

HICAST RESEARCH ABSTRACTS, 2022, vol 11

ISSN 2091-0436
e-ISSN 2091-0444

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VOLUME 11, 2022



**Himalayan College of Agricultural Sciences and Technology
(HICAST)
Purbanchal University affiliate
Kalanki, Kirtipur-1, Kathmandu**

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ISSN 2091-0436

ISSN 2091-0444

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HICAST RESEARCH ABSTRACTS
(ISSN 2091-0436; e-ISSN 2091-0444)
2022, VOLUME 11

Founder and Editor-in-Chief

Dr Binayak P. Rajbhandari, Ph.D.

Editors

Dr Upendra Man Singh, PhD

Dr Raj Kumar Adhikari, PhD

Dr Bishnu P Bhattarai, PhD

Computer Assistant

Ms. Asmita Tamang

Price NRs. 150/-

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Published by

Directorate of Research and Training (DoRT)

Himalayan College of Agricultural Sciences and Technology

P.O Box 25535 Kalanki, Kirtipur-1, Kathmandu, Nepal

Email: www.hicast.edu.np

FOREWORD

Himalayan College of Agricultural Sciences and Technology (HICAST) has been conducting academic programs in affiliation with Purbanchal University since 2000. Both the bachelor and master degree students must conduct field- and/or laboratory-based research, write and submit theses based on research findings as a partial requirement for obtaining the degree the student is enrolled to. Without being properly and timely published, these research findings cannot reach to a wider readership, and continue to remain as decorative materials in the bookshelves of the library. Realizing the importance of widely sharing at least the abstracts of those researches, an attempt was initiated by us to publish the thesis research abstracts annually.

I would like to acknowledge all the organizations (GOs, I / NGOs, and Private Organizations) and HICAST for providing financial as well as other support to the intern students for conducting these researches in various parts of the country. I would also like to thank all graduates of HICAST who sincerely and successfully accomplished their research responsibilities. I also acknowledge all the faculties and scientists who supervised HICAST students to conduct these researches.

This volume consists of abstracts of 65 researches conducted in various parts on Nepal. This publication will be useful for the students, researchers, teachers, policymakers, and development workers. It is the publication that each student of agriculture and veterinary science should possess and read.



Binayak Prasad Rajbhandari, Ph.D.
Executive Chairperson

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FARMERS' OPINION ON COST AND BENEFIT OF AGRICULTURE INSURANCE: CASE OF BANANA FARMERS IN CHITWAN DISTRICT

Aakanshya Ghimire

ABSTRACT

The research aimed at assessing the farmer's opinion on cost and benefit of banana insurance. Banana is one of the major fruit crops in Nepal and agricultural insurance is regarded as one of the best measures to secure farmers against farming risks. This research thus sought out to understand the insured farmers' opinion. Chitwan was chosen as the site to survey the farmers as the district has high number of insured banana farmers. A set questionnaire survey was used to interview the farmers, and the summary of the results were assessed along with a regression analysis to examine relationship between farmers' satisfaction and their characteristics. In total 50 insured banana farmers were surveyed selected through purposive sampling. Although, only a moderately positive relationship between farmers' satisfaction on the insurance and their characteristics was found, most of the farmers generally find insurance beneficial. None of the respondents however agreed on high satisfaction with the insurance and many pointed to its issues such as delayed payment of the claim and stress due to premium amount. The research significance lies in finding out the perspectives of farmers that are already insured and seek the potential issues that can be addressed by policy or the industry to improve the usage of insurance in agriculture, particularly of banana farming, in Nepal.

Key words: Agriculture insurance, banana insurance, willingness, benefit of insurance.

ROLE OF FORMAL FINANCING TO THE FARMERS AT KAVREPALANCHWOK DISTRICT, NEPAL

Akanksha Gautam

ABSTRACT

The present study entitled was carried out within 3 wards of the Panchkhaal municipality. A sample of 60 farmers were randomly selected for the study. Data were collected through survey method using semi- structured questionnaire. The study showed that agriculture

was the main occupation of the farmers of Panchkhaal. From the study it was found that the formal financing through banks and financial institution farmers could improve and increase their agriculture production for income generation. Farmers with various forms of formal financial access were found to have better socio-economic position than farmers with only informal financial access. Farmers from different areas still lack proper and unbiased access to formal credit services and prefer to rely on the informal sources. When comparing men and women's participation in potato farming and financial activities, it was found that males participated at a higher proportion than women. The study showed that after formal financing, farmers could improve and increase their agriculture production and their farm income generation. The main problems related to formal financing was found to be lengthy documentation process.

Key words: Finance, socio-economic condition, agri-production, problems

SOCIO-ECONOMIC ANALYSIS OF GINGER GROWERS FOR ENHANCING LIVELIHOOD AT BAGNASKALI MUNICIPALITY IN PALPA DISTRICT OF NEPAL

Akriti Pandey

ABSTRACT

Present study entitled 'Socio Economic Analysis of Ginger Growers for Enhancing Livelihood in Palpa District of Nepal' was conducted in 2022 at Bagnaskali Municipality (Khanigau, Barangadi, Chapani and Kamere) in Palpa District. The objective of the study was to analyze the socio-economic status of ginger growers in selected area Altogether 100 respondents were selected for fulfillment of objectives of the study Field survey was carried out by use the semi structured questionnaires. According to the field survey, Nase and Bose varieties were used by the growers in selected area. The growers were attracted to ginger cultivation because it requires low investment, low care and maintenance than other crops but provided high net return. Result showed that, the average B:C ratio was 1.26. Major problems faced by ginger growers were price fluctuation, Transportation and road, Disease and pest, Ginger crop was found to be a good source of income for the small land holders as well as in commercial scale producers.

Key words: Socio-economic condition, ginger, livelihood, problems, price fluctuation

DETERMINATION OF EFFICACY OF DIFFERENT NOVEL PESTICIDES AGAINST POTATO TUBER MOTH (*PHTHORIMAEA OPERCULELLA ZELLER*) IN LABORATORY IN STORAGE SEED POTATO

Akshyama Aryal

ABSTRACT

An experiment on "Determination of the efficacy of novel pesticides against potato tuber moth (*Phthorimaea operculella* Zellar) in laboratory condition on seed potato" was carried out in Laboratory of Entomology Division, NARC, Khumaltar, Lalitpur from 20th April 2022 to 20th August with an objective to determine the efficacy of novel pesticides used control against potato tuber moth. Bioassays were used to determine the effect of pesticides selected at different concentration. Mass rearing of potato tuber moth was conducted, the temperature and humidity was also noted in the laboratory (+27°C) and +70%. The different biological features and the damage index of potato tubers have been evaluated and found to be highest on *Bacillus thuringiensis*, the highest mortality% was studied, and the live population and adult emergence was reported highest at the mid time of the trails. The study revealed the effectiveness of the pesticides against potato tuber moth, three pesticides Chlorantraniliprole, Spinosad and *Bacillus thuringiensis* have higher efficacy than Bojho and the mortality rate was Chloraniraniliprole (100%). Spinosad (85%), *Bacillus thuringiensis* (70%) whereas, the lowest mortality rate in treatment Bojho (60%). High Infestation was also seen in Bojho as compared to other three pesticides. All the novel pesticides used were found to be effective against the pest in reducing the population in laboratory conditions; however, their effectiveness was directly proportional to the concentration and exposure periods. The study has demonstrated the possibility of using novel compounds against potato tuber moth in storage condition potato.

Key words: Bojho (*Acorus calamus*), Chlorantraniliprole, *Bacillus thuringiensis*, Spinosad, novel compounds

EFFECTS OF PRECEDING SEASON NUTRIENT ENRICHED WEED BASED BIOCHAR ON RESIDUAL SOIL CHEMICAL PROPERTIES AND SUCCEEDING ONION PRODUCTION

Alina Poudel

ABSTRACT

A field experiment was conducted to examine the residual effects of previously applied weed-based biochar at Katunje, Suryabinayak, on soil chemical properties and crop yield of onion. The experiment consisted of 4 replications and 6 treatments designed in RCBD experimental layout. The first-year trial was conducted from 19th of December to 29th April, 2021, and the second-year trial was conducted from 5th December to 30 of April 2022. The six treatments were: control (T1), RDF (T2), ½ RDF+ 30 t/ha Biochar (T3), RDF+ 30 t/ha, Biochar (T4), Vermicompost (251/ha) + 30 t/ha Biochar (T5) and cattle urine (13.31/ha) + 30 t/ha Biochar (T6). On succeeding year, equal recommended doses of chemical fertilizers and 3kg FYM was incorporated in the field. Soil chemical parameters like soil pH, N, Pos, K₂O, organic matter were determined and yield attributes and onion bulb yield were recorded and analyzed. The biomass was higher in the treatment T2 whereas vermi-compost enriched biochar plot (T5) had maximum bulb diameter (6.12cm) and bulb weight (3.12kg/plot). There was significant increase of soil pH (5.84) in T5. Compared to previous year, soil pH increased from 4.77 to 5.94 whereas soil N, P₂O₅, K₂O and organic matter increased by 72%, 125%, 73.24% and 5.84% respectively. On compare, effect of preceding and succeeding year, pH and organic matter both increased significantly in treatments T2, T3, and T4. The pH increased significantly with treatment of vermi-compost enriched biochar (T5) on both the year while organic matter decreased significantly with treatment. It was concluded that nutrient enriched weed-based biochar application significantly increased the yield of onion bulb and the residual soil chemical properties even in the second year.

Key words: Weed based biochar, residual effect, soil chemical properties, onion production

MANAGEMENT OF CHINESE CITRUS FLY, BRACROCERA MINAX (ENDERLEIN) (DIPTERA: TEPHRITIDAE) IN KATHMANDU, NEPAL

Ashmit Thapa

ABSTRACT

The research on management of Chinese citrus fly (*Bactrocera minax*) was conducted at a citrus orchard in Chhahari Retreat, Kathmandu (3rd May, 2022 till 19th July, 2022). The citrus orchard at Chhahari Retreat, Kathmandu planted four types of citrus fruits namely: mandarin, sweet Oranges, lemon, pumelo. The average pupal length and breadth was recorded 7.98 ± 0.22 mm and 3.81 ± 0.13 mm respectively. The average length and breadth of adult fly was recorded 8.20 ± 1.00 and 4.5 ± 0.00 , respectively. Lethal protein bait having 25% protein hydrolysate and 0.1% abamectin were used in spot application (one spot among 3 productive citrus trees) in weekly interval for 12 weeks. The average citrus fruit loss (%) due to Chinese citrus fly in 2021 at Chhahari Retreat, Kathmandu was 86.80%. From this study, we found out that Chinese citrus fly has become a serious pest in citrus fruits in Nepal and we should give some serious thought to its management to increase citrus fruit production. AWCP (Area-wide control program) is used in the management of Chinese citrus fly by maintaining sanitation and spot application of Protein bait.

Key words: Chinese citrus fly, protein bait, area-wide control program

STUDY OF PRESENT STATUS OF COMMONLY USED CHEMICAL PESTICIDES IN THE CONTEXT OF KATHMANDU VALLEY

Anita Acharya

ABSTRACT

There are several factors affecting crop productivity such as sowing time, fertilizers, irrigation, crop varieties, and pests. However, the attack of pests can reduce crop production quite significantly. This can be overcome by using pesticides. The field study entitled "Study of the present status of commonly used pesticides in the context of Kathmandu valley" was carried out in three different districts of

Kathmandu valley namely Kathmandu, Lalitpur, and Bhaktapur from January to February 2022. The survey revealed that most of the respondents were male and found in the age group of 30-60 years. Most of the farmers had a secondary level of education and agriculture was their main occupation. Most were found to be using insecticides such as Chloropyrifos+ Cypermethrin, Flonicamid, and Dimethoate. The most used fungicides by the respondents were Carbendazim + Mancozeb, Dimethomorph, and Metalaxyl + Mancozeb. Only few farmers had knowledge about the banned pesticides. Some even claimed that they still use such banned pesticides despite knowing the fact that they are super toxic and harmful because such pesticides produce high yield for the farmers. Upon surveying, it was found that most of the farmers used PPE (Personal Protective Equipment) while spraying the pesticides but only a few used the recommended and proper PPE gear such as mask, gloves, boots, and goggles. The quality of the soil also gets degraded over time and non-targets also get seriously affected if such toxic pesticides are used for a long period of time. To solve such complications that arise due to the use of chemical pesticides some effective measures can be adopted such as proper training to the farmers about the use of such pesticides, replacement of chemical fertilizers with biological replacements and cultural methods with integrated approach and use of chemicals as last resort.

Key words: Chemical pesticides. knowledge, productivity, safety

A STUDY ON ECONOMICS OF VALUE-ADDED DAIRY PRODUCTS IN ILAM DISTRICT

Anjila Dhakal

ABSTRACT

A study on the economies of value-added dairy products in Ham district was conducted in Ilam municipality, Dumai municipality and Phakphokthum rural municipality of Ilam district from April to August 2022 using research tools such as questionnaire, interview schedule, key informant discussion, direct observation, and review of literatures. The study focused on finding the cost and return of value-added dairy products and also profit from it. For this purpose, 50 dairy processors (19 from Ilam municipality, 17 from Deumai municipality and 14 from Phakphokthum rural municipality) were selected using a simple random technique. From the study, it was found that the average cost of production of ghee and *chhurpi* was Nrs.689.81 per kg. Likewise, the

average gross return was Nr.875 per kg and the net profit from a business was NR. 185.19 per kg. In addition, the benefit- cost ratio was 1.26. In the marketing system, the channel of producer- wholesaler-retailer- consumer was most common. Effect of climate on quality of product, poor quality of raw milk, price fluctuation in the market, seasonal fluctuation in availability of milk, and lack of storage, were found as some of the dairy production and marketing problems in study area. The research showed that value-added dairy products are a profitable and potential agricultural enterprise in the study area. Also, SWOT analysis was carried out, constraints were identified and interventions were proposed.

