

Association of Nepalese Agricultural Professionals of Americas (NAPA)

Quarterly Newsletter

# AGRI-CONNECTION

March 2021 | VOL. 6 ISSUE 1

TheDailyGardener.com

नेपाली नयाँ वर्ष २०७८ को हार्दिक मंगलमय शुभकामना !

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# Message from the President

**Dr. Megha N. Parajulee**  
**NAPA President**



Dear members and NAPA global friends,

While it seems the coronavirus pandemic will not disappear anytime soon, the availability of the COVID-19 vaccine has begun to ease some of the restrictions in our personal and professional lives. In addition, we have learned to adapt to this “new normal” in which we are forced to conduct much of our professional activities virtually. With that being said, I am quite proud of what NAPA has accomplished in this quarter. As always, the Agri-Connection Editorial Board led by Dr. Sushil Thapa has brought to you another impressive issue of the newsletter with information on society updates, impactful workshops/panel discussions, scientific research articles, Basmati rice, research mini-grant, agri-poems, endowment, and other valuable materials. We take great pride in making timely communication with membership our top priority.

We began this quarter with a virtually held NAPA Day celebration on January 3<sup>rd</sup>. Each NAPA Day celebration reminds us the historic establishment of our organization and the exponential growth in program activities and its impact. Continuing on our growth trajectory, we announced the second cycle of the Research Mini-Grant (RMG) (NAPA-sponsored research funding and advisory service) in the previous quarter, focusing on research capacity building through undergraduate student research. RMG Program is one of NAPA’s flagship programs that invests in preparing the next generation of young scientists, professionals, policymakers, and entrepreneurs. We received 51 proposals; of those, 16 proposals representing 8 institutions; across various disciplines (crop and soil science, crop protection, horticulture, plant breeding, livestock/fisheries/veterinary science, socio-economics) have been selected for funding. These research projects are expected to commence immediately. On behalf of the entire NAPA family, I congratulate and extend our best wishes to all grant awardees for great success in research and a rewarding professional experience! I am also grateful to all RMG sponsors for your financial and technical support of this program.

NAPA set another milestone in February of this year by publishing an agriculture-based poetry compilation called *Krishika Suseliharu*. The editorial board, comprised of Ms. Ambika Adhikari Tiwari, Dr. Nityananda Khanal, Dr. Bharat Shrestha, and Mr. Tikaram Wagle, is congratulated for this magnificent publication, which connects our profession to the “real world” through the artistic display of poetry. We also brought two sets of webinar speakers from Nepal during this quarter and achieved much needed NAPA outreach to agriculture entrepreneurs and the private seed industry. We will continue to identify and bring webinar speakers from diverse disciplines and areas of expertise to serve the interests of our membership and stakeholders.

While maintaining current programmatic activities, NAPA made another monumental advancement in the organization’s long-term future and program sustainability during this quarter through an enhanced effort in revamping the NAPA Endowment Program. Although the NAPA Endowment Program has been envisioned since the organization’s formative days, organizational growth and program development activities had taken priority during the last four years. Now that NAPA has gained worldwide stature and its program areas are more diverse, a continuous funding stream is essential for programmatic sustainability. Upon the recommendation of Advisory Council, Executive Committee established a 3-member Endowment Fund Advisory Board (EFAB) under the leadership of Immediate Past President and Advisor Dr. Lila Karki; the other Board executives include NAPA Inaugural General Secretary Dr. Prem Bhandari and current President Dr. Megha N. Parajulee. The Board is pleased to have two agricultural economists and NAPA life members, Dr. Basu Bhandari and Dr. Aditya Khanal, serving as Outreach and Investment Coordinators. EFAB is working tirelessly to meet the expectation of members and advisors to bolster the endowment significantly. EFAB had initially set its goal of reaching \$100,000.00 as an endowment fund within this EC term (May 2022), but I am very happy to report that we may have set our goal too low! Our endowment fund is already close to \$65,000.00, including pledged amounts up to a 10-year horizon. We are grateful to all generous donors to date who have surpassed our fundraising goal, and we believe the active fundraising of EFAB has just begun! We have sent our fundraising appeal through this newsletter (p. 8) and will be sending multiple reminders and requests to ensure that you ALL have the opportunity to be a part of this great mission. I hope that you will join this effort for organizational solidarity; no amount is too small in this campaign. A strong financial foundation will allow NAPA to serve its members well and align its programs and activities towards achieving its overarching goal of Global Food Security through Agricultural Transformation.

