric (Nizamabad) market were selected. The selection of the markets was proposed according to the volume of trade. To examine the growth of prices and arrivals of selected agricultural commodities over the years, Compound Growth rate (CGR) was employed. The seasonality in prices and arrivals of selected agricultural commodities over the year is calculated by using moving average method. The results of the study showed that there is a positive and significant growth rate has been observed in the prices of selected commodities with Jeera showing the highest growth rate of (9.87%) in arrivals followed by Turmeric (9.05%) and the lowest in Coriander (5.06%) as against the prices where it showed all together a different scenario with highest in case of Coriander (7.55%) followed by Soybean (7.24%) and lowest in Jeera with (5.69%) respectively. The results of the findings revealed that in all the commodities high seasonal indices are observed from March to June indicating high post-harvest arrivals during these months. In case of Soybean and Turmeric, the seasonal index for prices is high in the months from April to September, which reveals that there is lack of storage facilities and the production during these months is very low. This study suggested for improvement in the infrastructure, storage and post-harvest techniques, so that the arrivals of these commodities get increased and availability should be throughout the year so that the prices get minimized.

Keywords: Seasonal indices, Commodities, Growth rate, Arrivals, CMIE database

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EFFECT OF NITROGEN AND SULPHUR LEVELS ON PRODUCTIVITY AND QUALITY OF RADISH UNDER DRIP IRRIGATION

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Abstract: A field experiment was conducted at Research farm, Agricultural Research Station, S K Rajasthan Agricultural University, Bikaner during *rabi* season of 2019-20 on loamy sand soil. The experiment comprising four levels of each nitrogen (Control, 40, 60 and 80 kg ha⁻¹) and sulphur levels (Control, 15, 30 and 45 kg ha⁻¹) making 16 treatment combinations replicated three times in factorial randomized block design. Application of 60 kg N ha⁻¹ recorded significantly higher yield attributes, yield and chlorophyll content of radish over control and 40 kg N ha⁻¹ and remained statistically at par

with 80 kg N ha⁻¹. Increasing levels of nitrogen significantly decreased pungency level in root up to 60 kg N ha⁻¹, yet, it was statistically at par with 80 kg N ha⁻¹. The increasing level of sulphur up to 30 kg S ha⁻¹ significantly increased the yield attributes, yield and chlorophyll content of radish and was at par with 45 kg S ha⁻¹. Pungency level in root increased significantly as a result of increasing levels of sulphur up to 45 kg S ha⁻¹ over rest of all applied treatment.

Keywords: Chlorophyll, Nitrogen, Pungency, Radish, Sulphur

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IMPACT OF BEE ATTRACTANTS ON THE QUANTITATIVE AND QUALITATIVE PARAMETERS OF SUNFLOWER

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Abstract: Honey bees visitation enhance quantitative and qualitative parameters. The seed set % were noticed higher number of bold seed (61%) and lowest number of chaffee seed (3.87) was produced in the crop that received Jaggery solution 15% in sunflower Thousand seed weight (47.00g) was maximum in sunflower treated with 15% jaggery solution and minimum recorded on 10% glucon- D solution (39.00g). Similarly highest seed yield q/ha observed on 15% jaggery solution treated plot and minimum without treated plot was (14.76q/ha and 9.27q/ha). The qualitative parameter significantly, highest germination percent was recorded in treatment jaggery solution 15% (95.00%). However, lowest germination percent was found in control treatment without any spray (81.67).

Keyword: Sunflower, Bee attractants, Pollinators, Parameters

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MEDICINAL USES OF RARE, ENDANGERED AND THREATENED (RET) PLANT SPECIES

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Abstract: Whenever a species or creature is threatened or endangered, it indicates it has gone extinct, is fast disappearing, or has too few populations to survive. The term "extinction" refers to the end of a species' existence. Almost every form of agroclimatic and edaphic situation known to man can be found in this country. About 2500 species of plants are used in India's indigenous medical system. The red data book, on the other hand, identifies 427 Indian medicinal plants as endangered species, with 28 deemed extinct, 124 endangered, 81 rare, and 34 unknowns. An endangered species, according to the International Union for Conservation of Nature (IUCN), is threatened with extinction due to an organism or population of organisms, habitats, excessive mortality, or environmental changes.

