YPARD Student Research Symposium

Book of Abstracts

November 8, 2017

Hotel Shangri-La, Kathmandu, Nepal

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Integrating Gender and Nutrition within Agricultural Extension Services

YPARD Student Research Symposium

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#YPARDSymposium was the official hashtag of YPARD Student Research Symposium on social media.

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INVITED SPEAKERS

The New Agriculture Development Strategy in Nepal: Dangers, Precautions, and Opportunities

Dr. Anil Shrestha

Department of Plant Science, California State University, Fresno, CA, USA

In recent years, Nepal's new agriculture development strategy is directed towards commercial farming. Crop production is vulnerable to many kinds of pests and, to farm commercially and profitably, they need to be somehow controlled. Globally, on average, 40% of potential yield is lost by pest damage. In many countries, pesticides have been adopted by commercial farmers as they provide immediate and short-term economic management of pests. However, several of these countries have strict regulations on pesticides and promote integrated pest management programs. Most of the farmers who have started commercial farming in Nepal have adopted pesticides and it is suspected that they will be an inevitable part of these systems and their use will only continue to increase if alternatives are not developed. Pesticide regulations were introduced in Nepal in 1991, it is time to strengthen their enforcements and to also develop an effective pesticide monitoring system. It is also the responsibility of the researchers to develop pesticide alternatives and provide proper pesticide education to the growers, pesticide dealers, and agricultural extension agents. Instead of blaming farmers on haphazard use of pesticides in the local media, efforts should be directed to develop reliable, economic, and safe pest management systems, if commercial farming is to be a sustainable means of livelihood in Nepal. The farming systems of Nepal are unique, in pristine areas with a lot of biodiversity; thus, environmental protection should also be a major concern. There are tremendous opportunities in pest management research based on local agroecosystems in Nepal.

Farm to Entrepreneurship

Dr. Sital Kaji Shrestha

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Employing two third of the country's population but only contributing one third to the national gross domestic product (GDP), Nepal's agriculture is highly inefficient. Owing to low productivity, Nepal has not been able to achieve self-sufficiency in food production. Agriculture system in Nepal is predominated by subsistence farming where 78% of farming household produces mainly for domestic consumption. Nepal remains a net importer of agro-products. The agro trade deficit has been ever increasing over the past decades. The issues in agriculture production includes lack of access to quality inputs, lack of irrigation facilities, lack of infrastructures such as warehouses, roads etc. Issues that plague agriculture commercialization is small and fragmented production system. The lack of technical know-how and education and awareness in general has affected the farm productivity in Nepal. Market linkage of small farmers is another problem facing farming communities in Nepal. NIMBUS has been working with farmers improving its backward integration where it has been conducting training, knowledge dissemination on Nimbus procurement system and facilitating crop aggregation at farm level. Nepal has large potential for agribusiness development to drive agriculture commercialization and modernization. Of the total foreign direct investment (FDI) flow in Nepal, only 1% of the investment is made in agriculture sector. The engagement of private sector is critical to agriculture development through commercialization and modernization. In line with this, Nimbus has adopted inclusive business model by including small farmers in the value chain. NIMBUS is also rolling out warehouse and receipt system for the first time in Nepal.

Implementation of LEE Programme through National Agriculture Modernization Service of PMAMD

Dr. Arjun Kumar Shrestha

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Entrepreneurial learning is a complex issue in agricultural education system that often reflects the distinctive temperament of entrepreneurs. Considering the urgency given to this aspect in the recent years at different national and international forum, Agriculture and Forestry University implemented Learning for Entrepreneurial Experience (LEE) Program under Enterprise Learning Modality (ELM) in coordination with Prime Minister Agriculture Modernization Project (PM-AMP) to engage 100 students of B. Sc. Ag. in this program during the entire duration of 8th semester (April- September 2017). These students worked as agri intern in different blocks, zones and superzones present in 71 districts of Nepal. Student/s collected and analyzed district level farm business and agribusiness/enterprises of specific sub-sector. Enterprise feasibility, SWOT analysis, major achievement, lesson learned and way forward of farm business with economic and financial indicators were documented under supervision of supervising committee consisting of major supervisor from the University, member supervisor from Ministry Agricultural Development and district level site supervisor. The students were evaluated 3 times including subsector feasibility proposal (SFP) along with PoP at the initial phase, midterm progress report at mid phase and sub sector business analysis (SBA) along with LEE manuscript consisting of the output of survey research or action research. Only 13 % of the interns conducted the action research while 83% were engaged in the survey/ case study. In addition, they were involved in regular extension activities like farmers training, demonstrations under the direct guidance of the site supervisor. Farmers in the respective sites have received new technology through the interns. With the joint implementation of LEE program, the undergraduate students got opportunity to have the field level experience of commercial farming/ respective enterprise, the faculty members of AFU acquired the prospect to acquaint with the specific field problems and more importantly, it conferred milestone regarding the joint and synergistic effect of educational and extension agencies on agricultural development in the nation.