Key words: Dairy products, value addition, enterprise, constraints, climatic effects

EVALUATION OF SUITABLE CONCENTRATION OF MICRONUTRIENTS FOR PRIMING IN MAJOR CEREAL CROPS

Ashni Lama

ABSTRACT

Ferti-fortification is simple way that is based on bio-fortification. Micronutrient deficiency is widespread not only in Nepal but also in whole South East Asia. To supplement required micronutrients through priming, an experiment was conducted to study the effect of Ferti-fortification of major cereals crop (Rice, Wheat and Maize) at different concentrations of Zn, B and Mo. This study could be used as the basis for recommendation as well as further research on identification of tolerance threshold of employed concentrations of Zn, B and Mo for these tested crops. The seeds were primed in 0.05% (T2), 1% (T3), 3% (T4), and 5% (TS) of ZnSO₄, HBO₃ and Na MoO₄ including Hydro-priming i.e. 0% (TI) respectively for 12 hours through following standard protocol. An experiment was conducted in the Laboratory of National Seed Science Technology Research Center (NSSTRC), NARC, Khumaltar, Lalitpur. The research was conducted in germinator chamber at 25°C for Rice, 30°C for maize and 20°C for wheat crop and more than 90% relative humidity for consecutive days. An experiment was laid out in one factor completely randomized design with 5 treatments and 4replications. The data were noted on a daily basis for 14 days. In this experiment, the results revealed that tested crop seeds performed well in terms of germination percentage and mean

germination time at 0.05% concentration of ZnSO₄. HBO₃ and NaMoO₄. Seed priming with ZnSO₄, and HBO₃ up to 5% concentration showed goo tolerance on studied parameters whereas in case of seed priming with NaMoO₄, could tolerate up to 1% concentration only. The study was limited to laboratory te and limited concentration of ZnSO₄, HBO₃ and NaMoO₄. Therefore, further test lower concentration of ZnSO₄, HBO₃ and NaMoO₄ and a field trial is recommended.

Key words: Bio-fortification, seed priming, micronutrients

***Tuta absoluta* : COMPARATIVE ANALYSIS OF ITS INFESTATION IN PLASTIC TUNNEL AND OPEN FIELD CONDITIONS IN DANG DISTRICT**

Bhagawati Bahakari

ABSTRACT

Tomato is the world's 3rd largest vegetable crop regarding both income and nutrition which is attacked by different disease and pests which lowers the quality and quantity of tomato. A household survey on "Tuta absoluta: comparative analysis of its infestation in plastic tunnel and open field and its management practices in Dang district" was carried out among 70 respondents including 60 households (30 tunnel farming, 30 open field farming) and 10 agrovets in Dang district by purposive random sampling method. The study revealed that the active participation in farming was found from age group 18-40 years where 60% were male and remaining 40% were female. About 68% were involved in farming respondents as primary occupation. 35% of the respondents were found untrained about Tuta absoluta. It was found that there was variation in adoption of pest management technique of Dang district. Demand of chemical pesticides is high from the open field farmers than the farmers having tunnel for tomato cultivation but the frequency of tunnel farmers is low. From the study, about 28% were found to be using bio-pesticide whereas, 17% were using yellow sticky trap and 15% were found to be using lures for Tuta absoluta control followed by chemical pesticide and other respondents were using only chemical pesticides to control it. The reason behind the low rate of using bio-pesticides are lack of knowledge about the IPM approaches and negative impact of chemical pesticide in human health. Lack of coordination and link between farmers and agro extension agents also results the failure to control Tuta absoluta infestation in best way. Low number of tunnel farmers is due to lack of knowledge about

microclimate modification by using hi-tech tunnels for better quality and quantity. High cost of preparation of tunnel is another reason behind low number of tunnel farmers in Dang district.

Key words: Analysis, IPM, bio-pesticides, *Tuta absoluta*, chemical pesticides

STATUS OF BIOFERTILIZERS AND BIOPESTICIDES IN KATHMANDU VALLEY AND THEIR USES IN DISEASE MANAGEMENT

Bijay Budha

ABSTRACT

A study on "Status of biofertilizers and biopesticides in Kathmandu valley and its use in disease management" was conducted in all three districts of Kathmandu valley (Bhaktapur, Kathmandu, and Lalitpur) from April to June 2022. 36 Agrovets were randomly selected for the study. The main objective of the study was to understand the present status of biofertilizers and biopesticides in Kathmandu valley along with the production practices, marketing and their use in disease management. Producers are satisfied with the production level. They have to overcome the issues of storage and transportation for most of the time. At the same time, there is no insurance system or minimum support price (MSP) by government. The lack of knowledge about the organic farming have been the reason of less demand of biofertilizers and biopesticides by farmers. Commission agent is regarded as serious marketing problem in the study site. Marketing by skilled manpower with the information and skilled technology is the need.

Key words: Biofertilizers, biopesticides, organic farming

EFFECT OF NEPALESE BACILLUS SPP. IN SUPPRESSION OF *Sclerotinia sclerotium* IN CABBAGE UNDER LABORATORY CONDITION

Bijaya Gautam

ABSTRACT

The study was conducted to explore the efficacy of bio-control agents against *S. sclerotinia* by dual culture technique in Potato Dextrose Agar media. This experiment was conducted at Plant Pathology Division,

NARC, Khumaltar. The treatments used for dual culture were 30 different isolates of *Bacillus* species along with one control. Thirty different treatments of BCAS with 3 replications and two replications of control were used in the experiment. The design of experiment was Completely Randomized Design (CRD). Maximum inhibition percentage of radial mycelial growth of fungus against *S. sclerotinia* was shown by *Bacillus* spp. D22 (88%), followed by D27 (70.67%). The most area under mycelium growth rate was shown by treatments RI followed by RJ-5, 26 *Bacillus* and RT-3. The least area under mycelial growth rates (AUMGR) was shown by bacillus D27. Maximum growth of fungus was shown in treatments 26 bacillus (5 cm). RT-3 (5cm), 21 bacilli (4.5cm), D30A (4.5 cm) and RJ-6 (4.5cm). The bio-control agents that are found effective for the inhibition of mycelial growth of *S. sclerotinia* in this study should be further tested in the field conditions in order to verify their efficacy.

Key words: *S. sclerotinia*, BCA, dual culture, CRD

FARMERS' PERCEPTION AND FARM LEVEL MANAGEMENT PRACTICES OF FALL ARMYWORM (*Spodoptera frugiperda*, J.E. SMITH) IN DHADING DISTRICT OF NEPAL

Bijay Tripathi

ABSTRACT

The study entitled "Farmers Perception of Fall Armyworm (*Spodoptera Frugiperda* (JE Smith) and Farm level management Practices in Dhading district of Nepal" was carried out in Benighat Rorang Rural Municipality, Tripurasundari Rural Municipality, and Dhunibesi Municipality in Dhading from June to September, 2022 A total of 100 households were interviewed for the research study. The main objective of the study was to understand about the farmers' perception and practices for management of Fall Armyworm in the study area. The study results found most of the farmers could identify FAW with its prevalence seen since last four years. FAW usually attacks the maize plant at knee height stage, Tasseling stage and Seedling stage. 89 of the respondents had encountered FAW in the field this year. The incidence of the pest in field was moderate for majority of the farmers. Farmers have been using chemical pesticides to control the pest rather than other alternatives like bio-pesticides, parasitoids and other IPM techniques. Primarily the use of pesticide having chemical composition Emamectin

Benzoate 5% SG under trade names like Cobra, Ema Star King Star, etc. was found popular to use by farmers for the management of this pest. The results study revealed that none of the farmers had taken any training related to FAW and they relied upon only the local agrovet for the recommendation of the pesticides. The source of the information of farmers about FAW was found out to be agrovet, media and neighbors. Technical people working in the field have not been able to tell the farmers about the FAW and its control measures. The average yield loss was found 0.32 tons/hectares tons/hector and average loss acquired by farmers was found to be Rs14,728 per hector. This is a huge amount keeping in mind that production of maize is not that high and the rate of maize is also found to be comparatively low of Rs.45 per kilogram.

Key words: Maize, fall armyworm, integrated pest management, chemical pesticides, biopesticides

PROSPECTS OF ORGANIC FERTILIZER MANUFACTURING COMPANIES IN NEPAL

Bikash Tamang

ABSTRACT

Unavailability of fertilizers on time is the major problem of our country and the requirement of fertilizer can be supplemented by establishing the organic fertilizer production plant using the locally available raw materials. This study focuses on prospects of organic fertilizer manufacturing companies in Nepal. A survey was conducted on the corporate offices of various organic fertilizer manufacturing companies located in the Kathmandu valley by preparing a questionnaire. Since, there are less number of organic fertilizer manufacturing companies in Nepal, survey was conducted on altogether ten manufacturing companies. Excel was used to analyze the collected primary and secondary data. The study revealed that existing organic fertilizer manufacturing companies are preparing quality fertilizers that meet the quality standard set by the Government of Nepal (MOALD) in terms of nutrients (NPK). It is also evident that these companies are making handsome profit out of organic fertilizer production which indicates its sustainability.

Key words: Organic fertilizer production plant, prospects, profit

EFFECT OF *TRICHODERMA SPP.* AND *BACILLUS SPP.* IN SUPPRESSION OF *RHIZOCTONIA* ROOT ROT IN BEAN

BINU RAI

ABSTRACT

In recent years, biological control has become a promising and ecologically friendly alternative to chemical control in the management of soilborne plant diseases and several biological control agents have been introduced as potential bio-fungicides. A study on the effect of *Trichoderma* spp. and *Bacillus* spp. in suppression of *Rhizoctonia* root rot in beans was conducted at the Plant Pathology Division of Nepal Agricultural Research Council (NARC) from 2079/01/10 to 2079/02/20, Khumaltar, Lalitpur. The aim of this study was to investigate different biological control agents consortia against *Rhizoctonia solani* root rot disease of common bean (Kaju simi variety). The experiment was laid out in a randomized complete block design with sample size of 42 pots including five treatments with each having six replications. Treatments include four strains of *Bacillus* (29c, 29a, D22 and RJ-6) representing PGPR (Plant growth promoting Rhizobacteria), *Trichoderma* T31 and two controls including non-treated inoculated and non-treated non inoculated controls. Data entry was done using MS Excel, while R code Stat was used for data analysis. Duncan's multiple range test (DMRT) was used to compare means at a 5% level of significance. In the severity of disease, RJ-6 showed a significant difference with D22 where RJ6 had a low severity value and D22 had high one. This concludes that the application of RJ6 was found to be the most effective against *Rhizoctonia* root rot and D22 to be the least. Based on the outcomes of these investigations, using microbial strains (RJ-6) to promote plant development could be a better choice for improving plant growth in greenhouse conditions.

Key words: *Bacillus*, *Trichoderma*, soilborne disease, *rhizoctonia solani*, RCBD

EFFICACY OF DIFFERENT TREATMENTS IN CONTROLLING CUCUMBER MOSAIC VIRUS (CMV) IN TOMATO

Chobindra Khand Shahi

ABSTRACT

A study on the efficacy of different treatments against Cucumber mosaic virus (CMV) in tomato was conducted at the Plant Pathology Division of Nepal Agricultural Research Council (NARC) which is situated at Khumaltar, Lalitpur with the objective to determine the effects of different treatments against CMV. The different treatments used were Trichoderma T31, vircon-11, Bacillus 29a, Cynodon dactylon, non-treated inoculated and non-treated non inoculated controls on Dalila variety of tomato. Treatments were arranged in a randomized complete block design with four plants of each per replication and four replications per treatment constituting the sample size of 96 seedlings. Disease assessment was done throughout the experiment and evaluation was done when the symptoms began to manifest after the application of treatments includes three scorings with an interval of 7 days from each. The recorded data were scrutinized to determine the disease severity index (DSI) and area under disease progressive curve (AUDPC) and were computed using Duncan's multiple range test to determine the significant difference of the means of the treatments. Among all the treatments, vircon-H had been found to be most effective in the final stage of severity whereas, at the second stage Trichoderma and at the initial stage, Cynodon dactylon had shown to be the most effective as compared to non- inoculated non treated control concluding that different treatments are effective in different stages of plant growth. Similarly, the area under disease progressive curve under different treatments had shown Trichoderma T31 to be the most effective exhibiting the effectiveness against CMV in the overall period of the study. CMV has been prevailing all over the globe and has devastating effects on production. As viruses are difficult to manage, prevention is the best management for all viral diseases, so one should be careful and preventive during the cultivation.

