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EDITORIAL SUMMARY

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Nepal is in transition from conventional subsistence farming and livestock rearing to modern integrated farming system focusing on whole value chain. Due to inadequate scientific and technological knowledge among wider sector of farming communities Nepal has hitherto remained far behind in agricultural production, and has been shifted from a food grain exporter to importer country. About one third food grain and two third of other food commodities are now imported from other countries. These are the issues of most academic and socio-economic and technical researches in Nepal and other countries. This volume of the NepJAS consists of such original research and review articles. Few articles included in this volume are contributed from developed countries like USA, Russia, and China. There are altogether 30 articles published in this volume. This editorial summary presents gist of the major findings of those articles.

T.A. Nugmanova et al. examined biomaterial samples from infected coffee and tangerine plants taken from Nepal's plantations. The examination was conducted in the BIOIN-NOVO LTD laboratory, Moscow. The isolated pathogens were purified, their biomass was built up, and molecular genetic examination was performed, the genus and species of the phytopathogens were determined. A collection of biofungicides based on the fungi of Trichoderma genus available at the company was screened, revealing the possibility of efficient suppression of phytopathogens by various strains. An experimental sample of a complex biopreparation was obtained from the most active strains using biotechnology techniques in order to test its efficiency under the conditions *of these plants' plantations.*

Dhami et al. have reported positive impact of climate smart sustainable intensive agriculture on various socio-economic, ecological and technological aspects at Lampakha eco-village, Salyan. After following eco-village concept farmers have experienced positive changes in the status of food security. The farmers credited it as an impact of integrated holistic approach of eco-village.

P. Paudel and R. K. Adhikari have done an economic analysis of tomato farming under different production systems in Dhading District of Nepal. They have reported higher productivity of offseason polyhouse tomato cultivation over open field conditions.

M. Basnet et al. have reported positive impact of appropriated dose of fertilizers for the flower's plant health. The plant height, leaf length, flower spike length, diameter, weight and number of corms per plant was found highest at 150 kg N/ha and 100 kg P/ha. They have suggested farmers to use the experimentally optimized rate of fertilizer for commercial cultivation of gladiolus in mentioned soil conditions.

Turkey farming is relatively a new sector in Nepal. A.K. Jha et al. had studied the effect of feed management on productive performance of white turkeys: on the fertility, body weight, and overall health aspects. The best performance of poultry in terms of body weight gain, total egg production, fertility, hatchability and day-old chicks' weight was 400 g of feed offered once in the morning. Subsequently, feeding once a day can reduce the labor cost and maximize the profit.

N.P. Karki et al. studied the histological changes in the liver tissues of bluegill sunfish (*Lepomis macrochirus*) after being exposed to estrogenic compound 17-β estradiol (E2) which has negatively effct on human health and aquatic ecosystem. The results showed that the hepatocyte structure and nuclei were found disrupted in the E2 exposed group with higher level of disintegration in the higher concentration of E2. They have concluded that the exposure of E2 causes negative histological changes in the liver tissues of bluegill sunfish which might lead to disruption in

the fish metabolism. This information is very important from a conservation point of view, and it warrants for monitoring of E2 level in the natural fish habitats.

S. Yendyo and S. Jyakhwo have conducted a study to assess the technical knowhow of farmers on commercial DY 28 hybrid rice cultivation in four districts of Central Nepal. The yield obtained was low due to the unmanaged application of fertilizers, inadequate supply of fertilizers at the time of planting, increased land fragmentation and low technical know-how of modern cultivation techniques.

S. Karki and S.N. Mahato have done the study on epidemiological history of Rinderpest eradication in Nepal. They found that Nepal faced nearly 50 years of Rinderpest outbreaks from 1938/39 til July 1990. During these years, thousands of cattle and buffaloes died causing huge socioeconomic impacts. Authors have concluded that the lessons learned during the Rinderpest eradication can provide useful guidelines while conducting eradication campaigns against candidate diseases such as the Pester des Petits Ruminants (PPR).

S. Giri and G. P. Shrestha have reported about a comparative study of marigolds in soil and soilless media, and have suggested that soilless media consisting of coco peat, compost, perlite, rice husk in a ratio of 60:25:10:5 with hydrogel can be considered the most suitable media to grow the Marigold var. African marigold in urban area, such as Kathmandu.

S. Yadav and U. M. Singh have reported that *M. gallisepticum* and *M. synoviae* infection in broilers as well as in backyard poultry were prevalent in Kathmandu. The occurrence of *M. gallisepticum* was associated with the types as well as age group of poultry.

M.R. Tiwari et al. have carried out a study on production response of dairy cattle in relation to additional bypass protein supplementation in the diet. The study revealed that heat treated soybean cake had more bypass ability than that of formaldehyde in improving milk production of cattle.

T. B. Basnet et al. studied the management practices of of clubroot disease of cauliflower in Kavre district of Nepal; and revealed that the marketable yield of cauliflower per plot was observed highest from *Trichoderma* treatment. The application of lime at the time of field preparation and use of Hatake as biofungicides was found promising measure for the control of disease.