SDGNepal 2030: Managing the impact of Invasive Alien Species in Livestock Re/Production

Dr. Krishna Kaphle

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A universal understanding of 191 nations agreed that universal uniformity was the need of the time and they envisioned Millennium Development Goals to be achieved by 2015. On reaching there, it was realized that sustainable development was the essence of all that was sought, equity and universality. The eight goals were not enough, so a set of 17 goals and deadline of 2030 make up the Sustainable Development Goals (SDGs). The Goal 15 aims to protect, restore and promote sustainable use of terrestrial ecosystem, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. In the section 15.8 it aims to by 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species. The indicators being, proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species. This resolution is necessary given the problem that tops the list of causes for threatened biodiversity. Nepal is no exception and the magnitude is beyond our assumption. The ticks, the fish,

snails, weeds and the list goes on. Conservation, agriculture, livestock production, housing, tourism, health all sectors are affected and the problem is only getting worse from here. Livestock, production and reproduction is one of the worst hit areas. This talk aims to highlight the problems encountered in Nepal and discuss best approach to mitigate it.

ORAL PRESENTERS

Research Activities under SUKMEL

Rabin Thapa

Agriculture and Forestry University, Nepal

The 'SUKMEL' is a group of interactive students and intellectual elites who serve to improve the current agricultural practices and improve the method of farming via proven research. It includes the students from the Agriculture and Forestry University, Rampur, Chitwan, Nepal who are continuously working with the passion to discover something new and enhance the present method of farming. The group has carried out some sumptuous activities related to agriculture research. Recently it carried out the soil test and software analysis of the soils from various areas along with the proper recommendation to farmers for soil improvement. The most interesting and magnificent research it is currently carrying out is the research related to 103 indigenous varieties of rice. The group has decided to study the characters of each variety as if each were grown in a large field and hence identify the major characters of each variety. We wish to recommend the farmers with the varieties that will be consumer based and demand driven and at the same time we wish to collect the germplasm for future as the indigenous varieties need exploitation. The group hasn't only limited itself with research but soon it will be conducting research on use of modern agri-tools and will be directing the farmers to modern agriculture. The group believes progress in agricultural sector of Nepal via conversion of subsistence level farming to the modern commercial agriculture.

Disease Pest Surveillance under e- Plant Clinic in Marin Rural Municipality of Sindhuli District, Nepal

Shilu Dahal, Kalyani Mishra Tripathi & Devendra Shahu*

Agriculture and Forestry University, Nepal

The study was conducted to assess the existing disease pest status of crop in Kapilakot of Sindhuli district. Data were collected from 9 regular e- Plant Clinic conducted at every 15 days interval with 222 queries in Pipalbot. Semi-structured questionnaire was developed and 105 out of 193 attendants were surveyed. Plantwise Clinics Data Entry Template (V9.2B) was used for data entry and CABI's Final Validation Tool (V8) software for validation. Among 21 crops recorded in e- Plant Clinic, majority was maize followed by rice, tomato and chilly respectively. Coverage of e- Plant Clinic was 7 km on an average and maximum up to 15km. Out of 51 different causes of crop damage identified, 91.44% was the biotic whereas 8.56% was abiotic. Insect were the major biotic cause of crop damage followed by fungi. Maize stem borer was noted in 52.86% of all maize samples and was found to affect mostly intermediate stage. Similarly, fruit fly was recorded in 79% of all cucurbitaceous samples. Similarly, rice was mostly affected by rice blast and rice stem borer. Tomato leaf miner, red banded caterpillar in mango and cob rot of maize were identified as the emerging disease pest. Management measure in e-Plant Clinic was mostly focused on cultural type with less emphasis on chemicals. Study showed that all farmers found recommended solutions from e- Plant Clinic qualitative as supported by their frequent

visit. Majority of farmers (57.14%) found e- Plant Clinic to be both quick, practical and problem solving and a tool for pest surveillance.

Value Chain Analysis of Tomato in Chitwan District of Nepal

Prashamsa Paudel & Sabina Parajuli*

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Tomato is the third most important vegetable after cauliflower and cabbage in terms of area, and production in Nepal. In this regard, a study was carried out to explore the value chain of tomato cultivation in Chitwan district.100 farmers were selected purposively on the basis of tomato cultivation and semi structured interview schedule were administered to collect the primary information. Along with farmers 5 wholesaler and 10 retailers were also interviewed in the study area. By analyzing the variable cost of production, gross margin and B: C ratio (1.609) tomato production was found to be highly profitable. The value chain map shows that out of the total products, 74.8% goes to the wholesalers, 13.4% goes to the retailers, 4.4% to the direct consumers, 1.13% is used for home consumption and 5.4% is lost during postharvest handling. The postharvest loss was comparatively higher in producers than wholesalers and retailers. It was found that 35% of farmers' grade on the basis of size and color and packing was done in crate by all farmers. Producer share for channel producer to wholesalers to retailers to consumers was 70.71% and market margin was 24.51% for the wholesaler and for retailer was 15.25% and in the channel producers to retailers to consumers was 76.41% and market margin was 14.8%. Availability of land, market access and suitable agro climatic conditions were the major strength. Similarly, presence of agricultural stations such as line agencies, agro vets, high demand of the product and the employment generation were the major opportunities.