Keywords: Conservation, Endangered, Extinction, IUCN, Medicinal plants, Red data book

EFFECT OF DIFFERENT LEVELS OF PHOSPHORUS THROUGH VARYING SOURCES ON PRODUCTIVITY AND OIL CONTENT OF MUSTARD

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Abstract: A field experiment was conducted to study the impact of different levels and sources of P application on performance of mustard under pearl millet-mustard cropping system at Research farm, Soil Science, CCS HAU, Hisar. The experiment was laid out in randomized block design with three replications, consisting of eleven treatments. The results showed that among the different treatments, seed and stover yield of mustard varied between 15.37 to 23.16 and 65.70 to 85.82 q ha⁻¹, respectively. Application of 20 kg P₂O₅ ha⁻¹ through SSP led higher seed and stover yield as compared to P application through DAP or RP. Application of half of recommended dose of P through chemical fertilizers along with FYM showed lower seed and stover yield of mustard as compared to application of recommended dose of P via chemical fertilizers. However, the plots receiving P via RP in combination with FYM showed accrual in seed yield of mustard over sole application of RP. The oil content in seed samples of mustard varied between 38.70 to 39.30 % under the different treatments, however, effect of various sources of P on oil content in mustard seed was found non-significant.

Keywords: Indian mustard, Phosphorus, FYM, Rock phosphate, Seed, Stover, Oil content

STUDY OF BIO-MORPHOLOGICAL CHARACTERS OF GARLIC PLANT IN RELATION TO THRIPS *THRIPS TABACI* LINDEMANN POPULATION

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Abstract: The investigation on Bio-morphological characters of garlic plant in relation to thrips population was carried out at Horticulture farm, Indira Gandhi Krishi Vishwavidyalaya, Raipur during 2020-2021. From the foregoing investigation it becomes clear that among the 20 genotypes the maximum plant height was recorded in the genotypes Yamuna safed-4 (38.43cm) and minimum plant height was recorded in genotype GN-20-08 (28.32) and the correlation of thrips with plant height ($r = -0.52^*$), highest neck diameter was observed in the genotype GN-20-50 (6.65cm) whereas, the lowest neck diameter was observed in GN-20-52 (4.68cm) and the correlation of thrips with neck diameter ($r = -0.47^*$), the maximum angle between leaves was observed in the genotype GN-20-41 (17.53°) and the minimum angle observed in GN-20-52 (8.1°) and the correlation of thrips with leaf angle found (0.70**) and the maximum number of leaf/plant recorded in the genotype GN-20-43 (6.63) and the minimum number of leaf/plant observed in GN-20-62 (4.92) and the correlation of thrips with plant height ($r = -0.48^*$). Bio morphological character *i.e.*, plant height, neck diameter, leaf angle and number of leaf /plant found significant but negatively correlated.

Keywords: Bio-morphological, Garlic, Leaf angle, Neck diameter, Plant height, Thrips

EFFECT OF SOLID AND LIQUID ORGANICS ON GROWTH, YIELD AND ECONOMICS OF FINGER MILLET [*ELEUSINE CORACANA* (L.) GAERTN.] GROWN UNDER RAINFED CONDITION OF SOUTH GUJARAT