Key words: Trichoderma, Bacillus, *Cynodon dactylon*, Vircon-H, Disease severity index

ECONOMIC ANALYSIS OF MUSTARD PRODUCTION IN EASTERN CHITWAN

Diwas Dhital

ABSTRACT

Mustard cultivation is a popular agricultural practice since pre-historic period in Nepal. Chitwan, in Bagmati province, is one of major mustard producing districts of the county. The study entitled "Economic analysis of mustard production in Eastern Chitwan" was conducted from March 10, 2022 to July 28, 2022. The main objective of the study was to critically analyze the economics of mustard production in the eastern Chitwan of Nepal. More specifically, the study aims to analyze the cost and benefits of mustard production and various marketing channel operating in the study area. The study also discussed the existing strength, weakness of mustard production and its future potentials. A total of 123 samples was taken from four municipalities of Eastern Chitwan using a semi-structured questionnaire. Farmers were found to be cultivating mustard on an average land of 0.47-hectare (14.264 kattha) land with an average production of 14,283 kg per hectare. The average cost of production per hectare was calculated NRS 12,01,452. Mustard production business in the study area was observed to be a profitable business enterprise with a B/C ratio of 1.78 yielding an average return of NRs. 21,42,440 and net profit of NRs.9,40,988. The major market areas are Tandī, Khairēni bazar, Bhandara, Kholesimal and Bakulahar. The most preferred marketing channel was observed to be from producers directly to consumers Marketing through agent was seen less popular limited to only 7% respondents. Expensive and insufficient availability of fertilizers, biased government subsidy, disease and pest infestation, lack of related policy are some of the majors constrains of production in the study area. Hence, sufficient fertilizers need to be made available along with training for protection against pest and disease for the optimum yield. Also, farmers should be encouraged for intensive mustard cultivation which eventually supports nations GDP and their livelihood.

Key words: Benefit cost ratio, marketing channel, mustard, productivity

MANGO PRODUCTION AND ITS MARKETING IN KANCHANPUR DISTRICT

Hari Prasad Mishra

ABSTRACT

This study entitled "mango production and its marketing in Kanchanpur district" was carried out in Bhimdatta and Bedkot municipalities during April to July 2022. Randomly selected 80 respondents from Bhimdatta and Bedkot municipalities of Kanchanpur district were interviewed by using semi structured questionnaire. The main objective of this study was to study and understand the production practices, present status, problems and marketing status of Mango in the Kanchanpur district. The pre-tested interview schedule was administrated to the sampled farmers for the collection of primary data. The secondary information was obtained through review of different publications. The study showed that 75 percent male and 25 percent female were involved in mango production in the study area. Dashehari, Maldah and Bombay Green were the main cultivar used by farmer. 70 percent Farmers had used grafted plants and 30 percent farmers had used seedling. The collectors were involved in marketing collecting mango from farmers and selling to wholesalers. Physiological disorder, insect pest, disease, price fluctuation, hail water and wind were major problem faced by farmers. The average BC ratio was found 1.69 using grafted planting material and 1.34 using seedlings. The average cost of production of 1 ha of land using grafted planting material was found to be NRs.438700 and using seedling was found to be NRs 374950. From this study it has been suggested that problem of mango farmers should be solved and required training should be given to obtain high production.

Key words: BC ratio, collectors, cultivar, grafted, seedling

AN ASSESSMENT ON SOIL FERTILITY MANAGEMENT PRACTICES AND THEIR CONSTRAINTS IN BHAKTAPUR DISTRICT, NEPAL

Hemnata Shahi

ABSTRACT

The research "An assessment on soil fertility management practices and their constraints in Bhaktapur district, Nepal" was undertaken to analyze the soil fertility status of farming areas in Bhaktapur district on

four municipalities: Suryabinayak, Madhyapur, Bhaktapur, and Changunarayan. In terms of information collection, the survey is utilized as a research instrument with 100 farmers in the Bhaktapur district by surveying respondents using developed questionnaires in the form of Close-ended questions and Open-ended questions. Tables, pie charts, and bar charts were used to show the survey findings. Males (63%) were found to be predominate in the population. The majority of responders were in their 40s and 50s, and agriculture was their primary employment and source of income. The majority (36%) of responders had only completed primary school. Data also revealed that the majority of farmers worked on rental property. The majority of the land (more than 81 percent) was irrigated while majority using ground water. Farmers did not use green manuring, but they were accustomed to incorporating legumes (pea, lentil, beans, etc.). Farmers applied chemical fertilizer as the primary source of nutrients (urea and DAP), but MoP was rarely used. Most of them apply FYM as an organic source of nutrients. Data also revealed that 80% of the respondents had never analyzed their soil and used chemical fertilizers at random. 30% of the population experienced no change in productivity, while 56% noticed falling production patterns. Farmers identified a number of restrictions, including fertilizer availability (90% of the time) and irrigation concerns (67%) being major constraints. Farmers must be educated on the right use of quality chemical fertilizers and soil nutrient management.

Key words: Soil fertility, green manuring, fertilizer availability, restrictions

ASSESSMENT ON THE SITUATION OF THE CHEMICAL FERTILIZER IN NEPAL

Kamana Kafle

ABSTRACT

Fertilizer is a vital input for agriculture production. In the recent year, its timely availability was hindered due to the COFID crisis and various policy constraints. In the current scenario Nepal is importing its chemical fertilizer from various countries like Turkey, China, Egypt, and India, through international tenders and government- to-government negotiations. This study on "**ASSESSMENT ON THE SITUATION OF THE CHEMICAL FERTILIZER IN NEPAL**" was conducted from June to September 2022. Kathmandu Valley was

selected for the data collection with the utilization of both primary and secondary sources. Literature review, trends, ANOVA, and test including descriptive statistics methods were used for the data analysis. Both qualitative and quantitative data were collected by questionnaire survey from farmers, dealers, cooperatives, AICL, STCL, and MoALD purposively for the study. The results showed that the supply of fertilizer was unstable, not uniform & fluctuating. The estimated potential demand for fertilizer in Nepal is 7,00,000 MT, however, the actual supply in the 2077/78 fiscal year was 3,79,152 MT (MoALD), which caused fertilizer insufficiency in Nepal, 86% of farmers don't acquire the fertilizers on time. The majority of farmers reported that the current price of fertilizer is still high. While analysing the market price of urea is comparatively lower due to which farmers tends to over use it without knowing the consequences, major concerning factor is that farmer lacks knowledge about the application of proper fertilizer in the field. With its own distribution methods, AICL & STCL control the fertilizer distribution system in Nepal. Cooperatives play a large role in fertilizer diminished, which has resulted in an inconsistent and erratic fertilizer supply in the market. In Nepal, the main supply chain functions of chemical fertilizer include procurement, shipping, port warehousing, inland transportation, inland storage, local transportation, distribution, and consumption. Major issues with Nepal's fertilizer supply system comprised an unfavorable regulatory environment, insufficient regulation, a lack of funding, and inadequate infrastructure. Improvement of FYM and compost should be given higher priority and use of chemical and organic manure in combination should be promoted.

Key words: AICL, fertilizers, SALT, supply chain, organic manure

PRODUCTION OF APPLE AND ITS ROLE IN INCOME GENERATION IN GUTHICHAUR RURAL MUNICIPALITY, JUMLA

Karma Dhondup Lama

ABSTRACT

The present study was carried out in Guthichaur Rural Municipality, Jumla dis- trict from July to September 2022. The main objective of this study was to assess the infor- mation about production and its role in income generation of the farmers of Guthichaur Rural Municipality. During survey, altogether 100 respondents were selected randomly. The respondents were found growing high chilling varieties such as

Red Delicious, Royal Delicious and Golden Delicious where golden delicious varieties have been used as pollinizer. Majority of the respondents (60 percent) were involved in the apple production for 4-8 years. Apple producer were 58% male and 42% female. Land under apple production hold by 95 percent respondents was less than 1 hectare. Found that 85% of the respondents had annual income less than 100K whereas 15% of the respondents had annual income between 100k-200K. The major market centers were Jumla Khalanaga, Gothijyula, Nagma, Nepalgunj and Surkhet. Income generation through apple had been realized by the apple growers helping them to manage their household and school expenses of their children. Transportation, irrigation and storage were major constraints of apple production in Guthichaur Rural Municipality, Jumla.

Key words: Apple, income generation, market centers, varieties

A STUDY ON LATE BLIGHT OF TOMATO AT GHORAH SUB-METROPOLITAN PERI-URBAN AREA, DANG

Kriti Kafley

ABSTRACT

The study was carried out from March 22nd to July 18th, 2022 by a Survey of 80 tomato growers using semi-structured questionnaire. The most used tomato variety was Gaurav 555. There was shortage of water in the months of Chaitra, Baisakh and Jestha. Among the prevalence of various diseases, Late blight was the major disease found all over the commercial tomato growing areas causing loss of 5-10 quintals (42.50%), more than 10 quintals (40%) and (17.5%) less than 5 quintals (17.5%) in one growing season. Some of the farmers were seen using local treatments such as ashes, hol-mal for prevention of insect pest and diseases as well. In recent time, with the help of INGOS and NGOs in coordination with district government, there has been provision of free trainings related to Tunnel Farming' as well as distribution of materials and equipment related to it focusing to the vulnerable group of people. The commercial tomato farmers (62.5%) were seen spraying fungicides only after the late blight symptoms appeared in their field. The indiscriminate use of chemical pesticides has resulted in disease resistance, resurgence and sometimes outbreak as well. The agro-vets were also found selling banned pesticides like Diclorvus. Majority of the farmers were unaware and irresponsible about the pesticides

handling ways and were blindly dependent on chemical means of insect pest and disease management.

Key words: Tunnel farming, economic loss, tomato, fungicides, shortage

THE STATUS OF NEEM IN PROVINCE ONE AND MADHESH PRADESH OF NEPAL

Kushal Gautam

ABSTRACT

The study was carried out in various districts of province one and Madhesh Pradesh such as Mahottari, Saptari, Dhanusa, Bara, Sarlahi, and Morang. The survey was completed within three months of time duration. The study was covered in various wards in the districts such as Bardibas 14, Bardibas 2, Lalbandi, Jahada, Haripur, Narbasti, Biharpur, Gausala, Jutpani, Rajbiraj 8, Pauwaha, Bangdawar, Hamal tol. Random sampling design was done for the survey. The objective of the study was to make farmers aware about the value of neem and create a value chain among farmers, another reason for the study was to know about the production of neem seeds and its future possibility to extract neem oil from them creating a way of passive income for the farmers yearly. The total surveyed households were 200 in numbers, Primary data and secondary data were collected through different means where primary data was collected through Household survey and key informant interviews. The survey was conducted for 200 respondents where 73% of them were male and 27% of them were female. Majority of respondents were of age group 38-57 years. It was found that 25% of them were illiterate, 40.5% of them had attained education under SLC level, 19% of them had attained SLC, 13.5% of them were of secondary level and only 2% of them had bachelor's degree. It was found that 84% of the respondents got their seed locally and 10% of the respondents got the seeds from DFO whereas 6% of respondents brought it from nursery. Among the total respondents 11% of them used their available compost manure in the trees whereas 89% of them didn't used any of the fertilizers. Among the respondents 29.5% of the respondents used the neem plant for brushing the teeth. 14.5% of them used neem leaves for eating for medicinal purposes as they were taught by seniors. 3% of the respondents used neem for bathing by soaking in water. 16% of the respondent used neem for religious purpose whereas 37% of them didn't used the neem products.

Similarly, among the respondents 4% of them had found some pests and disease in neem tree whereas 96% of them didn't find any pests in the tree. Among the respondents 68.5% produced seeds less than 30kg. 18% produced between 30 to 60 kg and remaining 13.5% of the respondents produced seeds more than 60kg The study revealed a possibility of passive income generation for farmers through neem production and replacement of chemical pesticides by neem based pesticides.

Key words: DFO, household survey, value chain

DETERMINATION OF EFFICACY OF DIFFERENT BOTANICALS ON MAIZE WEEVIL *Sitophilus zeamais*, (Motschulsky) ON MAIZE GRAIN OF DIFFERENT VARIETIES

Mamun Rimal

ABSTRACT

The study was carried out at National Entomology Research Center, NARC, Khumaltar, Lalitpur from July to September 2022. The objective of the study was to find the efficiency effect of the botanicals on *Sitophilus zeamais* mortality on maize grain of different varieties. Mass rearing of *Sitophilus zeamais* was done on the laboratory by maintaining temperature and humidity. Then, the first instar of maize weevil was used after rearing for the research purpose. Each botanical pesticide was applied in 4 different varieties of maize. Bojho (*Acorus calamus*), *Bakaino* (*Melia azedarach*), Neem oil (*Azadirachta indica*), and *Titepati* (*Artemisia vulgaris*) were the four botanicals used. The study revealed the effectiveness of the botanical pesticide against maize weevil. The most effective botanicals was found to be Bojho(*Acorus calamus*) as there was 100% mortality. The mortality % was highest (100%) on Bojho and lowest was seen on *Bakaino*, *Titepati* (0%). The maximum weight loss was observed on Neem oil and *Titepati* treatments on all the maize grain variety used. The maximum percent of damaged grain was observed on *Bakaino* while the minimum percent of damaged grain was observed on Bojho. Also the efficacy of Bojho botanical was seen the most effective throughout the end of the research period which was 1 month. Out of the 4 botanical pesticides tested on adult of *Sitophilus Zeamais*, Bojho was found to be most effective followed by Neem oil. So this study has demonstrated that we can use Bojho (*Acorus calamus*) as the most effective biological

control measure against *Sitophilus zeamais* in stored condition of maize.