Monitoring of Tomato Leaf Miner (*Tuta absoluta*) and Assessment of Management Practices Adopted in Kavrepalanchowk, Nepal

Samikshya Gautam, Arjun Kumar Shrestha & Debraj Adhikari*

Agriculture and Forestry University, Nepal

This study was carried out from April-August, 2017 to monitor the population of *Tuta absoluta* and to assess its management practices adopted in Kavrepalanchok. *Tuta absoluta* was monitored using Tomato Leaf Miner lure under plastic house condition. Three tomato farms were selected and four Wota-T traps were installed in each farm. Number of insect trapped was recorded weekly and the lure septa were changed at 15 days interval. Fifty tomato growers were interviewed using semi-structured questionnaire to know major problems in tomato production and management practices for *Tuta absoluta*. Pre-tested interview schedule, Focus Group Discussion (FGD) and Key Informant Survey (KIS) were used to collect the primary information, while secondary information was collected by reviewing relevant publications. MS- excel, SPSS and Genstat were used for data analysis. The number of moths trapped during monitoring period ranged from 51 to 972. Major problem in tomato production were *Tuta absoluta* (insect) and *Phytopthora infestans* (disease). Four regular e-plant clinic at Panchkhal, Kavrepalanchok revealed the severity of *Tuta absoluta* with 17 cases of it out of 21 in tomato. Majority of tomato growers (78%) ranked *Tuta absoluta* as the most problematic of all problems and most of them relied on chemical pesticide (94%) followed by cultural practices (86%) and pheromone traps (66%) for its management. Use of chemical pesticide was reported as the most effective management practice (56%) followed by pheromone traps (28%). Thus, Integrated Pest Management (IPM) measures is required to limit the significant future loss and dependence on chemical pesticides.

Effect of Nixtamalization on Calcium Content of Maize and Evaluate the Quality of Nixtamalized Maize Flour Biscuit

Nikita Bhusal

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Maize or corn (*Zea mays* L.) is the third most consumed cereal crops worldwide for the sources of B-vitamins, thiamin, niacin, pantothenic acid, folate, dietary fiber and some essential minerals. Nixtamalization is a method to obtain maize flour or other flour from grains, in which the grain is soaked and cooked in an alkaline solution, usually limewater known as Calcium Hydroxide $Ca(OH)_2$, and hulled to enhanced the nutritional value of maize, especially for Calcium (Ca). The study was set up at College of Applied Food and Dairy Technology (CAFODAT) in 2016 to analyze the effect of nixatamalization in increment of Ca content in maize flour and biscuit at constant cooking time but varying steeping time: nixtamalization 6, 12, 18 and 24 hrs, including non nixtamalization control measure) where all those five treatments were triplicated. The Ca content was analyzed by volumetric method. Later, proximate analysis of maize flour and biscuit was also carried out along with sensory evaluation of biscuit. The results showed that Ca content was significantly increased with increasing steeping time, consisting linear regression (R^2= 0.711, $p<0.05$). The Ca content was found maximum in nixtamalized (24 hrs) and minimum in non nixtamalized maize grains as 148 and 11.94 mg/100 gm respectively. Both the proximate analysis and sensory evaluation by panelists showed that nixtamalized (18 hrs) flour and its biscuits were found more acceptable than non-nixtamalized maize biscuits. Thus this study concludes that the bioavailability of Ca in maize can be increased by lime treatment.

Prevalence of Enteric Bacterial Hazards in the Street-vended Panipuri and Chanachatpat in Kathmandu District

Dikshya Shrestha

Tribhuvan University, Nepal

Panipuri and Chanachatpat are the most widely consumed, easily available and affordable street foods in Kathmandu district. The lack of understanding in vendors about food hygiene, handling practices and source of bacterial contamination has subjected these foods for the transmission of enteric microbial illness among the general public. This study aimed to examine the bacterial quality of food hygiene and prevalence of enteric bacterial hazards in them. Seventeen samples each of Panipuri and Chanachatpat totaling to 34 were collected by convenient sampling method for the examination. Isolation, enumeration and identification of four major groups of bacteria viz. Coliform, Thermotolerant E. coli, Staphylococci and Salmonella spp. were carried out by pour-plating method, microscopy and biochemical tests. 88.24%, 29.41% and 94.12% of Panipuri samples were found to be unsatisfactory for total coliform count, Thermotolerant E. coli and Staphylococci count respectively. Similarly, 94.12%, 17.65% and 94.12% of Chanachatpat samples were found to be unsatisfactory for total coliform count, Thermotolerant E. coli and Staphylococci resp. Likewise, 11.76% and 17.64% of Panipuri and Chanachatpat resp. were found to be Salmonella spp-positive. Bacterial quality of food hygiene and food handling practices of these 34 samples were unsatisfactory due to their high levels of coliform count and Staphylococcal count. Fecal contamination, evidenced by the presence of thermotolerant E. coli and the presence of Salmonella spp. pathogen clearly indicates that they are a threat to public health.

Post Disaster Management on Agriculture Land: A Case of 2008 Koshi Flood of Nepal

Bima Maharjan & Narendra Raj Khanal*

Tribhuvan University, Nepal

Sripurjabdi Village Development Committee (VDC) was highly affected during the 2008 Koshi flood. This research was conducted to study the flood impacts and the effectiveness of post disaster management on agricultural land in Sripurjabdi VDC. Household survey was carried out to collect the data followed by key informant interview and focus group discussion. For soil analysis, soil samples were collected from the green, yellow and red zone as categorized by District Administration Office, Sunsari. The average cultivated land before the flood was found to be 4.98 ha/HH which reduced to 1.44 ha/HH after the flood. This was mainly because of the deposition of sand over the agricultural land. The sand percent in soil from Red and Green zone were found to be higher than yellow zone. The organic matter was found to be higher in Green zone (2.68%) that was significantly different with Red zone (1.56%). Similarly, the nitrogen content was also higher in Green zone (0.05%) as compared with Yellow and Red zones. The average available phosphorus and potassium were also higher in Green zone (203.93 Kg/ha). For the recovery, 892.81 ha of affected land were reclaimed through incorporation of tillage, land leveling and compost fertilizer. Locals cultivated on the damaged land with vegetables (pointed gourd) and sugarcane. Research on the identification of plant species that grow and give higher production on sand deposited agriculture land is needed to improve livelihood of locals in future.