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Abstract: A field trial was conducted at Krishi Vigyan Kendra, Rajendrapur Farm, Navsari Agricultural University, Waghai to study the “Effect of organics on soil properties, yield and quality of finger millet [*Eleusine coracana* (L.) Gaertn.]” during *kharif* season of 2018 and 2019 under rainfed condition of south Gujarat. Treatments were laid out in a randomized block design (factorial concept) with three replications and compared with control recommended practice consisting of 40-20-0 NPK kg/ha. In *kharif* season, treatments were allotted to different experimental units of finger millet through solid organics (Factor - S viz., S₁: 100 % RDN through biocompost, S₂: 75 % RDN through biocompost and S₃: 50 % RDN through biocompost) and foliar application of liquid organics (Factor - L viz., L₁: Enriched Banana Psuedostem sap @ 1 %, L₂: *Jeevamrut* @ 1 %, L₃: *Vermiwash* @ 1 % and L₄: Cow Urine @ 1 %). On the basis of pooled analysis, application of 100 % RDN through biocompost was found significantly higher and at par with 75 % RDN through biocompost superior in growth studies as well as yield and yield attributing characters in *kharif* finger millet. Among the liquid organics tested, application of enriched banana psuedostem sap @ 1 % was found statistically at par with application of *jeevamrut* @ 1 % in above parameters. However, different treatments were failed to express any significant influence on test weight and harvest index.

Keywords: *Eleusine coracana*, Finger millet, Rainfed

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SEASONAL DYNAMICS OF INSECT PESTS AND NATURAL ENEMIES IN RELATION TO METEOROLOGICAL PARAMETERS ON MUSTARD

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Abstract: The present experiment was conducted at Research cum Instructional Farm at Sant Vinoba Bhave College of Agriculture and Research Station, Marra, Patan, Durg, (CG) Indira Gandhi Krishi Vishwavidyalya, Raipur, Chhattisgarh during *rabi* season 2020-21 entitled with “Seasonal dynamics of insect pests and natural enemies in relation to meteorological parameters on mustards” Results of the present investigation showed that, population of aphids attained its peak in 3rd SMW (143.86/ 10 cm apical twig) which was favoured by min. temp. of 11.7°C and max. temp. of 30.0°C with morning 83 % and evening 24 % humidity along with no rainfall. Flea beetle was recorded attained its peak level of 11.5 beetle/plant in 3rd week of January (3rd SMW). The painted bug was observed 3rd week of December and saw fly was recorded from second week December and reached its peak activity 2.5 bug/plant in the 4th week of January (4th SMW) and 1.02 adult per plant in 3rd week of January (3rd SMW). The populations of diamond back moth and leaf webber were commenced on the both insect on crop in the 2nd week of December (50th SMW) and reached to its peak 1.03 larvae per plant in 2nd week of January (2nd SMW) and 4.1 adult /plant in 3rd week of January (3rd SMW). The correlation studies indicated that mustard aphid and flea beetle was negatively correlated with sunshine hours and relative humidity (morning and evening) but only mustard aphid was significantly negative correlation with morning relative humidity. They were positively correlated with maximum temperature and rainfall while minimum temperature was positively correlated with mustard aphid and negatively correlated with flea beetle.

Keywords: Mustard aphid, Flea beetle, Painted bug, Sawfly, *C. sexmaculata*, Meteorological parameters

COMPETENCE OF EDUCATED YOUTH FOR AGRICULTURAL ENTERPRISES OF GUJARAT STATE

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Abstract: The present research pursuit was undertaken to assess competence of educated youths towards agricultural enterprises of Gujarat state. The study was conducted in 33 districts of Gujarat state. For the study 6 agricultural enterprise educated youths were identified from the lists. Simple random sampling methods was use to obtain 6 respondents from each district. So the total 198 respondents from all over district of Gujarat state were selected. It can be concluded that one half 54.55 per cent of the respondent had a high level of competency, followed by 23.23 per cent, 21.21 per cent and 1.01 per cent of them had very high, medium and low level of competency, respectively. No any respondent of them had a very low level of competency. From the above data it can be concluded that vast majority 77.78 per cent of respondent had a high to very high level of competency. This might be due to that their higher level of education, Perseverance, Insights into the market, entrepreneurial opportunities, creativity, business planning, networking, learning and independence.