Key words: Botanical pesticides, *Bojho* (*Acorus calamus*), *Bakaino* (*Melia azadirach*), *Titepati* (*Artemesia vulgaris*), Neem oil (*Azadirachta indica*)

PRODUCTION STATUS AND VALUE CHAIN ANALYSIS OF APPLE IN JUMLA, NEPAL

Manisha Rokaya

ABSTRACT

The study entitled "Production Status and Value Chain Analysis of Apple in Jumla, Nepal" was undertaken from first week of June to end of August to analyze the status of apple production and process of value chain in Jumla focusing in different wards of Chandanath Municipality. Semi-structured questionnaire were used to collect primary data from 100 respondents by applying random sampling Out of total area under apple of Jumla district, only 40% area is productive area, production volume is 11078 ton with productivity of 9.60 ton/ha. The cost of production and return in the surveyed area per hectare was Rs.1,84,203 and Rs.5,00,400 respectively and benefit cost ratio was 2.71, indicating that the apple cultivation was profitable enterprise in study area. The most significant marketing problem was found to be perishability of product, with an index value of 0.96. The season decisive factor for apple production had the greatest impact on apple prices, followed by access to the market, market knowledge, product availability and negotiating strength. Price spread on different value chains for local market ranged Rs.50 to Rs.60 per kg; while in case of domestic market, it ranged from Rs.45 to Rs.135 per kg. Market margin on local market apple was Rs.10/kg and Rs.87/kg for domestic market per kg. Apple producers' share on the local market was 83.34% while it was 33.33% in case of apple from local to domestic market. Higher the producers share in local market indicates that better marketing efficiency as compared to domestic market.

Key words: Production status, value chain, cost of production, marketing, price spread

**EFFECT OF DIFFERENT WEED MANAGEMENT PRACTICES
IN POTATO AT LALITPUR**

Mansun KC

ABSTRACT

In order to evaluate the effects of weed management treatments on some growth parameters of potato (*Solanum tuberosum* L.), a field experiment was conducted at the field of Nepal Agricultural Research Center (Agronomy Division) in 2022. This study was arranged based on randomized complete block design with 7 treatments and 3 replications. The research was done by using a set of RCBD structure. The primary data was collected from the field analysis while secondary data were collected by reviewing of various published and unpublished documents, reports, research paper, books, journals and various websites related to the study. Data were analyzed with the help of computer office package "MS Excel" and GenStat. The experimental treatments were including 5 integrated weed management treatments, No weeding and weed-free treatment during entire growth season. Weed management treatments had significant effect on stems number per plant, tuber dry and fresh weight and weed density. The highest and lowest plant biomass was observed in Atrazine early post and weed free 2HW 563 gm and 198 gm per hectare, respectively. The lowest weed density was observed in Atrazine pre-emergence ie 24 that had no significant difference with no weeding treatment that shows this management is useful for reducing the weed density. Regarding to the potato high yield Straw mulch management is recommended. The research experiment ie Treatment atrazine shows maximum haulm (plant above portion in potato) height at 90 DAS also its shows maximum height at both 30 and 60 DAS 82 cm 151 cm respectively and Weeds commonly found in our trial was *Chenopodium* (Bethe), *Dubo*, *Spergulaavensis* etc. The research shows maximum weeds count on the practices of no Weeding Straw mulch shows maximum yield, i.e. 38 kg/ha and Pendimethalin shows minimum yield i.e. 22 kg/ha Since straw mulch showed the better performance in the weed management practices.

Key words: Potato, weed management, LSD, CV

ASSESSMENT OF ZUCHHINI GENOTYPES FOR ITS GROWTH AND YIELD PARAMETERS AT MID HILL CONDITION (KHUMALTAR) OF NEPAL

Nabina Budhathoki Magar

ABSTRACT

Zucchini (*Cucurbita pepo* L.) is one the most important and promising horticultural crops in Nepal and has great value throughout the world. In order to evaluate the performances and yields on the mid-hill region with sub-tropical climate, this experiment was carried out National Horticulture Research Center (NHRC), NARC, Khumaltar, from March to May 2022, on Randomized complete block design (RCBD). Five genotypes of zucchini namely: Anna303(T), Grey zucchini(T2), Anna202(Ts), Slesha1214(T4) and Sunny House (check genotype) were taken as the treatments with four replications for each, for the experiments on spring season. Proper care was taken and the recommended dose of NPK along with FYM was given for comparing the performances and characters of those genotypes. Yields ranging from 28,450 kg/ha (for Sunny House) to 40,886 kg/ha (for Slesha1214) was obtained on the experiment, though the difference was by little margin and was insignificant ($p>0.05$). These taken genotypes showed significant variations ($p<0.05$) on these morphological characteristics: leaf length, petiole length, no. of lobes and fruit length. Highest leaf length was observed on Anna303 (27.05cm) and lowest on Grey Zucchini (19.8cm).Slesha1214 had highest petiole length (26.2875cm) while Grey Zucchini had lowest petiole length (17.75cm). Anna303 was found to have longest fruit of around 109.075cm, followed by Slesha1214 (98.7 cm) and fruit of Grey Zucchini being shortest among these genotypes. Leaf lobes were more on Anna303 (5.825) and Grey Zucchini had least leaf lobes (4.925). Although the variation was insignificant, it was found that yield of Anna202 (in 29.25 days) can be harvested earlier than other, while Sunny House was found to took lot more time/days for the first harvest i.e., on around 42 days. The range of the yield found suggests its cultivation on the mid-hill's region, with Slesha1214 being superior among these genotypes, while Anna 202 can give yield sooner than any of these varieties.

Key words: Zucchini, genotypes, mid-hills, yield, growth, RCBD

INFLUENCE OF BIOCHAR BLENDED ORGANIC AND INORGANIC FERTILIZER ON SOIL PROPERTIES AND PRODUCTIVITY OF OKRA

Nischal Acharya

ABSTRACT

In order to study the effects of biochar on soil properties and productivity of okra, when combined with organic and inorganic fertilizers, a pot experiment was conducted inside the greenhouse of NSSRC, NARC at Khumaltar, Lalitpur from May to July 2022. The 7 treatments included were: Control (T1), Recommended rate of NPK at 200:180:80 kg/ha (T2), Recommended rate of NPK (in dissolved form) mixed with Biochar (T3), Recommended rate of NPK mixed with Biochar (T4), Cow Urine mixed with Biochar (T5), Vermicompost mixed with Biochar (T6), Biochar-based Organic Fertilizer mixed with Biochar (T7) and were arranged in a Completely Randomized Design (CRD) with 3 replications for each treatment. Biochar-based organic fertilizer mixed with biochar (T7) increased total fruit yield by 88.56% (51.76 t/ha) as compared to the control (27.45 t/ha), along with its superiority in all the soil-based parameters (pH, OM, N, P and K) analyzed in the lab. Apart from this treatment, vermicompost (T6) and cow urine blended biochar (T5) treatments were also very efficient in various growth parameters such as biomass yield, stem girth, and harvesting period. The biochar amended treatments (average of all biochar amended pots) showed significant effects on soil chemical parameters where pH, OM, N, P and K were increased by 10.88%, 41.76%, 51.14%, 69.93%, and 165.07%, respectively. Thus, the use of biochar as a soil amendment and in combination with various fertilizers can maintain soil health and increase crop production in an economical and eco-friendly way, thereby contributing towards reducing the existing yield gaps in the country.

Key words: Biochar, fertilizer, organic, inorganic, soil health

ROLE OF TOMATO PRODUCTION AND MARKETING IN LIVELIHOOD SECURITY OF GROWERS IN KATHMANDU DISTRICT

OMIKA UPADHAYAY

ABSTRACT

A study entitled '**Role of Tomato production and marketing in livelihood security of growers in Kathmandu District**' was conducted in 2022 with main objective to document livelihood status of farmers involved in tomato cultivation in Kathmandu. This study was carried out in Kathmandu area by conducting a survey among the randomly selected 100 respondents from Kathmandu Valley. The survey was carried out by the use of semi structured questionnaires. The findings from the survey were analyzed with the help SPSS and Ms excel. The respondents used Srijana, Pramila and Sarbashrestha varieties for cultivation. The farmers were attracted to tomato cultivation because it gives high net return. The result showed that the average B:C ratio was 1.37. The major problems faced by tomato growers was tradres monopoly in price fixation, price fluctuation, Transportation and road, Disease and pest. Tomato cultivation was found to be a good source of income for the small farm holders as well as in commercial scale producers. There should be a facility of collection center and facilities of the subsidy for tomato cultivation to the farmers so that tomato cultivation will be expanded in future.

Key words: Tomato, livelihood, production, marketing

STUDY ON EFFECT OF MICRONUTRIENT SEED PRIMING OF PULSES WITH ZINC, BORON AND MOLYBDENUM

Prabina Chaudhari

ABSTRACT

An experiment was conducted in National Seed Science Technology Research Center (NSSTRC), Khumaltar, Lalitpur from mid-March to mid-April 2022 AD. Seeds of three pulses crops mainly cowpea, pea and lentils were used for the study. The seeds were primed with Zinc sulphate (ZnSo). Boric acid (H3B03) and Sodium molybdate (Na:MoO) in T1=0%, T2=0.05%, T3=1%, T4=3% and T5=5% for 24 hours in a germination chamber at 25 °C for cowpea and at 20°C for

pea and lentil respectively at about 80% relative humidity. The samples were laid out in one factor completely randomized design with five treatments and three replications. The data were noted daily for 10 days according to the crops. In this experiment, it was found that all the seeds performed well when primed with ZnSO₄, H₃B₀₃ and Na MoO₄ at hydro-priming and 0.05% concentrations. The data obtained were statistically similar however varied depending upon the concentrations. It was found that the seeds primed with high concentration caused inhibition of germination resulting in less or no germination at 3% and 5% concentrations. The few seeds were damaged due to the use of infested seeds rather than being the effect of concentrations. The study was limited to laboratory test and limited concentrations of ZnSo₄, H₃B₀₃ and Na MoO₄. Therefore, further test at different concentrations of micronutrients and a field trial is recommended.

Key words: Micronutrient, seed priming, pulses, concentrations

EVALUATION OF SUITABLE CONCENTRATION OF MICRONUTRIENTS SEED PRIMING (BORON AND COPPER) FOR DIFFERENT CUCURBITACEAE CROPS (BITTER GOURD, CUCUMBER, SPONGE GOURD AND SNAKE GOURD)

Pradip Rana

ABSTRACT

Between the middle of May and the middle of June 2022 AD, an experiment titled "Evaluation of Suitable Concentration of Micronutrients Seed Priming (B and C) for Different Cucurbits (Bitter gourd, Cucumber, Sponge gourd, and Snake gourd)" was carried out. For the investigation, seeds from the following four cucurbit species were used: snake gourd, sponge gourd, cucumber, and bitter gourd. In five separate treatments, including hydro priming as a control, the seeds were primed with micronutrient solutions for a total of 24 hours, primarily including boric acid (H₃B₀₃) and copper (CuSO₄). The seeds were primed in T1 (T1), T2, T3, T4, and T5 (1) (15). The test was carried out in Integrated Agricultural Laboratory, Birendra Nagar, surkhet The study was carried out in a germination chamber at 80% relative humidity, 27C for cucumber and sponge gourd, and 16C for bitter gourd and snake gourd. Five treatments and three replications were used in a one factor totally randomized design to set up the samples. According to the crops, the data were recorded every day for

ten days. In this experiment, it was discovered that all the seeds primed with CuSO₄ and H₃B₀₃ at T₂ and T₃ treatments performed well in terms of germination characteristics like germination percentage, mean germination time, and seed vigor index. The findings varied based on concentrations and the data were statistically similar. It was discovered that seeds primed with high concentrations inhibited germination, causing little to no germination at time point T₅. The few seeds that were harmed were found to be a result of using infested seeds rather than a result of concentrations. In order to address the micronutrient deficiency in crops that grow in micronutrient-deficient soil, seed priming proved a very cost-effective solution. CuSO₄, H₃B₀₃, and laboratory tests were the only methods used in the investigation. Therefore, more testing at various micronutrient doses and a field trial are advised.

Key words: Micronutrient, seed priming, cucurbits, germination percentage, seed vigor index

EVALUATION OF SOIL FERTILITY STATUS AND CONSTRAINTS UNDER VEGETABLE CROPPING AT TOKHA, KATHMANDU

Prakriti Acharya

ABSTRACT

One of the most fundamental methods for making decisions in order to impose nutrient management techniques is the evaluation of the soil fertility. The goal of the field research, which was conducted in Tokha municipality, Kathmandu-Nepal from January to April of 2022, was to determine the soil's fertility level, the limitations of the vegetable cropping method, and the demographic situation of the farmers. A random sample of around 30 responders was taken, and the soil from those samples was tested at a lab. Both male and female were seen involved in the farming activities in the study area of different age group. It was discovered that Tokha's soil contained a medium to high amount of nutrients. The range of nutrients were 1.06%-5.21% of organic matter, 0.05% -0.26% of nitrogen, 62.47kg/ha -663.51kg/ha of phosphorus, 89.21kg/ha- 1383kg/ha of potassium and majority of soil pH was slightly acidic. 60 % of the surveyed farmers used chemical fertilizers like Urea, DAP and MOP, while most of the farmer utilized organic fertilizers. Farmers used cultural customs to assist them

increase their output like crop rotation, use of organic fertilizer, terraces etcetera. This study demonstrates that, despite different difficulties farmer's experience, the fertility level of Tokha under vegetable cultivation is good and even rising. Market problems, insect and disease infections, lack of technician/technical knowledge, unavailability of improved seed, price fluctuation for their produce were the main obstacles for farmers. In order to boost and enhance soil quality and soil health use of organic fertilizer must be increase, which helps to raise the long-term fertility of the soil and eventually increases soil productivity.