Value Chain Analysis of Ginger in Sunsari District of Nepal

Swikriti Pandey & Arjun Kumar Shrestha*

Agriculture and Forestry University, Nepal

A study in value chain analysis of ginger in Dharan, Sunsari district of Nepal was conducted during April-August 2017, as selected by the Prime Minister Agriculture Modernization Project (PM-AMP). The objective of study was to analyse the value chain of ginger so as to identify the existing processing, production and marketing situation of Sunsari. A total 50 producers among 500 ginger producers and 15 ginger traders from 3 major markets of Dharan viz. Agriculture Produce Market (APM), Palika Bazaar and Bi-weekly Vegetable Market were randomly selected. Semi-structured interview was designed for both producers and traders and the survey was conducted by face-to-face interaction. Primary data were collected through survey, Focus Group Discussion and Key Interview Survey. Results show that ginger's value-chain status of Dharan was poor owing to negligible value addition activities. The ginger traded in Dharan was mainly imported from other districts of eastern region due to low volume of ginger production in Sunsari. The ginger was then exported to India mostly through APM, Dharan. The trend of ginger cultivation was found to be decreasing due to rhizome rot, low and fluctuating market prices, lack of storage, and processing facilities and poor technical support. Although no value addition activities were adopted the producers expressed their willingness to invest on *sutho* (dry ginger) making. The ginger sector could be commercialized by creating proper market policies and providing proper technical support. Establishment of processing and storage units would also largely aid in improving value addition of ginger sub-sector in Sunsari.

Identifying Source of Genetic Resistance against Lentil Stemphylium Blight (*Stemphylium botryosum* walr.) under Chitwan condition

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Stemphylium blight causes estimated yield losses of about 60-90%. Use of resistant varieties is an important option for management of lentil Stemphylium blight to marginal farmers. The experiment was laid out using Rod row design at Nepal Polytechnic Institute research field at Bharatpur-11 Bhojad, Chitwan, Nepal from November 2016 to May 2017. Treatments consisted 62 types of Lentil (*Lens culinaris*) genotypes including Ill 7164 as resistant and Shital as susceptible check. Recorded parameters among sampled plants were early plant stand, percent disease index, percent disease control, yield increment, days to flowering, plant height, grain yield, hundred gram seed weight, pods per plants, and seed per pod and nodules per plants. Genotypes Black Masuro, Khajura-1 and Ill 6465 were highly resistant having percent disease index (PDI) of 32.52%, 33.6% and 38.08% respectively; Whereas, Genotypes RL 40, ILL 9934, NR-2001-71-3, Khajura-2, RL 21, RL 38, RL 43, RL 58, RL 28, RL 57, ILL 7657 were recorded as early flowering genotypes having flowering days 40. Similarly plant height (64.1 cm) was recorded from the genotypes FLIP 2006-99.The highest hundred seed weight were recorded from genotypes RL 21 (3.88 g), RL 38 (3.84 g) and ILL 4605 (3.62 g). Lentil genotypes Black Masuro, Khajura-1 and ILL 6465 show the resistant against Stemphylium blight disease at Chitwan condition. Therefore these lentil genotypes can be suggested among the farmer to prevent crop loss due to disease Stemphylium blight.

POSTER PRESENTERS

Prevalence of Blood Parasites in Dogs of Chitwan District of Nepal

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A cross-sectional study was done to determine the overall prevalence of blood parasites in dogs of Chitwan district by Giemsa stained thin smear technique. A total of 150 blood samples were taken purposively from the dogs brought at Himalayan Animal Rescue Trust (HART), Chitwan for treatment and surgical procedures. Influence of blood parasites on Packed Cell Volume (PCV) and Total Protein (TP) were also assessed. Overall prevalence of blood parasites in dogs was 12%. Three different blood parasites were observed with highest prevalence of *Anaplasma spp* (7.33%) followed by *Babesia spp* (4%) and *Trypanosoma spp* (0.667%). There was no significant difference ($p>0.05$) of blood parasites in between pet (8%) and stray dogs (16%); male (11.4%) and female (12.17%) dogs and in different age groups (10.9% in age group 2 months to 2 years, 13.43% in age group 2 years to 6 years and 10.71% in age group above 6 years). There was no significant difference ($p>0.05$) in the influence of blood parasites on PCV and TP between positive and negative blood sample. High prevalence of blood parasites in stray dogs may be due to their roaming nature and lack of medication.

Determinants Influencing Livestock Insurance in Rupandehi and Arghakhachi Districts of Nepal

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A survey was conducted in two purposively selected districts, Rupandehi and Arghakhachi districts of Nepal in between April- May, 2017 to assess determinants influencing adoption of livestock insurance. Four VDCs of Rupandehi district viz. Amuwa, Semlar, Tikuligadh, Devdaha and four VDCs of Arghakhachi viz. Tari, Neta, Nigali, and Maidan were identified as cluster and samples were taken randomly from these clusters. In this study, 25 insurers and 25 non-insurers from each district were taken forming 100 numbers of total samples. Data collected through structured close-ended, open-ended and perception scale questions were analyzed using descriptive and inferential statistics where chi-square test was used to test the relation between dependent and independent variables. The result showed that in the piloted districts, livestock related disease was the major risk of both insurer and non-insurer farmers' followed by decreased price of outputs. Various options were carried out by farmers to minimize risks however; cultivation of fodder was identified as the most popular livestock risk management strategy. Variables like membership in cooperatives and change in breed type have significant role ($p<0.05$) for livestock insurance adoption in Rupandehi and factors like education status and breed type of livestock have greater influence ($p<0.01$) on insurance adoption in Arghakhachi district. Lack of publicity was the main reason in Arghakhachi for not insuring livestock whereas higher premium than payment was main reason in Rupandehi district. Perception of farmer for adopting livestock insurance and their problem suggests that quickness in paying insurance amount along with creating awareness and considering premium policy as life insurance can add a milestone in livestock insurance program.