Keyword: Competence, Educated youths, Agricultural enterprises

HEALTH IMPACT OF PESTICIDES USED IN VEGETABLE CROPS IN RAJASTHAN

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Abstract: This study has analyzed the trend of pesticides' use in vegetable farming in India, and its impact in public health. This study tries to find out the increasing trend of pesticides' use in vegetable farming and its optimum impact in human health that has also focused for the protection of environmental and human health. Agrochemicals used to increase agricultural productivity have also caused many negative direct and indirect impacts on human health resulting in loss of working efficiency of labour. Pesticides are the toxic chemical that are released to environment to kill, prevent, control, repel or mitigate the population of harmful pest of agricultural, domestic and industrial setting. Pesticides serve as a modifier that works as destroying pest. farmer's and family characteristics and other variables affecting health symptoms due to prolonged exposure to pesticides; medicinal history and expenditures incurred in treating the illness of farmers particularly impacts caused by use of pesticides. Farmer's awareness of the change in health condition due to greater or prolonged use of pesticide; farm outputs and prices and income from the farm. Application of pesticide protects crop yields from pest outbreaks. It benefits farmers by controlling pest damages at the costs of damaging health and overall environmental ecology. Hence, the main objective of this study is to assess social optimal level of pesticide use in vegetables production in the Rajasthan.

EFFICACY OF NEW MOLECULES FOR MANAGEMENT OF LEAF FOLDER (CNAPHALOCROSIS MEDINALIS GUENEE)

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Abstract: The study was conducted to evaluate the efficacy of different newer insecticides for controlling leaf folder in rice at Research-cum Instructional Farm of Raj Mohini Devi College of Agriculture and Research Station Ambikapur (C.G.) during *Kharif* season 2020-21. Seven different insecticides i.e Cartap hydro chloride+ Fipronil 4% + 0.5%CG, Cartap hydrochloride 50%SP, Fluvendiamite 9.35%SC, Fipronil 4% GR, Chlorantraniliprole 0.4%GR, Fipronil 5%SC, Chlorantraniliprole 18.5%SC were used compared to control viz., untreated plot . The result showed that Cartap hydro chloride+ Fipronil 4% + 0.5%CG was the most effective insecticidal treatment against the rice leaf folder for reducing leaf damage by 58.58% and for increasing yield of grain was by 66.50 % over control among all the treatments under study. Next best insecticides were Cartap hydrochloride 50%SP & and Fluvendiamite 9.35%SC in terms of reduction of yield control. Whereas on terms of yield the other insecticide which show significant increase in yield among rest are Fluvendiamite 9.35%SC and Cartap hydrochloride 50%SP, which recorded 24.48 and 23.98 grain yield respectively. The control, recorded 15.38q ha-1 grain yield.

Keyword: Leaf folder, Yield, Insecticides, Efficacy, *Kharif*

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COMPARATIVE STUDY OF MIXED WEED FLORA IN WHEAT WITH APPLICATION OF HERBICIDES AND ITS RESIDUAL EFFECT ON THE MUNGBEAN CROPS

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Abstract: The field experiment conducted at research farm, RARI, Durgapura for two consecutive years during *rabi* seasons 2013-14 and 2014-15. Results of revealed that highest weed control efficiencies of 89.4 per cent were recorded with hand weeding at harvest stage. It was closely followed by sulfosulfuran @ 25 gm a.i. /ha, clodinafop-propargyl 15 % + metsulfuran methyl 1 % @ 64 g a.i. /ha, sulfosulfuran 75 % + metsulfuran methyl 5 WG @ 32 g a.i. /ha, carfentrazone Ethyl 40 % DF @ 20 g a.i./ha, metsulfuran methyl @ 4 g a.i. / ha, 2,4-D ester @ 0.5 kg/ha and pendimethalin pre emergence treatments. N, P and K in grain and straw of wheat were significantly improved due to most of the weed control treatments over weedy check. Weed free, clodinafop propargyl 15 % + metsulfuran methyl 1 % @ 64 g a.i. /ha, sulfosulfuran 75 % + metsulfuran methyl 5 WG @ 32 g a.i. /ha and hand weeding were the superior treatments in this regarded. Further, none of the applied herbicides/mixtures in *rabi* season (wheat) had residual toxicity on effective nodules and total branches per plant of moongbean crop grown in *kharif* season.