Key Words: Soil fertility, vegetable cropping, marketing problems, soil productivity

IN-VITRO CLONAL PROPAGATION OF BANANA (*Musa acuminata* cultivar Grand Naine)

Prashamsa Belbase

ABSTRACT

This study describes a clonal propagation for banana variety G9, with a method been developed for multiplication observing shoot and root proliferation done from Feb-Aug 2022 at NBRC. Minimum of 7.57 days were required for shoot initiation. Treatment T4 (4mg/l BAP +0.5 mg/l NAA) had the largest shoot number (11.28). Treatment T3 (2mg/l BAP+ 0.5 mg/l NAA) had the longest shoot length (2.51cm). The highest number of leaves (2.37) was obtained in treatment T2 (4mg/l BAP+ 0.1 mg/l NAA). Treatment T3 (mg/l BAP + 0.5 mg/l NAA) had the longest leaves 2.180 cm). The callus diameter was larger (3.18 cm) in treatment T3 (4.5 mg/l kinetin + 0.5 mg/l 2-4-D) and smaller (0.28cm) in treatment TO. Yellow, light green and white calluses of varying colors were seen. The treatment T5 (1.5 mg/l IBA+ 0.5 mg/l NAA+ AC) showed highest number of roots of 14.43 and the lowest by TO (4.43). The longest roots (14.7 cm) were observed in treatment T6 (2 mg/l IBA+ 0.5 mg/l NAA+ AC). Plants transferred from culture media to soil in plastic pots in a controlled setting had a 100% survival rate in sand + soil + coco peat. Combined effect of BAP and IAA showed better performance of growth parameters and a protocol been developed for in vitro propagation of banana cultivar.

Keyword: Banana, MS media, Plant Growth Regulators, Micropropagation II

EVALUATION OF SOIL FERTILITY STATUS AND PRODUCTION OF HEALTHY PLANTLETS OF BANANA (*Musa acuminata* cultivar Williams) THROUGH TISSUE CULTURE

Prashant Thapa Magar

ABSTRACT

The experiment was conducted for the production of healthy banana plantlets at NBRC from Feb-Aug 2022 using the tissue culture techniques. MS media i.e. Full MS and Half MS with same phytohormones concentration was compared for the optimal response on shooting and rooting proliferation. Full MS media and half MS media with seven different treatments were taken for both media for shoot proliferation. Different concentration of BAP and NAA were taken for both media and comparison was done between them. For rooting, full and half MS media with charcoal and without charcoal were tested. Different concentration of IAA was taken for both media and comparison was done. Different potting mixtures were taken for hardening i.e. one with autoclave and without autoclave potting mixtures with four different treatments. The maximum number of shoots was observed in 2mg/l BAP+ 0.1mg/NAA with 14.4 shoots in full MS media and 4mg/l BAP+ 0.1mg/NAA with 7.6 shoot in half MS media. The maximum root number was observed in 1.5mg/l IAA and 2mg/l IAA with 12.143 roots in half MS without charcoal and 2mg/l IAA with 15.57 roots in half MS with charcoal. The maximum survival % was seen in Cocopeat: Soil: sand (1:1:1 v/v/v) with 100% survival in non- autoclave potting mixtures and Soil: sand (1:1 v/v) with 100% survival in autoclave potting mixtures. In conclusion, comparison of proliferation on different media concentration and phytohormones were addressed for the production of healthy banana.

Key words: Banana, in-vitro propagation, tissue culture, williams's banana

VARIETAL TRIAL OF DIFFERENT GENOTYPES OF CUCUMBER UNDER PLASTIC HOUSE CONDITION AT KHUMALTAR, LALITPUR

Pratiksha Khatri Chhetri

ABSTRACT

The research on "Varietal trial on different genotypes of cucumber under plastic house condition" was conducted at National Horticulture Research Centre department of Nepal Agricultural Research Council from (March-July), 2022. For this trial ten cucumber genotypes with the check variety (Bhaktapur local) were tested on the field under plastic tunnel to assess how well they performed for quality features including yield and yield components. Three replications of the Randomized Complete Block Design (RCBD) were used in the study. The data were analyzed by using statistical tool, GenStat. Cucumber with green and white skin was used in the study. HRD CUC 009 x 001, one of the dark green- skinned genotypes. Additionally, HRD CUC 004 x 001 is superior in terms of the quantity of harvests and BL-001 is superior in terms of fruit weight, length, and girth. When all the genotypes were compared, variety's yield differential was statistically significant. As the trial was conducted for the higher yield production, HRD CUC 004 x 001 performed better than other types with light green with white stripes skin because it had more harvests, more fruits per plant, and more yield per plant. Most of the tested hybrids produced more than double yield than open-pollinated genotype. In order to increase the production of cucumber high yielding hybrid varieties should be selected and the cultivation practices should be carried out in a plastic tunnel.

Key words: Genotypes, cucumber, plastic house

PRODUCTION ECONOMICS AND MARKETING OF HIMALAYAN YEW IN MAHANKAL RURAL MUNICIPALITY OF LALITPUR DISTRICT

Pratima Timalisina

ABSTRACT

This study was conducted to analyze the production and marketing scenario of Himalayan yew (*Taxus wallichiana*) in Mahankal Rural Municipality of Lalitpur district. The field survey was carried out in

early 2022 to collect information from Himalayan yew growers and traders. Semi-structured household level questionnaire survey, focus group discussion, key informant interview, direct observation and review of literatures were used to collect primary and secondary data from producers, traders and retailers using simple random sampling method. In total 70 respondents were involved in the study in which majority (92.68%) of the respondents were men. The average land holding of respondent household was 16.44 ropani and average area under *Taxus wallichiana* cultivation was 11.31 ropani. They have planted 500-4000 *Taxus* seedlings in their farm lands and average production of processing biomass in each household was 517.36 kg in last year and 644.71 kg in this year. Similarly, the average farm gate price was NRs 268 per kg and average retail price was NRS 275 per kg. Moreover, the average price spread was found 29.66% with producer share 97.45%. Market margin was NRs 7 per kg respectively. The overall Benefit-Cost Ratio was 2.65 indicating farmers were benefited greatly from their production. The major constraints for Himalayan yew production and marketing are limited technical knowledge of farmers, weather uncertainty and lack of processing and storage facilities. While looking to opportunities, farmers of study areas were aware about the importance of Himalayan yew as a source of income and employment. The demand of Himalayan yew leaves has been increasing dramatically in recent years. Finally, the study suggests that Himalayan yew growers can be benefited by the help of lowering cost of production, establishing collection center in study areas with proper knowledge and suitable training on cultivation and sustainable harvesting to fulfil current market demands for increasing farmer's net profit.

Key words: Benefit Cost ratio, Himalayan yew, marketing

ROLE OF VEGETABLE PRODUCTION FOR INCOME GENERATION AND LIVELIHOOD IMPROVEMENT IN BHAKTAPUR DISTRICT

Prativa Rawat

ABSTRACT

This study was conducted during May to August 2022. The main objective of the study was to assess the different aspects of the vegetable production and its role in income generation. The study was carried out by using research tools such as, semi-structure questionnaire interview, key informant discussion and direct observation and direct

review of literature. Hundred respondents were selected randomly from different municipalities where vegetables were commonly grown. Majority of the respondents was from 25-55 years old. Tomato, cauliflower, coriander, chili, brinjal were the major vegetables. Majority of the respondents reported that powdery mildew, bacterial wilt, tomato mosaic virus were major disease and cabbage butterfly, leaf miner, aphid, and fruit flies etc. were major insect-pest seen in vegetables. Vegetable farming provided the employment opportunities to two or their members of the family. Due to lack of sufficient human resources, improved seeds and fertilizer, the majority of the farmers were facing challenges in their vegetable farming. Modern tools and techniques should be introduced at farmer access level for vegetable farming along with making availability of improved seeds, fertilizers and other input and resources for vegetable farming at required time.

Key words: Livelihood, production, farming, generation, resources

EVALUATION OF DIFFERENT GENOTYPES OF ONION FOR BULB YIELD AT KHUMALTAR, LALITPUR

Pritha Sharma

ABSTRACT

The present study was undertaken on the agriculture farm of National Horticulture Research Centre, Khumaltar, Lalitpur (27°39'09"N, 85°19'1"E, and 1332 meter above sea level) from November 2022 to May 2022. Seven onion genotypes (AVON 1016, AVON 1028, AVON 1027, AVON 1052, AVON1103, Red Creole, and Nasik Red) were evaluated for their yield performances. Experiments were laid-out in randomized complete block design with three replications with a plot size of 2m x 1.5 m. The analysis of data showed that genotypes were found significantly different in plant height, leaf number, bulb weight, bulb diameter, and total yield. The genotype AVON 1027 produced the highest bulb weight (90.73g) and bulb yield (28.8ton/ha) which was followed by genotypes AVON 1055 (88.73g) and AVON 1016 (87.20g). The lowest bulb weight was found in the genotype AVON 1103. The highest equatorial diameter and polar diameter were found in the genotype AVON 1052 (59.73 mm fresh and 58.03mm dry) and AVON 1027 (56.45mm fresh and 47.26mm dry) respectively. The lowest equatorial and polar diameter was found in the genotype AVON 1103. The genotypes showed variation in color (shade of red and yellow) and shape. Red Creole, AVON 1016, N-53 and AVON 1103

were red in color and AVON 1052, AVON 1027 and AVON 1028 were yellow in color. The genotype AVON 1027, AVON 1052, and AVON 1016 showed the better result as compared to the check variety in terms of bulb diameter and total yield. The genotype AVON 1016 should be further tested in the future for its performance on other categories like disease and pest resistance, post-harvest shelf life, consumer's acceptance etc on Nepalese context.

Key words: Genotypes, total yield, check variety, equatorial diameter, polar diameter.

EVALUATION OF AGRONOMICAL CHARACTERS AND POWDERY MILDEW OF GARDEN PEA GENOTYPES AT PAKHRIBAS, DHANKUTA

Raghab Gautam

ABSTRACT

This study was conducted to evaluate the growth and yield traits of garden pea genotypes and to identify high yielding and powdery mildew resistant genotype at Agriculture Research Station (ARS), Pakhribas, Dhankuta, Nepal. Twelve garden pea genotypes were evaluated in the main production season and compared with 'Sikkim Local' as a standard check variety and the experiment was laid out in randomized complete block design with three replications. Results of the on-station experiment showed that genotypes had significant differences for the growth parameters, yield contributing traits, yield traits and powdery mildew. Significantly higher number of green pods/plant and seed yield/plant were recorded in genotype DGP-12-18-2 as compared with other studied genotypes. Genotypes DGP-12-18-2 and DGP-12-18-9 exhibited resistant to powdery mildew disease and these genotypes showed 27.26% and 15.72% yield advantage over the standard check 'Sikkim Local' variety. Therefore, genotypes DGP-12-18-2 and DGP-12-18-9 could be recommended as the superior and promising genotypes for commercialization in Dhankuta district of Nepal.

Key words: Garden pea, growth parameters, yield traits, powdery mildew.

EVALUATION OF PRELIMINARY FABA BEAN GENOTYPES FOR SEED YIELD AND YIELD COMPONENTS UNDER KHUMALTAR CONDITION, MID-HILLS BAHMATI PROVINCE

Rajendra Majhi

ABSTRACT

The present experiment was conducted at NARC with the objectives of seed yield components, insect/pest damages, vegetative and reproductive parameters of faba bean. A set of eight faba bean genotypes were studied at research field of National Horticulture Research Center (NHRC) of Nepal Agricultural Research Council (NARC), Khumaltar, Nepal. The seeds were sown on 6th October, 2021 at Khumaltar. Lalitpur at the spacing of 70 x 20 cm. The experiment was carried out in Randomized Complete Block Design (RCBD) with two replications. The standard recommended dose of fertilizers 80:80:60 NPK kg/ha and 15 tons of compost/ha were applied. Mature fully developed pods were harvested frequently. The variation among the genotypes was observed for various qualitative and quantitative traits. The genotype HRDFB185 produced highest adjusted seed yield (9.568 t/ha) followed by check variety HRDFB014 (8.103 t/ha) and HRDFB080 (7.8 t/ha). The statistical analysis showed that the genotype HRDFB080 was vigorous (3.5), taller (139.5 cm), showed earliest days to pod set (90 days), highest number of flowers per node (6.6). The genotype HRDFB185 was less affected by chocolate leaf spot, virus damage and had highest number in Alternaria leaf spot, adjusted yield, total number of pods per plant, total dry pod per plant, total dried pod weight, dried seed weight and seed gram per plant than other genotypes. The check variety HRDFB014(Kathmandu Local) was observed highest caused by anthracnose but had higher number of pods per plant and adjusted yield ton per hectare after genotype HRDFB185. Hence, HRDFB185 and HRDFB080 have been suggested for cultivation in mid-hills like Kathmandu valley condition in Nepal. Further investigations are required for the optimization of seed yield parameters and multi-location experiments for rapid and economically efficient faba bean seed production.

