

Journal of Plant Development Sciences

(An International Monthly Peer Reviewed Journal)

Volume 13

Number 3

March 2021

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VARIATION IN SPECIFIC GRAVITY AND VASCULAR BUNDLES IN PLANTATION GROWN *BORASSUS FLABELLIFER* L.

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Received-03.03.2021, Revised-17.03.2021, Accepted-27.03.2021

Abstract: The specific gravity and number of vascular bundles were studied from periphery to the central position of the stem and at three different heights i.e bottom, middle and top in trees of *Borassus flabellifer* L. (palmyra palm). It was observed that the specific gravity increased from the central position of the stem to the periphery and the trend was same in all three positions i.e bottom, middle and top of the stem. The frequency of the vascular bundles was higher near the periphery than the central position. The number of vascular bundles increased from bottom to the top of the stem and the specific gravity also increased from bottom to top of the stem near the peripheral position.

Keywords: Anatomy, *Borassus flabellifer*, Palmyra palm, Specific gravity, Vascular bundles

PERCEPTION AND ACCEPTANCE OF INFORMATION TECHNOLOGY (IT) ENABLED FARM ADVISORY SERVICE BY FARMERS OF NAVALGUND TALUKA OF KARNATAKA

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Received-02.03.2021, Revised-14.03.2021, Accepted-25.03.2021

Abstract: The research study was conducted in Navalgund taluka of Dharwad district of Karnataka State during the year 2018-19 to know the perception and acceptance of IT enabled farm advisory service by farmers. Exploratory research design was used to conduct the study. Four hundred farmers from eight Gram Panchayats of Navalgund taluka who were beneficiaries of information technology (IT) enabled farm advisory services were the respondents of the study. The data was collected through a semi structured interview schedule. A scale was developed to measure the perception and acceptance of information technology (IT) enabled farm advisory services. The results revealed that 43.25 per cent of the farmers fell in the category of medium perception, 40.50 per cent of the respondents fell in the category of high perception and only 16.25 per cent of the respondents were in low category of perception about information technology enabled farm advisory services. Out of the 11 dimensions studied six dimensions had an index more than 70.00 per cent i.e., field applicability (83.35 %), accuracy (78.45 %), comprehensiveness of content (75.13 %), presentation of audio- visual content (72.43 %), solution for pest and disease (71.01 %) and agricultural input selection (70.58 %). On the contrary speed had perception index of only 39.36 per cent. Other four dimensions ranged between 40-60 per cent i.e., follow up support/ assistance (59.10 %), user friendly device (55.06 %), timeliness (48.71 %) and market assistance (44.50 %). The overall perception index was 63.43 per cent. With respect to distribution of farmers according to different dimensions of perception and acceptance.

Keywords: Perception & acceptance, Information technology, Enabled farm advisory services, Farmers

EFFECT OF BUND PLANTED EUCALYPTUS ON THE YIELD OF AGRICULTURAL CROPS AND SOIL PROPERTIES IN SEMI ARID REGION OF HARYANA

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Received-01.03.2021, Revised-12.03.2021, Accepted-23.03.2021

Abstract: The study was conducted in 2 year old east-west and north-south directions bund plantation at CCS HAU, Hisar during 2016-2017 to evaluate the effect of Eucalyptus tereticornis bund planting on the yield of agricultural crops and soil properties in Haryana. Total biomass yield of dhaincha was recorded non significant at different distance from tree line of both east-west and north-south planted rows of eucalypts. Different aspects also had no significant effect on total biomass yield of dhaincha. Same pattern of grain yield of barley was recorded in both east-west and north-south planted eucalypts. Eucalyptus planted in east-west direction has attained 7.3 cm girth and 6.9 m height whereas in north-south direction it has attained girth of 4.5 cm and height of 5.1 m. The soil organic carbon and available N, P and K content were recorded maximum in bund planted Eucalyptus compared to control in different aspects.