S. Baral has done an assessment on major diseases of broad beans in farmer's field conditions and research station at Kathmandu Valley. Major diseases prevalent were chocolate leaf spot, rust, and early blight. Disease infestation level varied from place to place. Most of the farmers were cultivating broad bean in technically unacceptable manner, without performing proper field sanitation, land preparation, manuring, weeding and hoeing; and some of them even grew it for utilization of fallow land. Every year following the same cropping pattern of Rice-Broad bean had contributed in increased inoculums density yearly, resulting inn high severity of rust in some field.

K. Aryal et al. studied about the adoption of goat production technology and its impact among rural farmers of Nawalparasi district of Nepal. They have reported that the impact of adoption of scientific goat production technology was significantly higher. After the adoption of innovation the kid's mortality has dropped. The study has revealed that modern goat production technology had brought effective change in rural livelihoods.

Barley (*Hordeum vulgare* L.) is one of the important neglected and underutilized species (NUS) cereal crops in Nepal. Abiotic constraints mainly unpredictable climatic variations provoke disease and pests attack on the crop leading to decreased productivity of this crop. In this pretext, S. B. Gurung et al. evaluated barley germplasms for stripe rust (*Puccinia striformi*s Westend. f.sp. *hordei*) resistance in the mid hill condition of Nepal. The study revealed that two rowed barley germplasms were comparatively more resistant to stripe rust than six rowed barley. Under disease progress curve 84 germplasms were found to be resistant to yellow rust suitable to use in future breeding program.

P. Poudyal has done a study on climate change impacts on the livelihood resources of the Chepang community in western Nepal. Across the studied ecological zones the author found that temperature was increasing at alarming rate, with erratic rainfalls and in winter rainfall was decreasing. Erratic rainfall and increased temperature had shown increased insect pests and disease in crop plants thereby reducing the yield.

Shahi et al. have done an evaluation of variability and genetic parameters for yield and yield-attributing traits in spring wheat (*Triticum aestivum* L.) in Nepal. They found significant genetic variations in the genotypes for all the traits under study. They have reported that the selection of genotypes with higher value for flag leaf area, grain filling duration, thousand grain weight, and biomass and harvest index could be taken as essential steps for improvement of grain yield. By formulating selection index and simultaneous incorporation of these traits in future breeding programs could be important step towards obtaining high yielding wheat genotypes.

S. Regmi et al. conducted a study about the adoption of climate smart agricultural technologies by farmers to encounter potential effects of climate change on rice production; and they have documented the climatic knowledge of farmers in Banke district. Their results showed that farmers following agriculture management information system (AMIS) owned significantly larger agricultural land; were less dependent on rain for irrigation; and were using farm machinery for land. The authors suggest that AIMS needs to be strengthened; and should be in reach of every farmer to increase the rice grain as well as other crops' productivity.

Floriculture industry and consumers acceptance of cut flowers and their habit to use other floral materials in household and corporate settings is relatively new in Nepal which imports 90% of flowers from abroad. J. Dahal et al. studied the situation of carnation cut flower production and marketing in Nepal. The present study covers the status, strength, weakness, opportunity and threats of carnation farming with few suggestions for the way forward in Nepalese context. They put forward the better agro-climatic situation, cheap labour market, export opportunity as the strengths of the business whereas lack of infrastructure, highly fluctuating market, the problem in quality planting materials and storage facilities as the major weakness of carnation farming.

Lentil is the major winter pulse crop grown in Nepal being cultivated in almost all parts of the country, except in the high hills. The authors have tried to address the issue of weed management in lentil (*Lens culinaris*) under mid hills condition of Khumaltar, Nepal. The study has revealed that weed management in lentil could be effective by the application of pre-emergence herbicide followed by one hand weeding.

K.K. Pant and S. D Joshi studied on *in-vitro* somatic embryogenesis and organogenesis from the node induced calli of rauvolfia. The authors observed somatic embryogenesis from the calli obtained from nodes after 10 weeks of culture in MS medium supplemented with various concentrations of NAA and BAP; however they failed to produce plantlets. In another experiment with the same treatments they tried to induce roots in vitro for which they are collected from the wild and observed massive root and a few shoot differentiations from the similar calli which ultimately were able to produce a complete plantlet.

Barsila et al. studied on the herbage mass productivity and chemical composition of the riverine grasslands of three riverine grasslands in the Magui Khola of Madi Valley, Chitwan. The major dominated herbage species- *Imperata cylindrica* was dense in open patches of the forested areas whereas Saccharum spontaneum and *Saccharum benghalense* were dense in national park site where the open grassland existed. The study suggests for detailed study on herbage mass production based on total herbage harvest days.

S. Thapa and L. Amgain have concluded that the time and need-based nutrient application could enhance the proper growth and development of rice plants that lead to the higher nutrient uptake and ultimately higher yield output in SSNM based treatments.

A. Pudasainee et al. have studied various governing factors on rice import and export. The study has revealed that population and import of rice in Nepal are found strongly and positively related with each other. Similarly, the urbanization, labor out-migration, internal migration and import of rice in Nepal have been found significantly correlated positively with each. Due to increasing population, urbanization, internal migration, migration of people

to other countries for labor, change in food habit, excessive rice intake than recommended, preference of fine aromatic rice by consumers, the comparatively cheaper price of Indian rice and post-harvest utilization and modifications of rice, rice imports have been increasing.

Besides original articles, one case study and four review articles are also included in this volume.