Key words: Faba bean, genotypes, RCBD, recommendation, seed yield

STUDY ON APPLE PRODUCTION, ITS ROLE AND INCOME GENERATION OF FARMERS IN JUMLA DISTRICT

Rajesh Bishwakarma

ABSTRACT

The present study on 'Study on apple production and its role of income generation of farmer jumla district' was carried out in Chandannath Municipality in Jumla district. This study was conducted on May 30 to August 30, 2022. The main reason behind this study was to gain information about farming system, income of farmer from apple production and components of fruits farming existing as well as to know current status of commercial apple farming. Beside it, our motives were also to gain as much knowledge as possible on whole farming procedures including-how to establish a commercial apple farm, how different fruits of different varieties are commercially produced and how different management techniques are carried out. We conducted our survey by preparing the questionnaire and asked the questions to the owner of the farms and some secondary data were also collected through the study of different articles, journals, books, booklets etc and the collected data were analyzed with Ms-exel software. 10 oda are situated at different place; differentiated by few kilometers, there is found different types of farming methods such as conventional farming method, traditional farming method, and subsistence farming method are used by farmers and few farmers are involved in commercial farming system as well. Annual income of the farmer 65 percent of the respondents had annual income of 90,000-180,000, 20 percent of the respondent had 60,000- 100,000 and 15 percent respondent had above 2,00,000. Though practices on Major problems faced by all the participants were lack of prolific varieties, orchard management, plant protection, marketing and storage. The B/C ratio of apple was found 1.56 indicating that the enterprises were in profit.

Key words: Production, BC ratio, orchard, varieties, profit

EFFECT OF DIFFERENT ORGANIC TREATMENT ON THE SHELF LIFE OF MANGO (*Mangifera indica* cv. langra)

Rasmi Neupane

ABSTRACT

The research. "Effect of different organic treatment on the shelf life of mango (*Mangifera indica* cv. Langra) was done between July 4 and July 15 of 2022 in the lab of HICAST. In order to increase the shelf life and quality of mango at the mature stage, the goal of this study was to choose an appropriate locally accessible plant extract. Six treatments in a Completely Randomized Design (CRD) that was reproduced four times were used in the experiment. Control (T1), Aloe vera extract (T2), Neem extract (T3), Onion extract (T4), Garlic extract (T5), and Ginger extract were the treatments (T6). 24 mangoes were picked for each treatment and stored at room temperature (29.7°F/1.5°C: 85.5°F/2.5°C). Various qualitative and quantitative storage-related metrics, including physiological weight loss, TSS, TA, TSS: TA ratio, pH, firmness, and shelf life. vitamin C were measured. Aloe Vera extracts performed better in terms of Physiological weight loss (%), TA, Firmness, pH. and vitamin C...Neem and other therapies will come next. Neem extracts had higher outcomes in the criterion TSS (12.86), and TSS: TA (100.067) garlic extract came in second (9.73), (93.63). In case of shelf life aloe vera extract showed longest shelf life (12.00) days followed by mango treated with garlic extract (11.50). Finally, this study demonstrated that aloe vera extract performed better than alternative therapies across all parameters that were chosen for the investigation.

Key words: Plant extract, shelf life, Langra variety, organic treatment

ECONOMIC ANALYSIS OF TURMERIC PRODUCTION IN SALYAN DISTRICT

Rhydam Bhandari

ABSTRACT

The survey research entitled 'economic analysis of turmeric production in Salyan district' was conducted during March 2022 to May 2022. The Kalimati, Mainela, Triveni, Ghartigaun of Dharkhani was selected purposefully and sample was selected randomly. A total of 60 households were selected randomly and interviewed using a set of

questionnaires. A total of 20 HHs were selected as sample from Kalimati and each 10 from Triveni, Ghartigaun of Dharkhani and 20 from Malneta. Secondary data were collected from secondary sources like journal articles. MoAD etc. Unavailability of enough and quality seed, Rhizome rot and traders dominance in price determination has limited the success of turmeric cultivation in the area. The average land holding of the respondents was 4.6 ropani and the average of 1.87 ropani land was used by them in turmeric cultivation. Majority of the farmers used seed rhizome reserved from own production for planting materials in the next cycle. All the respondents used organic manure as source of nutrients. Most of the farmers practiced family labour and exchanged labour as source of labour for turmeric cultivation. The total cost of production was found to be NRs. 13380.76 per ropani out of which cost of seed and human labour found to contribute major part Le. NRs 5508.9 and NRs 7752.617 respectively. Benefit cost analysis revealed that the B/C ratio was 1.24 on average. Thus, the turmeric farming could be preferable and profitable, that could raise the economic status of farmers of Salyan district of Nepal.

Key words: Turmeric, production, organic manure, B/C ratio

VARIETAL CHARACTERIZATION OF CUCUMBER IN OPEN FIELD CONDITION, KHUMALTAR, LALITPUR

Ritisha Bhandari

ABSTRACT

The research entitled "Varietal characterization of cucumber in open field condition" was conducted at NARC, Khumaltar, Lalitpur, Nepal from April to July 2022. The experiment was laid out in Randomized Complete Block Design (RCBD), where thirteen treatments replicated thrice to understand the yield performance and quality parameters of different hybrid genotypes. The treatments were Bhaktapur Local, Dhankuta Local, HRD CUC 004x004, HRD CUC 009-003, HRD CUC 009-007, HRD CUC 006x003, Dynasty, HRD CUC 009x001, HRD CUC 009-008, HRD CUC 006 007, HRD CUC 007 and HRD CUC 008. Dhankuta Local (DL-003) is superior in terms of fruit weight, length, and girth, and HRD CUC 009 003 is superior in terms of harvest amount of 16.7 kg yield per plant. Because HRD CUC 009 003 produced more harvests, fruits per plant, and yield per plant than other dark green cultivars, it outperformed them. Most of the hybrids examined had yields that were more than twice as high as open-

pollinated genotypes such as Bhaktapur Local, Dhankuta Local. In order to increase the production of cucumber, high yielding hybrid varieties should be selected and the varietal characterization should be done in an open field condition.

Key words: Cucumber, varietal characterization, fruit, yield, genotypes, open field.

MANDARIN YIELD LOSS AND PUPAL DENSITY ASSESSMENT OF CHINESE CITRUS FRUIT FLY AT NEWLY INVADDED CITRUS POCKETS OF GANDAKI PROVINCE

Roshani Ghimire

ABSTRACT

Among the various potential fruits, citrus is one of the high-value fruit with growing market demand and higher levels of return per hectare but in the present context, one of the main constraints in citrus production is the Chinese citrus fruit fly (*Bactro ceraminax*). The field experiment was conducted during the month of March to assess the pupal density in both managed and unmanaged citrus orchards and to know the field and monetary loss caused by the pupa of the Chinese citrus fruit flies. The survey and the experiment were carried out in newly invaded citrus pockets of four different districts of Gandaki Province namely Baglung, Myagdi, Parbat and Syangja. The survey was done by interviewing 50 farmers and the pupae were collected from one square meter area around the plant canopy. The collected pupae were brought to the Insectarium of DoAR-Gandaki, Lumle for rearing. The highest number of pupae was collected from Myagdi, ie 63 followed by Baglung, i.e. 23, lesser number was collected from Parbat, ie. 10. This result revealed that the farmers of Myagdi were not aware about this pest. The field survey revealed that there is colossal loss in citrus pocket areas of Gandaki province but the farmers are not able to manage them properly due to a lack of appropriate knowledge. The lesser number of pupae in the Parbat shows that the farmers are more aware as they had gotten help from the technician in the previous years. The presence of pupa in both managed and unmanaged orchards indicates the farmer's non-promptness in collecting the fruits immediately after the drops and lack of community approaches for managing the pests. From the study it is clear that the regular disposal of the dropped fruits on the community level can reduce the pupal density and their infestation.

Key words: Chinese citrus fruit fly, pupa, citrus pockets, orchards, monetary loss

ECONOMICS ANALYSIS OF PRODUCTION AND MARKETING OF CUCUMBER (*Cucumis sativus*) IN BHAKTAPUR DISTRICT

Rosy Adhikari

ABSTRACT

The study entitled "economics of Production and marketing of cucumber in Bhaktapur district, i.e. Changunarayan, Suryabinayak, and Madhapur Thimi. The study was carried during April to May, 2022. Altogether 80 cucumber producers were selected randomly that included 40 in Changunarayan municipality, 20 in Madhyapur Thimi municipality and 20 in Suryabinayak municipality. Interview using questionnaire, observation, focus group discussion, was major Primary data collection methodology. Secondary data was collected using various Journals, reports from different Organizations. The study was designed to perform a cost-benefit analysis, assess the current marketing situation, and perform the SWOT (strengths, weaknesses, opportunities, and threats) analysis. It was revealed that 80% of males and 20% of females responded to the survey. Majority of the respondents (78%) were from 15 to 59 years old. The average land holding was 6.31 ropani and the average area under cucumber production 1.3ropani. It was observed that the major variety used is the Bhaktapur Local (97%) and the seed rate is 10-20 gram per ropani. 52% of the respondents performed line sowing on nursery beds for seasonal crop while 78% of the respondents are using polybags for growing Nursery in offseason. 50% of the respondents transplanted the seedlings in between 15-20 days and 56% were following the spacing of 100 cm 100 cm. 90% of respondents reported using both organic manure and chemical fertilizer. 92% of the respondents reported the practice of weeding manually. 80% of the respondents revealed the use of chemical method for managing pests and diseases. Grading was performed through 2 methods, ie. separating the cured, malformed and rotten ones from the proper ones. Grading according to the sizes and other categories were not seen Diseases and Insect pest, higher prices of inputs, lack of irrigation were the major problem faced by the farmers. It was also observed that 86.25% follow the (local level collectors- Retailers- Consumers). Likewise from Economic analysis, it was observed that the Benefit-Cost was 2.96 for Bhaktapur local and

2.57 for hybrid varieties. It was concluded that cucumber have been moderately profitable enterprise for the farmers of Bhaktapur district.

ECONOMICS OF PRODUCTION AND MARKETING OF SUGARCANE IN KANCHANPUR DISTRICT

Rukmani Shahi

ABSTRACT

Sugarcane is the most promising cash and industrial crop in the southern part of Nepal. The objective of this study was to assess the economic and marketing aspects of sugarcane farming in the Kanchanpur district of Nepal. Considering this, the survey was conducted in Belaun Municipality, Panarbas Municipality, and Beldadi rural municipality from May to July 2022. Seventy sugarcane growers were selected by using a simple random sampling technique, (Twenty-five samples from Belauri Municipality, Twenty-five from Beldadi Rural Municipality, and Twenty from Punarbas Municipality). Results revealed that out of seventy respondents, (58.6 %) were male and (41.4 %) were female respondents with the average total land holdings per household was 3.24 hectares. The average area under sugarcane farming per household was 2.30 hectares. The sugarcane production in the study area was found profitable with a benefit-cost ratio (B/C) of 1.80 for the main crop and 2.38 for the ratoon crop. The cost of production per hectare was found NRs. 4,24,462.99 for main crop and NRs. 2,97,425.69 for ratoon crop. The gross return per hectare was found NRs. 7,67,000 for the main crop and NRs. 7,08,000 for the ratoon crop. The overall gross margin of sugarcane for the main crop and ratoon crop was NRs. 4,96,820.5 and NRs. 5,64,857.8 per hectare respectively. The majority (80%) of the farmers sell sugarcane directly to the sugar mills. The study revealed that the unavailability of inputs on time, labor shortage during peak demand periods, and limited availability of water for irrigation were reported to be the major production problems. Likewise, higher transportation costs, irregular/delayed payment, and lack of market information were found as the major marketing problems in the study site. Therefore, the finding suggests that there must be good coordination among producers, market players, and government agencies to overcome production and marketing problems in the study area.

ECONOMICS OF PRODUCTION AND MARKETING OF BANANA IN KANCHANPUR DISTRICT

Sahana Shahi

ABSTRACT

A survey research was conducted to study about the economics, production, and marketing of banana in Kanchanpur district. The study was conducted in Bheemdutta and Krishnapur municipality of Kanchanpur district during April to June 2022, 50 banana growers were selected purposively for the study. Primary data and information were collected from a total of fifty banana growers, twenty-five from each municipality, using pretested semi- structured questionnaires. The farm level information was collected through household interview using semi-structured questionnaire. In addition, focus group discussions and key interviews were also conducted. The study found the average cost of production was found to be NRS 461,600 per bigha with net profit NRs 168,400 per bigha for first cropping season and NRs 390,250 per bigha with net profit NRs 274750 per bigha for succeeding cropping season. The benefit-cost ratio (BCR) of banana was 1.36 in the first cropping season and 1.70 in succeeding cropping season, revealed the profitability of the banana farming which goes on increasing up to production cycle. Major production problems of the study area were incidence of disease and pest followed by destruction due to wind. The study found that impact of Indian banana followed by fluctuation of price are the main marketing problem in the study area. For the increased profitability from banana farming, this study suggested to increase farmers knowledge and skills on banana farming as business, increase access to reliable market with development of appropriate market facilities.