Varietal Screening of Wheat Genotypes against Spot Blotch Disease (*Bipolaris sorokiniana*) under Field Condition at Bhairahawa, Rupandehi District of Nepal

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A field experiment was conducted to evaluate the performance of wheat genotypes against spot blotch disease from November 2016 to April 2017. Experimental field was designed in Alpha Lattice Design with 2 replications and 20 genotypes as treatments. Area Under Disease Progress Curve (AUDPC) value, days to heading, days to maturity, plant height, spike per m^2, grain per spike, Thousand Kernel Weight (TKW) and grain yield were examined. There was negative correlation (r=-0.17322) between yield of different genotypes and AUDPC. BL 4699 and NL 1247 were found to be resistant with AUDPC value 141.7 and 140.6 and yield 3.335MT/ha and 3.604MT/ha respectively. Similarly, genotype BL 4708, NL 1327 and BL 4707 were found to be tolerant with AUDPC value 567.2, 570.6 and 274.6 and yield 3.761MT/ha, 3.642MT/ha and 3.681Mt/ha respectively. So, resistant and tolerant genotypes BL 4699, NL 1247, BL 4708, NL 1327 and BL 4707 could be suggested to incorporate into the breeding program.

Assessment of the role of Agricultural Innovation as a Livelihood sustaining strategy in Central and Western Nepal

Roshani Ghimire, Saroj Panthi, Sushila Baral & Ashis Pandey*

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Increasing agriculture knowledge is gradually enhancing the agriculture production either by the improvement of the existing traditional practices or through the generation of new practices .New ideas

generated in agriculture can be the core reason to sustain the livelihood of the farmers who are dependent on agriculture. But the role of agriculture innovations in day to day of life of farmers is not clearly identified. In order to identify the role of agricultural innovation as a livelihood sustaining strategy, explorative study was carried out 70 households of Chitwan, Kaski and Rupandehi district of Central and Western Nepal. Purposive selection of site with snowball sampling technique to select innovative farmers followed by simple random sampling techniques for the selection of non-innovative farmers was done by means of pre-structured and pretested questionnaire. Study revealed that innovation based on livestock are beneficial than that of crop based innovation. With respect to land holding, study found that people involved in innovation have higher land tenancy. Majority of the innovators were found to be literate that indicates as the level of education goes up the chances of innovation in agriculture also rises. It was found that farmers being engaged in modern farming system are more likely to practice agricultural innovation. From the study it was found majority of the innovators are facing assets related problem having self-effort of the innovators themselves as a major solution. The study showed the role of agricultural innovation in sustaining livelihood strategy is found to be optimistic considering the prevailing problems being solved.

Assessment of Climate, Vegetation, Snow and Glacial Lake formation in Mountain Watershed of Nepal: A Remote Sensing and GIS Approach

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Global warming is a worldwide accepted factor for unprecedented climate change that poses direct and indirect threats to living ecosystem. The temperature of the earth is rising at nearly twice the rate it was 50 years ago. Several studies have shown that the effect of climate change to be more pronounced in mountain environment. Rainfall, temperature and snow cover are widely used indicators to define climate change pattern. This research analyzed time series of Climatic, Hydrologic and Satellite data to determine the trend of climate, discharge and snow cover. Temporal Landsat images of years 1976, 1989, 1995, 2001, 2003, 2008, 2014 and 2016 were used for quantifying Vegetation, Snow and Glacial Lake cover change based on NDVI, NDSI and NDWI indices. The time series analysis of Climate change indicators showed significant trend for maximum and minimum temperature; where warming in the winter was pronounced compared to other season. Similarly, no significant trend for rainfall and river flow was observed, whereas decrease in snow cover and alarming increase of Glacial Lake area in the watershed was observed. The annual maximum temperature was found to be increasing at the rate of 0.115^0 C whereas annual minimum temperature was found decreasing at the rate of 0.08^0 C respectively. While looking at the relationship between climate change indicators, research found out snow cover to be positively correlated with Rainfall whereas it was negatively correlated with mean winter maximum temperature. Early warning system to disaster, income diversification and climate smart farming system are recommended to adapt against changing climate.

Effect of Time of Sowing On Maize-Mungbean Intercropping In Spring-Summer Season under Rupandehi Condition

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The maize-mungbean intercropping system can increase the cropping intensity, improve productivity and ensure food security in Rupandehi district. However, there was lack of research to examine the efficiency of the system. A field experiment was conducted at the Agronomy farm, Paklihawa Campus,

Rupandehi, Nepal during the month of March to June 2017 to study the effect of sowing time of mungbean (Kalyan) on growth and yield of maize (Arun-2) using RCBD design with seven treatments and three replications. The sowing date of mungbean intercropped with maize was altered by one week interval up to 5 weeks starting from the same date of maize sowing (2073/11/23) along with pure stand of maize. The experimental results showed that the yield of both maize (1.24Mt/ha) and mungbean (306.19kg/ha) were found highest in maize intercropped with mungbean after one week of maize sowing (2073/11/30). The length of cob was found significantly longer (18 cm) and test weight (260.3gm) was also found highest in mungbean intercropped after 4weeks of sowing of maize (2073/12/18). Since sowing time of mungbean after one week of maize resulted in highest yield, following this into practice would be more appropriate in Rupandehi district.