Keywords: Herbicide mixture, Weed control efficiencies, Nutrient concentration, Effective nodule, Mungbean crop

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DETECTING PLANT LEAF DISEASES USING IMAGE PROCESSING TECHNIQUES: A SURVEY

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Abstract: Most developing countries that rely on agricultural resources, such as India and Malaysia, still employ traditional techniques which are visual inspection to detect plant leaf diseases. Image processing is relatively new, cutting-edge technology in agriculture field to detect plant leaf diseases and the most important approach is through image segmentation. It works by segmenting meaningful information from diseased plant leaf image to be analysed and it is much simpler than traditional techniques. This article covers a survey on various image segmentation techniques such as K-Means, Otsu's, Edge-based, Watershed and Region Growing. It also includes the discussion of advantages and disadvantages of each technique. Aside from that, the accuracy of segmentation achieved by each technique is also reviewed to describe their performance in detecting plant leaf diseases.

Keywords: Plant leaf diseases, Agricultural resources, Image processing, Image segmentation

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EVALUATION OF MYCOBIOTA OF SOIL FUNGI ISOLATED FROM GARDEN SOIL AND FROM SOIL CONTAMINATED WITH PAPER MILL EFFLUENTS

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Abstract: The present communication deals with a comparison of the Mycobiota of garden soil with the soil contaminated by effluents of paper industry. A lesser number of fungal isolates were obtained from soils under the impact of pulp and paper mill effluents as compared to that from normal garden soil. The Shannon's diversity index of polluted soil was also lowest than that of garden soils. *Aspergillus terreus*, *Aspergillus flavus* and *Aspergillus niger* dominated the Mycobiota of polluted soils. These species can be utilized for *in situ* bioremediation of pulp and paper mill effluents. Alternatively, their biomass may be tried for developing –biosorption- based treatment plant for the effluents. Such under the impact of these effluents had higher pH than of garden soils.

Keywords: Garden Soil, Polluted Soil, Paper and Pulp mill Effluents, Shannon's Diversity Index, Soil Fungi

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IMPACT OF SOLID AND LIQUID ORGANIC SOURCES ON CONTENT AND UPTAKE OF NUTRIENTS BY FINGER MILLET [*ELEUSINE CORACANA* (L.) GAERTN.] UNDER RAINFED CONDITION OF SOUTH GUJARAT

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Abstract: A field trial was conducted at Krishi Vigyan Kendra, Rajendrapur Farm, Navsari Agricultural University, Waghai to study the "Effect of organics on soil properties, yield and quality of finger millet [*Eleusine coracana* (L.) Gaertn.]" during *kharif* season of 2018 and 2019 under rainfed condition of south Gujarat. Treatments were laid out in a randomized block design (factorial concept) with three replications and compared with control recommended practice consisting of 40-20-0 NPK kg/ha. In *kharif* season, treatments were allotted to different experimental units of finger millet through solid organics (Factor - S *viz.*, S₁: 100 % RDN through biocompost, S₂: 75 % RDN through biocompost and S₃: 50 % RDN through biocompost) and foliar application of liquid organics (Factor - L *viz.*, L₁: Enriched Banana Pseudostem sap @ 1 %, L₂: *Jeevamrut* @ 1 %, L₃: *Vermiwash* @ 1 % and L₄: Cow Urine @ 1 %). Significantly higher nutrient content (N, P, K and Ca) in grain and straw were recorded highest in 100 % RDN through biocompost (S₁), which remained at par with the application of 75 % RDN through biocompost but phosphorus and calcium content of straw not to be found significant. Among liquid tested, application of enriched banana pseudostem sap @ 1 % showed highest value of grain and straw content over rest of liquid tested but did not show significant effect among the different treatments. In case of nutrient uptake by