Key words: Banana, yield, commercial, Profitability, constraints

TRAP HEIGHT EFFECT ON CUCURBITS FRUIT FLY ATTRACTIVENESS TO DIFFERENT CUES

Sambriddhi Ghimire

ABSTRACT

Tephritids are the major challenges for fruit and fleshy vegetable growers of the tropics and sub-tropics. Nepal also incurs huge losses of fruits and vegetables to the tephritids. This study was designed to identify the best trap height for monitoring tephritid flies found in Lumle of Gandaki Province. Bucket traps baited with methyl eugenol (ME), cue lure (CL), mixture of ME and CL (ME+CL) and Commercial formula (agrovot) with paper releaser. They were installed at trap height 40 cm, 80 cm and 120 cm above ground with four replications at Lumle during 2022 spring. The distance between traps was 7 (± 0.5) meters. A total of 60 traps were used. Application of lures was carried out every 15 days. Seven species of the fly (*Bactrocera dorsalis*, *zonata*, *cucurbitae*, *tau*, *scutellaris*, *diversa* and *Dacus longicornis*) were recorded from Directorate of Agriculture Research, Lumle Kaski, dominated by *B. dorsalis*. Number of species captured in the 40cm, 80cm and 120cm trap height were 2719, 1158, and 452 respectively. Among the trap height, 40 cm above ground seems to be effective as compared to 80 cm and 120 cm above ground. Similarly, species were trapped by 15% 32%, 25% and 28% in methyl eugenol, cue- lure, mixture of methyl eugenol and cue-lure and commercial formula (agrovot) respectively. Methyl eugenol and commercial formula attracted 2 species i.e. *Bactrocera dorsalis* and *zonata*. Cue lure attracted 5 species i.e. *Bactrocera tau*, *scutellaris*, *diversa*, *cucurbitae* and *Dacus longicornis*. This study unveils the fact that the study site already inhabits seven species of fruit flies and the majority of species are attracted to the bottom level trap height.

Key words: Fruit fly, chemical attractant, trap height

NUTRIENT MANAGEMENT IN SUNFLOWER (*Helianthus annus L.*)

Santosh Nath

ABSTRACT

Field trial was conducted from January 2022 to May 2022 at Directorate of Agricultural Research, Province 1, Tarahara, Sunsari, NARC to reveal the effect of different soil and foliar based nutrient management practices in sunflower (*Helianthus annus L.*) including inorganic/synthetic and organic sources of fertilizers. The experiment was conducted with ten treatments and three replications in a Randomized Complete Block Design (RCBD). The different treatments are Ti(Control), T:(60:40:20 kg N: POs: KO/ha), T(80:40:20 kg N: POs: KO/ha), T(100:40:20 kg N: POs: KO/ha). Ts(Foliar spray of primary nutrients (NPK)), Te(Foliar spray of primary (NPK) and micro (B and Zn) nutrients). T(T2+Foliar spray of micronutrients). Ts(Ts Foliar spray of micronutrients), To(T2+ 10 t FYM/ha) and T10(20 t FYM/ha). The plot receiving 60:40:20 kg N: P20s: K₂O/ha + 10 t/ha FYM showed significantly higher dry matter (leaf + stem + head) per plant (90.47), head circumference (51.67 cm), filled seeds per plant (535) percentage seed filling (62.27%), stem girth (22.47 cm), seed yield (1637.35 kg/ha) and stover yield of sunflower (2382.50 kg/ha) than other treatments. The longest days for 50% flowering was taken by the plots where Farmyard manure @ 20 t/ha was treated. The growth and yield parameters were significantly lower in control plots with no external inputs. The seed yield of sunflower under foliar application of primary nutrients (NPK) were 37.43 and 42.34% lower as compared to 100:40:20 kg N: POs: K₂O/ha and 60:40:20 kg N: POs: K₂O/ha+ 10 t/ha FYM treated plots respectively. Judicious application of chemical fertilizers and farmyard manure is better recommended than sole application of chemical fertilizers and foliar spray.

Key words: Sunflower, RCBD, treatments, nutrients, fertilizers

FARMERS' KNOWLEDGE AND PRACTICE OF PESTICIDES USE AMONG VEGETABLES GROWERS IN DANG DISTRICT

Sarita Basnet

ABSTRACT

A survey was carried out in Ghorahi Sub-metropolitan City Dang District during the month of winter to summer season of 2022 to assess the farmer's Knowledge and practice of pesticides used among vegetables growers in Dang, Nepal. The survey involved 107 randomly selected farmers who were interviewed using semi-structured questionnaires. The primary information indicated that male farmer respondents were 54% and female farmer respondents were 46%. In the case of the age group, 56% of respondents fall under the age group of 20- 40 years. Majority of farmers from Dang District is dominated by Tharu caste Le., 45%. Similarly, the education status of the majority of the respondents was literate i.e., 22% belongs to the primary level of education, Major vegetables planted by the farmers were tomato, cauliflower, cabbage, okra, cucumber and onion. In the study area, while visiting the field 100% of the respondents had the general knowledge of pesticides. 13% of the respondents were aware about toxicity level of pesticides. 100% of the respondents were aware about waiting period of pesticides. The major pests found were cabbage butterfly, tomato fruit borer, okra fruit and shoot borer, thrips and diamondback moth. Farmers were categorized as trained and untrained based on the basis of training received on vegetable cultured. About 68% of respondents were found using pesticides to control pests, 7% of respondents were using botanical plant extract and 12% were using cultural methods. Only 7% of farmers' groups were found to know about IPM, Biological pest management practices and natural enemies.

Key words: Disease; pests; health risk; environment

STUDY ON THE GROWTH AND YIELD OF CARROT (*Daucus carota* cv new kuroda) UNDER ORGANIC MANURE

Saru Mahat

ABSTRACT

Present study was conducted at Chandannath-5, Jumla district of Nepal. It was conducted from 20th May to 18th August 2022 at the field of Chandannath Higher Secondary School. The aim of this study was to

assess growth and yield of carrot at different organic manure inputs. The experiment was carried out five Treatments (Poultry manure, Sheep manure, FYM, Vermicompost and Local control) with 3 replications in RCBD randomized Complete Block Design. Each plot size had 1.2 m² (1.2m *1 m) at 20 cm row spacing with continuous sowing and containing 6 rows. New Kuroda, a variety of carrot, was selected, and growth and yield attributes viz plant height, number of leaves, root diameter, top root ratio, fresh weight, average root yield per plant, total root yield and harvest index were observed. The maximum plant height (41 40 cm) and number of leaves (16.26) was recorded under Ts Le, 5 mt poultry manure 5 mtvermicompost increased the growth attributes, which was significantly higher over control 15mt sheep manure and 15 mt FYM but statistically at par to 5 mt poultry manure. Application of 5 mtvermicompost enhanced the fresh weight of plant, top root ratio, average weight of root per plant, diameter of root, weight of flesh, root yield and harvest index significantly over control, 15mt sheep manure and 15 mt FYM but statistically at par to 5 mt to poultry manure. Thus, poultry manure would be the best alternative to the chemical fertilizers for increasing the yield of the carrot as well as improving soil status.

Key words: *Daucus carota*, growth, organic manure, yield

GOOD AGRICULTURAL PRACTICE: ADOPTION OF PLASTIC TUNNEL HOUSE FOR VEGETABLE PRODUCTION IN BHAKTAPUR DISTRICT, NEPAL

Sheetal Pujara

ABSTRACT

This study entitled "Good Agricultural Practice. Adoption of plastic tunnel house for vegetable production in Bhaktapur district, Nepal" was conducted from April 2022 to July 2022. The study was carried out in 2 municipality of Bhaktapur district, using as set of semi structured questionnaire. Socio-demographic studies revealed that of Male farmers (80%) were involved more in vegetable production under plastic tunnel house as compared to female (20%). Average family size was found less than 5 that means they had nuclear type of family. Agriculture was found as major occupation (83%) of the people. Cauliflower, Tomato, Cucumber, Chilli, Broad leaf mustard, Radish were major vegetable crops but Tomato (Srijana) was found higher than that of other crops. The average size of plastic tunnel house was

(15m x 6m x 4m). Along with cultural practices, reconstruction of structure and replacement of plastics were major activities performed by farmers in about every 3 years. The impact on yield, easier weed management, easy to perform intercultural operations were perceived by farmers as positive impact of Plastic tunnel house. However, most of the farmers reported difficulties in insect pest management under plastic tunnel houses. Major advantages were easy technique for off season vegetable production and increase in production while major disadvantages reported were difficult to manage higher occurrence of diseases under it. However, Vegetable cultivation under plastic tunnel house is still an alternative method for year-round production of vegetables and gaining popularity among the farmers of the Bhaktapur district. The farmers of that study areas are planning to extend the farms under plastic tunnel house along with the good agricultural practice concept on it.

Key Words: Production, management, popularity, plastic tunnel, practice

PRODUCTION AND MARKETING ECONOMICS OF POTATO (*Solanum tuberosum*) IN BHAKTAPUR DISTRICT OF NEPAL

Shimran Dahal

ABSTRACT

This study was conducted in July-September 2022 to analyze the production and marketing economics of potato in Bhaktapur district of Nepal. For the study, 100 potato growing farmers were selected as the respondents from the sampling frame using simple random sampling method. A semi-structured questionnaire was used in conjunction with a head-to-head interviewing technique to get the data. Out of all, 60% of men and 40% of women were employed in potato cultivation. Kumal Seto and Janak Dev, each account for 41% of the potato farmers with an average yield of 21.22 mi/ha. The gross return from potato cultivation was about NRs.530585 /ha. Farmers received an average price of NRs.25/kg. Similarly, the net return per hectare was about NRs. 239633/ha. In the study site, the benefit-cost ratio was 1.8. That showed potato cultivation is profitable. Human labor, seed, and land rent were all significant contributors to potato production costs. The main production and marketing issues in the study area were: lack of human labor, the occurrence of disease, pests, an inappropriate market price, and a lack of machinery. Less attention was paid to launch a

program to improve and increase potato production which is a communal problem of potato producers. All of these factors represented positive trends in farmer livelihood improvement made possible by potato cultivation. However, the study found that growing potatoes is a highly promising agricultural enterprise in the study area. The farmers are suggested to adopt market-oriented policy and programs linking with production to enhance the production and marketing efficiency.

Key words: Agricultural enterprise, benefit-cost ratio, potato, profit

PROFITABILITY AND MARKETING STATUS OF CUCUMBER FARMING IN AANBU KHAIRENI RURAL MUNICIPALITY, TANAHUN

Smriti Poudel

ABSTRACT

A study was undertaken for three months. A pre-tested semi-structured questionnaire was administered to interview 93 farmers and 12 traders who were purposively chosen, making a total sample size of 105. The study estimated the cost of production per kg and total cost per ropani of cucumber to be NRs. 17.36/kg and NRs. 13,520.2/ropani, respectively, with a yield of 778.75 kg/ropani. Also, the gross return, gross margin, and net profit were calculated as NRs. 22365.54, NRs. 11846.26, and NRs. 8845.33 per ropani, respectively, while the average farm gate price of cucumber was NRs. 30.82/kg. Cucumber farming was shown to be profitable with a benefit-cost ratio of 1.58. Farmers in the study area were found to be farming both on-season (hybrid, local, and both) and off-season (hybrid) cucumber varieties. Among the different varieties, both on-season local and off-season hybrids were shown to have the highest BCR of 1.84. Producer-Collector-Wholesaler-Retailer-Consumer (Channel I) was identified as the major marketing channel in the study area with the highest price spread of 33, 40, and 43, respectively, for on-season hybrid, on-season local, and off-season hybrid cucumber varieties. The lack of efficient extension services and high-profit margins of intermediaries were critical factors restricting commercial cucumber production and marketing in the study area.

Key words: Cucumber, varieties, profitability, marketing channel

VARIETAL EVALUATION OF GARLIC GENOTYPES AGAINST *Stemphylium* BLIGHT

Shubham Shah

ABSTRACT

Garlic, *Allium sativum* L. is considered as one of the most important species in the family Alliaceae and as an important bulb crop next to onion. Despite its importance, the productivity is very low in Nepal due to lack of agricultural laborer's, destruction of cultivable land, remittance-induced urbanization, lack of quality genotypes and appropriate package of practices (POP). It is attacked by a number of diseases of which, in field condition, *stemphylium* blight is the most economically important disease. This study was conducted at Agriculture Research Station (ARS), Pakhribas, Dhankuta, Nepal for 2078/07/14 to evaluate the growth and yield traits of ten garlic genotypes and to identify high yielding and *Stemphylium* blight resistant genotype and the experiment was laid out in randomized complete block design with four replications. Tested genotypes differed significantly for growth parameters, yield parameters as well as *Stemphylium* blight. The maximum plant height (37.35 cm) as well as plant population per plant (74.25) was recorded in genotype ARM-47 similarly, lowest height (30.12 cm) in Bhote local and plant population (58) in ARM- 58. The maximum number of leaves per plant (8.5) and length of leaves (39.69) was observed in Bhote local and minimum length (28.70 cm) and number (7.1) of leaf was found in ARM-38 and ARM- 39, respectively. Genotypes ARM- 47 and ARM- 45 exhibited moderately resistant to *Stemphylium* blight disease and these genotypes showed 12.36% and 9.8% yield advantage over the standard check 'Bhote Local' variety. Therefore, genotypes ARM-47 and ARM- 45 could be recommended as the superior and promising genotypes for commercialization in Dhankuta district of Nepal.