Evaluation of Soil Fertility in different Land Use Systems of Dhading District of Nepal

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Field experiments were conducted in Dhading, Nepal from May 15 to July 10, 2017 to assess the fertility status of different land use systems and their effect upon soil fertility parameters. Five land use systems viz. grassland, forest land, upland farm, vegetable farm and lowland farm acted as treatments which were replicated five times in RCBD. Twenty five composite soil samples collected in each study site from 0-20 cm soil depth were analyzed in laboratory for soil organic matter, total nitrogen, available phosphorus, available potassium and pH level determination. All the soil fertility parameters were significantly affected ($P<0.001$) by land use systems. The SOM and nitrogen level were significantly higher in forest land (3.55% and 0.18%) while lowest SOM and nitrogen level were recorded from upland farm (1.26%) and lowland farm (0.058%) respectively. In contrast, the available phosphorus was highest in vegetable farm (41.07 ppm) and lowest in grazing land (2.89 ppm). Upland farm (39.89 ppm) had significantly higher phosphorus level than lowland farm (9.02 ppm). The available potassium content followed the order: vegetable farm (130.2 ppm) > forest land (77.5 ppm) > upland farm (57.0 ppm) > lowland farm (43.2 ppm) > grazing land (36.8 ppm). The soil pH was neutral in vegetable farm while all other treatments had acidic soils. The results obtained from the study indicated that the land under traditional mixed cereal based farming (upland and lowland) has poor soil health compared to adjacent vegetable farm land, grazing land and forest land located within vegetable block of Dhading.

Comparative Socio-economic Analysis of Maize Seed and Grain Producers in Rolpa District

Sameer Pokhrel

Agriculture and Forestry University, Nepal

A study was conducted in 2017 to compare the economics of production and social status of maize seed and maize grain producers in Rolpa district of Nepal. In the study area statistically significant number of maize seed producers had proper market information and better market penetration, were involved in agricultural groups / cooperatives and participated more in maize cultivation training comparative to maize grain producers. Similarly, household heads of maize seed producers had achieved significantly higher academic education than maize grain producers. Including, FYM and labor costs - which contributed about 76 percent of total cost of production - both the maize seed and grain producers were in deficit with the B: C ratio 0.87 and 0.69 respectively. Within these two groups of producers, maize seed producers experienced significantly higher cost of production and obtain income higher than maize grain producers. Though the profit was more among seed producers, the figures were not statistically significant. Nonetheless, seed producers utilized just 36 % of total output as seed and rest as

grain. While, marketing the full potential seeds would have achieved significantly higher profit than maize grain producers. In case of maize seed producer, increasing 1% labor cost increased the total income by 0.68 % whereas in case of maize grain producers increasing 1% FYM increased the income level by 0.35 % which was significant at 5% level of significance. The perceived major problem in the study area was problem of transportation followed by attack of insects and disease.

Assessment of Nutritional Status and Dietary Intake of Adolescents Studying in Schools of Kohalpur municipality, Banke District of Nepal

Madan Pandey

Tribhuvan University, Nepal

Adolescents with good nutritional status would grow to become healthy adult with increased work productivity. Their dietary intake and dietary behavior directly affects their nutritional status. Thus, a cross sectional survey was conducted to assess the nutritional status and dietary intake of adolescents studying in schools of Kohalpur municipality, Banke district. From randomly selected eight schools, 205 adolescents were chosen by random selection according to proportion. Weight and height were measured by using digital weighing balance and stadiometer respectively. Dietary intake was assessed by 24 hour dietary recall and food frequency questionnaire. Data collected was analyzed using WHO Anthroplus version 1.0.4, SPSS version 20 and Microsoft excel. Chi square test was used to analyze the factors associated with nutritional status. Out of total 205 adolescents, 49.8 % of them were from private schools and 50.2% were from government schools. Of them, 47.80% (98) were females, 52.20% (107) were males. The prevalence of stunting, thinness and obesity were 21%, 5.9% and 7.8% respectively. The prevalence of insufficient intake of the nutrients as energy, protein, added fat, calcium, and iron was 85.37%, 41.95%, 92.20%, 77.56%, 76.58% respectively. Similarly of 79.02% of adolescent consume foods from at least 4 food groups. Skipping of meals was also observed among the study group. Proper intervention programmes should be implemented in order to correct the nutritional status nutrient intake and dietary habits of adolescent residing in Kohalpur.