In closing, I would like to thank all NAPA members for engaging with NAPA activities, volunteering on committees, sponsoring events, and simply supporting the NAPA vision. I continue to urge all of you to connect, advocate, engage, and contribute to move NAPA forward. Thank you, Agri-Connection editorial team, for your hard work to reach out to our valued members in a timely manner.

## Editorial

Agri-Connection comes back every three months presenting testimonies of philanthropy, enthusiasm, and fidelity of the NAPA community in agricultural development. We are thankful to our readers, writers, and advisors for helping in our ventures - connecting Nepali souls worldwide through social and scientific discoveries. Special appreciation goes to our Editors Dr. Bista, Dr. Thapa, Mr. Poudel, and Mr. Wagle, for their concerted efforts in bringing the current issue to this shape.

NAPA organized two important webinars in the past trimester focusing on entrepreneurship development and agricultural business promotion in Nepal. There were two-panel discussions that highlighted the genetic diversity of Basmati Rice in Nepal and the principles of scientific writing skills. In addition, NAPA awarded 16 research projects prepared by the students at different institutions in Nepal. Further, NAPA published a literary book, *Krishika Susheliharu*, a collection of agri-poems, celebrated NAPA Day, and organized an appreciation program for outgoing Honorable Ambassador of the Government of Nepal to the USA, Dr. Arjun Kumar Karki.

The current issue summarizes various events and activities, and encompasses NAPA's achievements in organizational development, capacity building, and networking. We continue our newest efforts: a featured article and a featured entrepreneur in Nepal. Insightful articles on agricultural transformation, agricultural cooperatives, food security, and cover cropping are other attractions for our readers.

We invite you to be a part of this glorious journey by reading, writing, and sharing your feedback. May the upcoming Nepali New Year - 2078 bring you peace, joy, and happiness.

Dr. Sushil Thapa

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<http://napaamericas.org/agri-connection.php>

## Celebration of New Year 2021 and NAPA Day

NAPA was founded on January 6, 2016. A virtual program was organized on January 3, 2021, to celebrate both the New Year 2021 and the NAPA Day. Agri-poem recitation, kid's talent show, and musical performances were the major highlights of the event. The event was moderated by NAPA General Secretary Dr. Ramjee Ghimire. NAPA Vice President Dr. Pradeep Wagle, who coordinated with the performers, deserves our profound appreciation for making this event a great success.

NAPA President Dr. Megha N. Parajulee welcomed the participants and briefly introduced and shared NAPA's ongoing activities. NAPA's life member and Endowment Fund Advisory Board member Dr. Prem Bhandari gave a short presentation on NAPA Endowment Fund, status, and way forward. Delivering his remarks, NAPA's Advisor Dr. Nanda P. Joshi appreciated NAPA's initiation to establish the Endowment Fund. He suggested that the fund amount has to be properly managed and invested to generate revenue and fund NAPA's activities.

Ms. Ambika Tiwari and Ms. Gita Koirala coordinated the Agri-poem section. The poets were Dhanajaya Dhakal, Texas, USA (नापा), Gita Koiral, Texas, USA (नापा), Gobinda Baral, Virginia, USA (नापा तिमी), Ramjee Ghimire, Michigan, USA (नापाको सफलताको शुभकामना), Nityananda Khanal, Canada (नापा र कृषि बिज्ञान), Sharad P. Marahatta, Hawaii, USA (डुल्दै हिँड्ने चरी), Ambika Tiwari, USA (नापालाई शुभकामना सन्देश), Bharat M. Shrestha, Canada (हाम्रो त घरको मुसाले) ।

Dr. Pradeep Wagle facilitated the kid's talents/activities. The kids who participated were Anwesh Wagle (Welcome to the program), Aayam Dhakal (Piano and Nepali National Anthem), Prasam Ghimire (My National Park), Aayush Bhandari (Cup Stacking and Jump Rope/Skipping), and Aayam Dhakal (English Music).