Key words: Garlic, significant differences, growth parameters, yield traits

ECONOMICS OF RIVERBED FARMING IN KAPILVASTU DISTRICT

Sujata Pandit

ABSTRACT

A study on the Economics of Riverbed Farming in Kapilvastu District was carried out at Buddhabhumi and Shivaraj municipality of Kapilvastu District in May 2022. The overall objective of this study was to analyze the economics of riverbed farming on the bank of the Banganga and Surahi Rivers in the Kapilvastu district. Primary data was collected through the household survey in Banganga and Shivaraj municipalities where 63 riverbed farmers and 61 non-riverbed farmers were selected randomly for comparative profitability analysis. Results from the study revealed that the average land holding of the respondents was 18.25 Kattha (0.6 ha). Riverbed farming was found more profitable with a B/C ratio of 3.37 than non-riverbed farming whose B/C ratio was found to be 2.93. The average cost of production and total returns were found to be NRs. 5223.21 and NRs.16858.76 per Kattha respectively. Overall gross margin was found to be NRs. 11154.38 per Kattha. The main products of riverbed farming include watermelon followed by cucumber, gourds, tomatoes, pumpkins, and other seasonal vegetables such as brinjal, cowpea, and chilly. Watermelon was found not grown on conventional/ non-riverbed farms. Majority of the farmers sold their produce both in local and distant markets. The study indicated that the major production problems faced by the farmers were disease pest infestation, unavailability of inputs in peak time, lack of technical knowledge, risk of flood, and lack of technical knowledge. The major marketing problems were the low price of output, price fluctuation, wholesaler's dominancy over the market, and involvement of intermediaries. Riverbed farming was found helpful in maintaining food security as well as livelihood improvement for poor, landless, and marginalized farmers.

Key words: Riverbed, production, problems of production, B/C ratio, price fluctuation

ADOPTION OF CLIMATE SMART AGRICULTURE ON VEGETABLE PRODUCTION IN SUNDARBAZAR MUNICIPALITY, LAMJUNG

Sulav Neupane

ABSTRACT

This study focuses on discovering the benefit of adoption of climate smart agriculture in Sundar bazar Municipality of Lamjung district. A household survey was conducted in 2022 to collect primary information through an interview schedule. A sample size of 100 respondent farmers was taken by using simple random sampling. Descriptive statistics, indexing and an ordered logistic regression model were used to analyze the data. Major climatic hazards of the study area are landslides and drought 68 percent of the farmers in the study area are using climate smart agricultural practices for vegetable production. Major climate smart practices in the study area are vegetable cultivation inside polyhouse, drip irrigation, mulching, IPM, improved varieties, and sprinkler irrigation system. The yield of the vegetables is higher for adopters in comparison to non- adopters. Although the cost of cultivation is lower for CSA non-adopters, gross return, gross margin, and benefit-cost ratio are significantly higher for CSA adopters. The ordered logistic regression model shows factors influencing CSA adoption among non- adopters, low, medium, and high adopters. Area of cultivation, subsidies obtained from organizations, age of household head and number of active family members are determining factors for the level of adoption of CSA. Being a greater economic advantage of adoption of climate smart agriculture, government should focus on increasing the trainings for diffusion of climate smart agriculture practices throughout the agrarian communities of Nepal. Building a system to provide meteorological and hydrological information directly to the farmers is also necessary.

Key words: Climate change, climate smart agriculture, vegetables, gross margin, benefit-cost ratio

AN ECONOMICS ON PRODUCTION AND MARKETING OF ORANGE IN GORKHA DISTRICT

Sulok Pokhrel

ABSTRACT

The present study was conducted in Gorkha district in 2022 for about 2 months with the objective to examine the production and marketing of orange. A survey was conducted on 60 orange producers, 5 wholesalers, 5 retailers, and 5 consumers analyzed and data were presented. The finding showed that the production of orange in study area was lower than previous year due to citrus decline in Gorkha. The marketing system was purely private based system dominated by pre harvest contractors. The finding showed that both local and non-local pre harvest contractors were involved in marketing system of orange. The supply of mandarin orange during the on-season was more than off-season due to lack of proper storage facilities. Lack of improved variety, fertilizers, irrigation, orange disease like citrus declining, powdery mildew, cottony mildew and citrus greening, insect like citrus psylla, scale insect, bugs and fruit fly, lack of packaging material, lack of storage facilities, lack of post-harvest technology, linking road, monopoly market system, problems in selling and unorganized nature of markets were major problems. To enhance the production, marketing and supply of mandarin orange all these above problems should be solved by making the efficient polices.

Key words: B: C ratio, citrus decline, contractor, marketing system, pre harvester

SCREENING OF WHEAT GENOTYPES AGAINST RUST DISEASES UNDER FIELD CONDITION

Sunil Thapa

ABSTRACT

The study entitled "Screening of Wheat Genotypes against Rust Diseases Under Field Condition" was carried out in research field of the Agriculture Research Station, Pakhribas, Dhankuta. In Nepal, wheat is the third major cereal crop after Rice and Maize in production but in consumption second after rice. Wheat growing area and production in

eastern the hill is decreasing year after year due to various problems. Diseases are the most important production constraints for wheat. Thus, the study aims to evaluate wheat genotypes against rust disease in eastern hills. Two hundred ninety-nine wheat genotypes received from Nepal Agricultural Research Council (NARC), Botany Division, Khumaltar were sown in rod-row design and evaluated for rust diseases along with some agronomic traits. Disease scoring was done three times on 0-9 scales at the interval of 10-12 days. Among two hundred ninety-nine wheat genotypes, ten genotypes did not germinate. The days to heading ranged from 87 to 110 days. The maximum and minimum plant height attained was 141.4 cm and 67 cm respectively, meanwhile highest, and lowest spike length recorded was 16.1 cm and 8.26 cm respectively. Likewise, days to maturity ranged from 132 to 158 days. Out of two hundred ninety-nine wheat lines, two hundred eleven lines were found resistant, sixty-seven moderately resistant and eleven susceptible to yellow rust, whereas two hundred fifty-two, thirty-four and three lines exhibited resistant, moderately resistant, and susceptible response to leaf rust respectively during final scoring of disease. Overall, the study showed yellow rust to be major disease among wheat rust diseases. This type of evaluation trial should be increased as it will be helpful for wheat breeders and pathologists in creating rust resistance wheat

Key words: Genotypes, yellow rust, leaf rust, resistant, susceptible

DETERMINANTS OF CITRUS DECLINE AND ORCHARD MANAGEMENT PRACTICES IN SAHIDLAKHAN RURAL MUNICIPALITY GORKHA

Suraj Kattel

ABSTRACT

A survey on Determinants of Citrus Decline and Orchard Management Practice was conducted to assess farmer's knowledge towards mandarin production, orchard management, attacking insect/pest, diseases and their prevailing management practices from February to March 2022 in Sahidlakhan Rural Municipality of Gorkha district of Nepal. A total 80 respondents were purposely selected by random sampling. They were interviewed with a pre-structured questionnaire. The study showed that aphid was the most problematic insect followed by citrus leaf miner and fruit fly. Dieback was found to be the most problematic disease in the study area resulting in low production and income followed by

sooty mold, citrus greening. Powdery mildew and root rot. The major constraint to disease management was reported to be lack of accessibility to chemicals and other management practices. A Minority (40%) of the respondents perform training/pruning while 60% don't. The BC ratio of mandarin was found to be 1.61, which is considered a profitable enterprise in the study area. Major marketing problems as described by the farmers were low market price, price fluctuation and inadequate market information. The major problems in the mandarin production were lack of improved variety, disease and pest infestation & unavailability of chemical fertilizers. The orchard management was very poor in the study area. Farmers had very less knowledge about the soil preparation suitable for mandarin, they also lacked proper training pruning techniques. Besides these the environment constraints like climate change, unpredicted rain and hail storm in the area has caused low quality mandarin production in the study area.

Key words: Mandarin, production, constraints, market, management

STATUS OF E-COMMERCE IN FRESH FRUITS AND VEGETABLES IN THE CONTEXT OF KATHMANDU VALLEY

Sushant Kafle

ABSTRACT

A study was conducted from May 2022 to September 2022 with the objective of assessing the current scenario of E-commerce in fresh fruits and vegetables in the technology hub of the country, the Kathmandu valley. The study covered 10 E-commerce enterprises that have had a healthy run in the market with a sound experience. It was found that the businesses had a sophisticated model of operation. It was evident that the companies had proper growth during the time of COVID-19 as it was the go-to option for the people stranded in lockdown to order their food. Customers and supplying farmers were extrapolated through interviews in these enterprises. None of the socio-economic factors were found to be significantly affecting customer preference to adopt E-commerce. However, increase in the number of employed family members, annual income and improvement in internet speed, customer are more likely to use the service. Farmers preferred supplying these companies due to the easy cash-on transaction procedure the companies followed and their nature to buy in bulk. The customers preferred buying mainly as it was time-saving. Various factors affecting the adoption of E-commerce among the customers for

fresh fruits and vegetables were analyzed in the study. Expensive prices has been demotivating the customers to use these portals for purchase while lack of sorting and grading by the farmers have posed a problem to the enterprises. If the freshness of the fruits and vegetables could be maintained for a longer time the business could definitely prosper in the near future.

Key words: Kathmandu, fresh fruits, vegetables, e-commerce, enterprises

FIELD EFFICACY OF SELECTED INSECTICIDES AGAINST CARDAMOM STEM BORER, (*Glyphipterix* spp.) IN LARGE CARDAMOM NURSERY

Taranath Sah

ABSTRACT

Cardamom stem borer is the key pest in all large cardamom growing areas of Nepal. An experiment was carried out at Agriculture Research Station, Pakhribas to study efficacy of selected chemical pesticides against cardamom stem borer (*Glyphipterix* sp). Study was conducted from 24th February 2022 to 26th April 2022. The experiment was laid out in Randomized Complete Block Design (RCBD) with five treatments with same variety and replicated five times. Plant population in each plot was 28-38. Four different insecticides were sprayed in four separate plots and one plot was kept as non- treated control in each replication. Each plot was sprayed with three liters of solution at first spray and 3.5 liters of solution during second and third spray. The insecticides. Were sprayed at interval of 20 days with the help of knapsack sprayer. The chemical pesticides used in treatments were fipronil, dimethoate, difethialone and acetamiprid and one control were used. Data was collected at interval of 20 days. Data were entered in MS excel and analysis of data was done by using GenStat. Diafenthuran was found superior treatment compared to others followed by fipronil, dimethoate and acetamiprid. Difethialone was superior as well as it is blue label pesticide ie they belongs to less risky group so it is widely recommended and other pesticides can be used as alternative.

Key words: Cardamom, stem borer, chemical pesticides, efficacy test, leaf spray

FARMERS' KNOWLEDGE, PERCEPTION AND PRACTICES TO MANAGE FALL ARMYWORM OF MAIZE IN KHOTANG DISTRICT

Tulasa Karki

ABSTRACT

The study was carried out in different wards and municipalities of Khotang district. The study was carried from Baisakh to Ashar 2079. About 70 household were selected randomly, Set of Questionnaire were prepared to collect the primary information from farmers. Primary data were collected from 70 respondents using semi-structured questionnaire. face to face interview and field observation to major insect pests and management practices adopted by farmers of Khotang district, Secondary data were collected from available literature, books, journals, research papers, etc. the survey revealed that majority of the respondents were male (80%). Illiterate farmers were illiterate 21%, followed by primary 34%, secondary 34% and 10% of them completed the high school study, It was found that 54% of the respondents were. It was found that 80% of the respondents were engaged in agriculture only, 13% in service, 3% in business and 4% are engaged in others along with agriculture. Most of the famers cultivate matte on winter season (91%) and few on end of summer season (9%). Most of the respondents 74% cultivated maize for home consumption, 23% for selling and 3% for seed production. Major problems on the field were 46% insect pest, 46% diseases and 9% were irrigation. Major problem was found to be insect pest and diseases. Source of maize seed was 49% subsidy, 37% own, 10% market and 4% neighbor for cultivation. 66% of the respondents were able to identify the pest and 34% cannot identify the pest. While visiting the field the maize field is mostly destroyed by full armyworm. It was observed that there were holes in the leaves of maize and faecel matter of pest was seen on the whorls of maize. The maize whorls were destroyed. It was found that 86% farmers were using chemical method, 11% traditional and 3% physical method. It means majority of the farmers were using chemical pesticides to control the pest.

Key words: Maize, fall armyworm, survey, insect, pests

ASSESSMENT OF VEGETATIVE, FLORAL, AND CORM CHARACTERISTICS IN GLADIOLUS GENOTYPE AT MALEPATAN, POKHARA, NEPAL

Urmila Devkota

ABSTRACT

Promising selected gladiolus genotypes were evaluated at Malepatan, Pokhara of Nepal from March 02-August 07, 2022. The experiments were laid out in Randomized complete block design with three replications. The crop geometry was maintained at 50cm × 28.5 cm in four-meter square plot containing twenty-eight corms per plot. Twelve genotypes namely NGRV0130 (ARSDG-04), RARSLG-014-1.1, RARSLG-014-1.11, RARSLG-014- 2.8, RARSEG-014-3.10(A), RARSLG-014-3.11, RARSLG-014-6.8, RARSLG-014-6.12, RARSLG-014-6.13, RARSLG-014-7.27(4), RARSLG-014-8.22, RARSLG-014-9.10 were evaluated for vegetative, floral and corm characteristics. The genotype RARSLG-014-3.11 was found earliest on days to 50% sprouting, spike initiation, and floret opening. The genotype RARSEG-014-6.12 was found superior in no. of florets per spike, no. of spikes per hill, longest rachis length, and maximum number of kernels. Similarly, the genotype RARSLG-014-1.11 was superior in having a maximum number of corms. The longest length of the spike (140.66 cm) was found for genotype RARSLG-014-6.8.

Keywords: Corm, genotypes, spike, kernels, crop geometry