grain and straw, application of 100% and 75% RDN through biocompost as well as enriched banana pseudostem sap @ 1 % and Jeevamrut @ 1% recorded best nutrient (N, P, K and Ca) uptake among different treatments under study.

Keywords: Foliar nutrition, *Eleusine coracana*, Finger millet

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SCHEDULING OF IRRIGATION IN DIFFERENT CULTIVARS OF COTTON UNDER SEMI-ARID CONDITIONS

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Abstract: Field experiments were conducted during *khariif* 2016 and 2017 at the Research Farm of the Department of Soil Science, CCS Haryana Agricultural University, Hisar, to study the seed cotton yield and water productivity (WP) of *Bt* (Bio-6588, RCH-650) and non-*Bt* (H-1098 (I) cotton cultivars under different irrigation schedules. The irrigation schedules were: first irrigation at 40 days after sowing (DAS) and subsequent irrigation based on IW/CPE of 0.60, 0.75 and 0.90. In addition, first irrigation at 50 DAS followed by subsequent irrigation at IW/CPE of 0.60, 0.75 and 0.90. Thus, a total of six irrigation schedules were kept. Irrespective of irrigation schedules, there was no significant difference in seed cotton yield of *Bt* cotton cultivars but their yields were significantly higher than the seed cotton yield of non-*Bt* cotton (H-1098 (I) during both the years. Due to frequent rains during the crop growing season, the proposed irrigation schedules could not be followed precisely, hence, no influence on the seed cotton yield of the both *Bt* and non-*Bt* cotton cultivars during both the years. Hence, irrigation scheduling based on IW/CPE considering both the time and amount of rainfall for cotton or may be for other *khariif* crops during rainy season did not found suitable/applicable for managing irrigation water efficiently.

Keywords: Cotton cultivars, Seed cotton yield, Irrigation, Water productivity

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YIELD LOSS ASSESSMENT OWING TO ALTERNARIA BLIGHT OF FENNEL AND ITS MANAGEMENT

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Abstract: An effort was made to estimate avoidable loss due to Alternaria blight. Pooled analysis of two years data revealed that maximum disease intensity (82.58 %) was recorded in inoculated control with 8.63 q/ha seed yield. Two sprays of mancozeb @ 0.25 % at 14 days interval with initiation of disease was most effective and significantly reduced disease intensity (64.43 %) over inoculated control and with 92.87 per cent increased seed yield, thus showing 48.15 per cent avoidable yield loss. Single spray of mancozeb @ 0.25 % was also able to increase seed yield by 26.41 per cent.

Keywords: Alternaria blight, Fennel, Yield, PDI

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IMPACT OF MICRO NUTRIENTS ON FLOWERING, FRUITING AND YIELD ATTRIBUTES OF TOMATO CV. HEEMSOHNA UNDER PROTECTED CONDITION

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Abstract: The experiment was carried at Agriculture Farm, School of Agricultural Sciences & Technology, RIMT University, Mandi Gobindgarh, Punjab, India. This investigation was done to study the effect of ZnSO₄ and B on growth, fruiting and yield parameters of tomato under protected structure during 2020-21. The experimental material for the study comprised of three micronutrients with three concentrations (Zn 25, 50 & 75 ppm; B 25, 50, 75 ppm) and one control. The experiment was conducted in Randomized Block Design with three replications. The Tomato variety Heemsohna was used. All the required parameters were recorded and analyzed statistically.

Keywords: Micro nutrients, ZnSO₄, B, Tomato and Heemsohna