Keywords: Agricultural crops, Effect, Eucalyptus, Soil

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EFFICACY OF FUNGICIDES, PLANT EXTRACTS AND BIO-AGENTS AGAINST STEM ROT OF CORIANDER INCITED BY *SCLEROTINIA SCLEROTIUM*

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Received-06.03.2021, Revised-16.03.2021, Accepted-25.03.2021

Abstract: Coriander (*Coriandrum sativum* L.) an important annual herb used extensively all over the world. In India, it is intensively cultivated in the almost all the states of the country but Rajasthan, Madhya Pradesh, Andhra Pradesh, Tamil Nadu, Orissa, Uttar Pradesh and Uttarakhand are the major coriander growing states. Stem rot is an major destructive soil borne disease of coriander incited by *S. sclerotiorum*. The aim of the present study, *S. Sclerotiorum* causal organism of stem rot coriander has been the integrated management strategies through different concentrations of fungicides, plant extracts and bio-agents in *In vitro* and *In vivo* during *Rabi* season 2015-16. The results revealed that, the *Trichoderma viride* showed highest mycelial inhibition zone of the pathogen followed by *T. harzianum*. Seed + soil application of *T. viride* was most effective in reducing disease intensity under field conditions. Garlic clove extract was found most effective in inhibiting mycelial growth followed by safeda leaf extract. Among the plant extracts studied garlic clove extract was found most effective in reducing the disease intensity followed by eucalyptus leaf extract. Among the fungicides carbendazim and carbendazim + mancozeb inhibited mycelial growth completely at all concentrations. Fungicides were used as seed application, foliar application and seed-cum-foliar application against stem rot of coriander. Carbendazim was found most effective in reducing the disease intensity followed by carbendazim + mancozeb.

Keywords: Bio agent, Coriander, Fungicide, Plant extracts, Stem rot

INDIGENOUS VALUE ADDITION DONE BY FOREST DWELLERS AND TRIBES AND CONSTRAINTS FACED IN COLLECTION OF WILD FRUITS AND VEGETABLES

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Received-02.03.2021, Revised-15.03.2021, Accepted-26.03.2021

Abstract: India is bestowed with rich forests. The Western Ghats form one of the 25 mega biodiversity hotspots of the world with abundant flora and fauna and major part of the natural forest area in Karnataka in Western Ghats region. A study was undertaken in eight villages of Sirsi, Siddapur, Dharwad and Khanapur talukas of Northern transition zone and Hill zone of Karnataka which come under the jurisdiction of University of Agricultural Sciences, Dharwad to know the indigenous value addition done by forest dwellers and tribes to wild fruits and vegetables and constraints faced by them. The results revealed that the major wild fruits consumed and processed in the selected villages obtained from adjacent forests were by Kokum by 100 percent of the respondents in Sirsi and Siddapur Taluka, and only 20 percent of the respondents used Kokam in Dharwad taluka and 40 percent in Khanapur taluka. Uppage, was used and processed by almost all households in Sirsi and Siddapur taluka but was not found in Dharwad and Khanapur taluka. The other fruits that were consumed were pomello, breadfruit, monkey jack, indian hog plum, jamun, lemon, baelfruit, starfruit, sampige hannu, karonda, nurukulu, sale hannu, ranjala hannu, halage hannu, mullannu. The major wild vegetables consumed and processed in the adjacent forests of selected villages were Madras cucumber (moggekai), Colocasia leaves (kesuvina soppu), Colocasia root (kesuvina gadde), Spine gourd (madhagal), Chilli pepper (gokarna menasinakai), chakramuni soppu, insulin soppu, yalgurga, kardisoppu, ondelaga, anne soppu. The major indigenous value addition done was the fruits were preserved in the form of jams, syrups, juices, butter, powder, pappad etc by eighty percent of the respondents. The major constraint faced by almost all the respondents was seasonality and year round non availability.