Association between Mothers' Nutritional Knowledge in Childcare Practices and Nutrition Status of 6-59 Months Batar Community Children of Jhorahat VDC, Morang, Nepal

Bhisma Rai, Abhishek Khadka & Basanta Kumar Rai*

Tribhuvan University, Nepal

The study was to find out association between mother's nutritional knowledge in childcare practices and nutritional status of 6- 59 months children of *Batar* community in the rural area of Morang district of Nepal, a community based cross sectional descriptive study was conducted. The data were collected from mothers of 144 children. Census sampling technique was used for data collection. A structured questionnaire was administered to the mothers. Anthropometric measurements and basic associated factors were collected. Prevalence of underweight, stunting and wasting were 27.8%, 23.6% and 19.4%, respectively. Majority of mothers (63.2%) had average knowledge score, 28.5% had poor knowledge score and only 8.3% of mothers had good knowledge score in childcare practices. Calorie intake by the children was significantly ($P< 0.05$) associated with stunting, wasting and underweight. Similarly, study indicated that having kitchen garden at home was significantly ($P < 0.05$) associated with stunting. More than half (50.7%) of households did not have kitchen garden. Families who had kitchen garden were also grown only some seasonal vegetables in less amounts. So, kitchen gardening practices were seen less. Current breastfeeding status, reason of malnutrition and foods during diarrhea were significantly (P<

0.05) associated with wasting. The use of iron-folate tablets during pregnancy was significantly (P< 0.05) associated with underweight.

Under Ground Seepage Canal: A Boon to the Farmer of Chure

Santosh Rasaily& Niraj Mishra*

Agriculture and Forestry University, Nepal

The climate change has pivotal impact on the water Sources. In Nepal, there are mostly non-perennial river and livelihood of farmer mostly depends upon such types of rivers especially in Chure region. During the rainy season, they irrigate the agricultural land from such non-perennial water where as in dry season the land remain fallow since there is no water in such rivers. To overcome all these problems, a unique concept of under-ground irrigation seepage canal which even collects the seepage water even in dry season is started. Under the Ratu river, below 7 to 8 feet there is a clay soil which is impervious to water. From 7 to 8 feet deep two wall are constructed parallel to each other across the river. One of the wall is machinery wall which is impervious to water where as another wall is cut off wall to prevent the seepage of water. As a result a gallery is created, where seepage water is collected and the collected water is directed to the field canal. This type of structure even collected the seepage water in the dry season from the catchment area and collected the enough water for the irrigation. In the six village, underground seepage canal provided water even in the dry season. 544 households are being benefited with 400 ha of land is being irrigated where farmer have started taking 2 to 3 crop a year, a practice to help in ensuring the food security.

ANNEX

1. #YPARDSymposium Promo

2. Program Schedule

YPARD Student Research Symposium

Wednesday, November 8, 2017

Hotel Shangri-La, Kathmandu, Nepal

Time (pm)		Activity	Presenter Name	Title
12:30	1:00	Onsite Registration		
		Master of Ceremony: Asmita Nagila		
1:00	1:20	Organizer	Nikita Bhusal & Deepak Ghimire	YPARD, YPARD Nepal and #YPARDSymposium
1:20	1:40	Invited Speaker-1	Dr. Sital Kaji Shrestha	Farm to Entrepreneurship
1:40	2:00	Invited Speaker-2	Dr. Krishna Kaphle	SDGNepal 2030: Managing the impact of Invasive Alien Species in Livestock Re/Production
2:00	2:00	Invited Speaker-3	Dr. Atul Upadhyay	Prospects and Challenges in Commercializing Nepalese Medicinal Plants
BREAK				
2:10	2:20	Oral-1	Rabin Thapa	Research Activities under SUKMEL in Nepal
2:20	2:30	Oral-2	Shilu Dahal	Disease Pest Surveillance under e-Plant Clinic in Marin Rural Municipality of Sindhuli District of Nepal
2:30	2:40	Oral-3	Prashamsa Poudel	Value Chain Analysis of Tomato in Chitwan district of Nepal
2:40	2:50	Oral-4	Samikshya Gautam	Monitoring of Tomato Leaf Miner (*Tuta Absoluta*) and Assessment of Management Practices Adopted in Kavrepalanchowk district of Nepal
2:50	3:00	Oral-5	Nikita Bhusal	Effect of Nixtamalization on Calcium Content of Maize and Evaluate the Quality of Nixtamalized Maize Flour Biscuit
BREAK (with refreshment)				
3:20	3:30	Oral-6	Bima Maharjan	Post Disaster Management on Agriculture Land: A Case of 2008 Koshi Flood of Nepal
3:30	3:40	Oral-7	Swikriti Pandey	Value Chain Analysis of Ginger in Sunsari district of Nepal
3:40	3:50	Oral-8	Kishor Subedi	Identifying Source of Genetic Resistance against Lentil Stemphylium Blight (*Stemphylium botryosum* walr.) under Chitwan district of Nepal
4:00	5:00	Poster Session		

5:00	5:10	Closing with Awards for Best Oral and Poster Presentation		
Details of Poster Presenter and Title				
		ID	**Presenter Name**	**Title**
		Poster-1	Sharmila Kumal	Prevalence of Blood Parasites in Dogs of Chitwan district of Nepal
		Poster-2	Anupama Aryal	Determinants Influencing Livestock Insurance in Rupandehi and Arghakhachi districts of Nepal
		Poster-3	Namrata Maharjan	Varietal Screening of Wheat Genotypes against Spot Blotch Disease (Bipolaris sorokiniana) under Field Condition at Bhairahawa, Rupandehi district of Nepal
		Poster-4	Roshani Ghimire	Assessment of the role of Agricultural Innovation as a Livelihood sustaining strategy in Central and Western Nepal
		Poster-5	Deepak Khatri	Assessment of Climate, Vegetation, Snow and Glacial Lake formation in Mountain Watershed of Nepal: A Remote Sensing and GIS Approach
		Poster-6	Deepa Pradhan	Effect of Time of Sowing On Maize-Mungbean Intercropping In Spring-Summer Season under Rupandehi district of Nepal
		Poster-7	Sudarshan Kharal	Evaluation of Soil Fertility in different Land Use Systems of Dhading district of Nepal
		Poster-8	Sameer Pokhrel	Comparative Socio-economic Analysis of Maize Seed and Grain Producers in Rolpa district of Nepal
		Poster-9	Madan Pandey	Assessment of Nutritional Status and Dietary Intake of Adolescents Studying in Schools of Kohalpur municipality, Banke district of Nepal
		Poster-10	Bhisma Rai	Association between mothers nutritional knowledge in childcare practices and nutrition status of 6-59 months Batar community children of Jhorahat VDC, Morang, Nepal
		Poster-11	Santosh Rasaily	Under Ground Seepage Canal: A Boon to the Farmer of Chure