Keywords: Forest dwellers, Wild Fruits, Indigenous, Wild Vegetables

FORAGING BEHAVIOR OF STINGLESS BEE, *TETRAGONULA IRIDIPENNIS* SMITH 1854 (HYMENOPTERA: APIDAE-MELIPONINI) ON RADISH FLOWERS

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Received-25.02.2021, Revised-10.03.2021, Accepted-24.03.2021

Abstract: During first week of February 2020 at 8.00AM (0.40 bees/5min/m²) and reached its peak at 12.00Noon (7.00 bees/5min/m²) however, its population was decreased at 4.00PM (4.20 bees/5min/m²) and the overall average population was recorded 3.84 bees/5min/m². During the second week of observation minimum population was noticed at 8.00AM (0.20 bees/5min/m²) and reached its peak at 2.00PM (7.20 bees/5min/m²) and after that its population was decreased at 4.00PM (3.00 bees/5min/m²). During the third week of observation lower population was recorded at 8.00AM (0.60 bees/5min/m²) and its peak population was recorded at 12.00Noon (13.00 bees/5min/m²) followed by at 2.00PM (11.20 bees/5min/m²) however, low population was noticed at 4.00PM (5.00 bees/5min/m²). During the fourth week of observation lowest population was recorded at 8.00AM (2.00 bees/5min/m²). The maximum population was found at 12.00Noon (14.20 bees/5min/m²) followed by at 4.00PM (6.20 bees/5min/m²). During the first week of March low population was recorded at 8.00AM (1.80 bees/5min/m²). The highest population was recorded at 12.00Noon (15.60 bees/5min/m²) followed by at 2.00PM (13.20 bees/5min/m²) and decreased at 4.00PM (6.40 bees/5min/m²). However, during the second week of observation maximum population was recorded at 12.00Noon (7.80 bees/5min/m²) followed by at 2.00PM (6.20 bees/5min/m²) and decreased at 4.00PM (4.60 bees/5min/m²) however, the lowest population was recorded at 8.00AM (2.00 bees/5min/m²).

Keywords: Foraging behavior, Radish flower, Stingless bee, *Tetragonula iridipennis*

EFFECT OF HYDROGEL AND FOLIAR SPRAY OF SALICYLIC ACID ON PRODUCTIVITY AND PROFITABILITY OF TARAMIRA

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Received-04.03.2021, Revised-13.03.2021, Accepted-28.03.2021

Abstract: A field experiment was conducted at Agronomy Farm, S.K.N. College of Agriculture, Jobner during *rabi* season of 2019-20 to evaluate the effect of hydrogel and salicylic acid on productivity and profitability of taramira under semi-arid conditions of Rajasthan. The experiment consisting of 9 treatment combinations, viz. T₁:control, T₂:hydrogel 2.5 kg/ha, T₃: hydrogel 5.0 kg/ha, T₄: salicylic acid (SA) 75 ppm at flowering (fl.) and siliqua formation (sf.), T₅:SA 100 ppm at fl and sf, T₆:hydrogel 2.5 kg/ha + SA 75 ppm at fl. and sf., T₇:hydrogel 2.5 kg/ha + SA 100 ppm at fl. and sf., T₈:hydrogel 5.0 kg/ha + SA 75 ppm at fl. and sf., T₉: hydrogel 5.0 kg/ha + SA 100 ppm at fl. and sf. were laid out in randomized block design with three replications. Results revealed that application of hydrogel 5.0 kg/ha with two spray of salicylic acid 100 ppm at flowering and siliqua formation stages recorded maximum plant height (113.10 cm), primary (7.63) and secondary (12.80) branches, siliqua/plant (133.20), seeds/siliqua (19.47), test weight (3.97g), seed yield (12.39 q/ha), gross return (₹ 47082/ha) and net return (₹ 29202 /ha) among all the treatments. However, this treatment was found statistically at par with hydrogel 5.0 kg/ha + salicylic acid 75 ppm at flowering & siliqua formation stages. Further, treatment T₂, T₃, T₄, T₅, T₆ and T₇ also recorded significantly higher growth and yield parameters over control. Thus, application of hydrogel 5.0 kg/ha with two spray of salicylic acid either 100 ppm or 75 ppm at flowering and siliqua formation stages was found beneficial for obtaining higher seed yield as well as net returns of taramira.

Keywords: Hydrogel, Productivity, Salicylic acid, Siliqua, Taramira

ARDUINO-BASED AUTOMATED IRRIGATION SYSTEM

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Received-06.03.2021, Revised-16.03.2021, Accepted-26.03.2021

Abstract: In India, the vast majority of the population lives in villages and relies on agricultural farming for a living. These days, designing or farm watering exercises are the most common social activity and the most time-consuming mission. Whatever the weather conditions are, whether hot, dry, shady, or wet, you must be able to regulate the amount of water that reaches your plants. Watering systems that are currently in use could be used to efficiently water plants when they are in need. Nonetheless, this manual watering system necessitates the consideration of two major factors: when and how much water. A programmed automated irrigation system is created to replace manual tasks and make work easier. It makes use of the production to determine the dampness level of the soil and water the plant naturally when no dampness is detected in the dirt. This device can be used on large agricultural farms as well.

Keywords: Arduino Uno, Bluetooth, Irrigation, Soil Moisture Sensor, Relay

ASSESSMENT OF CORRELATION AND PATH COEFFICIENT ANALYSIS FOR SEED YIELD AND IT'S CONTRIBUTING TRAITS IN GROUNDNUT (*ARACHIS HYPOGAEA* L.)

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Received-07.03.2021, Revised-18.03.2021, Accepted-29.03.2021

Abstract: Present investigation was carried out to examine the correlation and path analysis for seed yield and its contributing traits in 112 bunch genotypes along with 4 checks of groundnut. The result of character association revealed that dry pod yield per plant was positively and significantly correlated at both genotypic as well as phenotypic level with number of branches per plant ($r_g=0.19^*$, $r_p=0.19^*$), 100-kernel weight ($r_g=0.19^*$, $r_p=0.19^{**}$), harvesting index ($r_g=0.80^{**}$, $r_p=0.78^{**}$) and oil content ($r_g=0.20^*$, $r_p=0.20^*$) proving that grain yield could be enhanced by selecting genotypes containing higher values for these attributes. Path coefficient analysis for dry pod yield per plant was carried out at genotypic level using thirteen characters. Out of these thirteen characters Initiation of pegging, number of branches per plant, 100-kernel weight, harvesting index and oil content exhibited positive significant association with dry pod yield per plant. These characters also exhibited prominent role as indirect effects of most component traits on seed yield per plant hence these traits should be considered as an essential selection criteria toward optimizing crop yield.

Keywords: Groundnut, Correlation, Path Coefficient

GENETIC VARIABILITY ANALYSIS FOR AGRONOMICAL AND PRODUCTIVITY TRAITS IN INTROGRESSION POPULATION BETWEEN CULTIVATED AND SYNTHETIC AMPHIDIPOIDS INGROUNDNUT (*ARACHIS HYPOGAEA* L.)

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Received-08.03.2021, Revised-17.03.2021, Accepted-28.03.2021

Abstract: Introgression line (IL) population DH 86 × ISATGR 278-18 was developed by crossing cultivated variety of groundnut viz., DH86 with the synthetic amphidiiploids (ISATGR 278-18) and backcrossing twice with the recurrent parents to generate 51 BC₂F₄ ILs. Field evaluation of the ILs during *kharif* 2011 and *kharif* 2012 showed considerable variability and heritability for most of the agronomic and productivity traits. ILs showed normal distribution agronomic and productivity traits. Most of the agronomic and productivity traits were positively correlated. Thus, indicating importance of these traits for enhancing the productivity in the populations.

Keywords: Agronomic traits, *Kharif*, Backcrossing, Synthetic amphidiiploids