3. Participants feedback

A. What did you like about #YPARDSymposium?

YPARD Symposium gave a platform to the young graduate and undergraduate student to present their research in front of such a renowned person and provide the opportunity to learn more about research of others in agriculture sector.	
11/12/2017 11:34 PM	View respondent's answers
The fact that it gave the undergraduate students a platform to share their research.	
11/10/2017 7:38 AM	View respondent's answers
it gives a platform to represent the research of undergraduate level.	
11/9/2017 8:12 AM	View respondent's answers
It was a good opportunity to young researchers like us	
11/9/2017 8:00 AM	View respondent's answers
I liked the way, the program was hosted.	
11/9/2017 7:50 AM	View respondent's answers

B. What did you dislike about #YPARDSymposium?

Lack of time management.	
11/12/2017 11:34 PM	View respondent's answers
Nothing much.	
11/10/2017 7:38 AM	View respondent's answers
time management was poor.	
11/9/2017 8:12 AM	View respondent's answers
Insufficient time for oral presenters	
11/9/2017 8:00 AM	View respondent's answers
The management of poster presentation	
11/9/2017 7:50 AM	View respondent's answers

C. Is there anything else you'd like to share about #YPARDSymposium?

YPARD symposium must be continue in coming days also. 11/12/2017 11:34 PM	View respondent's answers
Hope this programe gets much better in the years ahead 11/10/2017 7:38 AM	View respondent's answers
first of all lots of Thanks to YPARDNepal for providing such a opportunity to us for presenting our research work. It was really a nice program but i see less focal person there. if there were little more focal person then i think it would have more interactive. 11/9/2017 8:12 AM	View respondent's answers
Not only agriculture and veterinary related researches should focused but food and nutrition related researches should also be given importance. I felt nutrition related research was not much cared 11/9/2017 8:00 AM	View respondent's answers
It was wonderful. 11/9/2017 7:50 AM	View respondent's answers

4. Snaps of the Day


Invasive plant a
haven for
disease-carrying
ticks

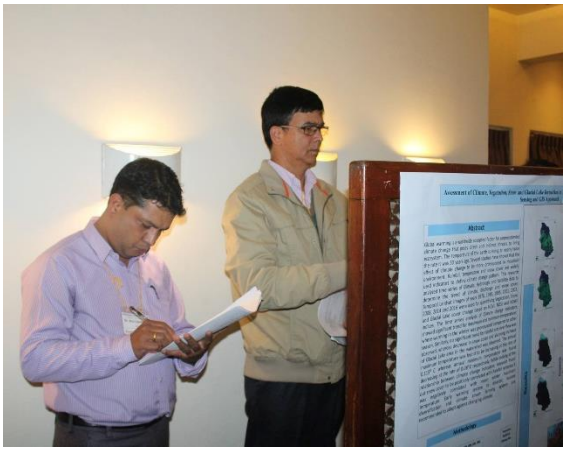

DELL
EPSON

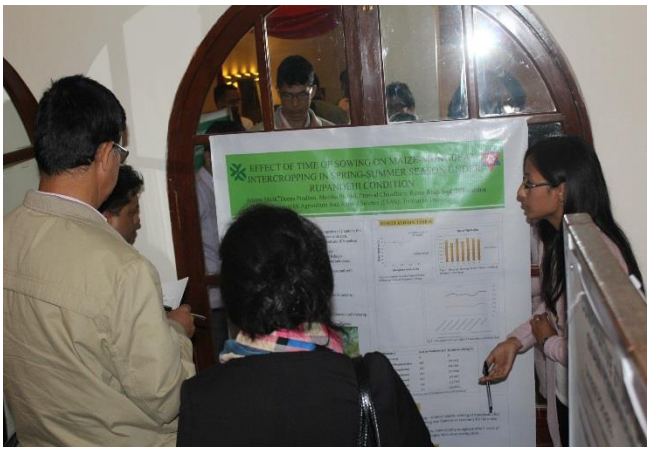

SHANGRI-LA
KATHMANDU


nt clinic campaign
2. Interview Schedule with farmers attending e-Plant clinic
Sampling frame: 193
Sampling technique: Simple random sampling with pre-testing of the questionnaire in the first two e-Plant clinics.15 farmers in each of 9 e-plant clinics were interviewed starting from 3rd e-plant clinic.
Sample size: 105


Suggestions


Ms. Deepa Singh Shrestha
Jury
Mr. Govinda K.C.
Jury
Dr. Atul Upadhyay
Invited Speaker






SHANGRI
KATHMAN

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