Dr. Manoj Karkee coordinated the cultural activities. The performers were Anjana Duwal, Homan Regmi, Anima Baral, Saaruj Khadka, and Govinda Shrestha. Finally, Dr. Karkee entertained the cultural event by singing Nepali songs and other fun activities.

Dr. Wagle thanked everyone who showcased their talents and attended the events, and adjourned the program.

This program was live-streamed on NAPA Facebook page, and it can be viewed at:

<https://www.facebook.com/NepaleseAgriculturistAmericas/videos/1292953624413872>.



## Ambassador Appreciation Program



Honorable Ambassador of the Government of Nepal to the USA, Dr. Arjun Kumar Karki completed his diplomatic assignment and returned to the homeland, Nepal. As a proud agricultural professional himself, Dr. Karki has supported NAPA since its infant stage. His support for the first Assembly and NAPA's Biennial International Scientific Conferences 2018 and 2020 has been noteworthy. To recognize his unceasing encouragement and support during his time in the USA and for prospective continuing collaboration, NAPA hosted a short appreciation program with Dr. Karki on January 29, 2021. Speaking on the program, Dr. Karki appreciated the efforts made by NAPA towards the agricultural development of Nepal and committed to assisting in the future as needed.

## NAPA 2020-2021 Research Mini-Grant Funding

Started in 2018, Research Mini-Grant (RMG) Program is NAPA's flagship program. NAPA announced calls for 2020-2021 RMG proposals on November 1, 2020, with a deadline of December 31, 2020, for proposal submission. An interactive Questions and Answers session was organized on November 15, 2020, and a video of the session was posted on the NAPA website for the prospective proposal applicants. **Fifty-one** proposals were received, of which 43 were from undergraduate students from various post-secondary academic institutions in Nepal. Each proposal was blind-reviewed by three experts from NAPA Resource and Capacity Building Committee (RCBC) and NAPA members. The **sixteen proposals** selected for funding and respective grant recipients are listed in Table 1. The research teams comprising grant recipient students, their local academic advisors, and NAPA advisors were informed regarding their selection. RCBC team is working on completing an agreement with students, advisors, the NAPA team, and NAPA Nepal Liaison. An introductory meeting on March 4, 2021, and orientation on "Research Integrity and Ethics" on March 11, 2021, were scheduled via Zoom. NAPA is also planning to provide short training on Research Design and Statistical Procedures to the grant recipients and interested NAPA members. The grant recipient students will be jointly advised by a local academic advisor and NAPA member advisor throughout the research project implementation. The students will regularly communicate and seek advice from advisors, submit progress reports to NAPA RCBC, and present their research progress during mid-term and accomplishments in the final review workshops. It is a hope that this program will strengthen the research skills of the students while opening up avenues for future research, education, outreach, and collaborations, and thereby contributing to strengthening agricultural research and education systems in Nepal.

NAPA RCBC, led by Dr. Nityananda Khanal, has been diligently working to manage this program effectively. Except for one institutional sponsorship from a US University, NAPA members' donations have been the only source of funding for the RMG program. NAPA would like to extend the deepest gratitude to all the generous donors for their contribution to the RMG pool fund. Following is a list of donors and their contribution to the RGM fund (Table 2).

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[NAPA 2<sup>nd</sup> Biennial Conference 2020](#)

### PROCEEDINGS



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# NAPA 2020-2021 Research Mini-Grant Funding...

**Table 1. Sixteen projects selected for 2020-2021 NAPA Research Mini-Grant funding.**

Project Title	Student Name	Current Degree	Academic Institution	College/ Campus and Address	Research Area
<b>In-vitro Evaluation of Chemical Fungicides Against <i>Pestalotia longisetula</i> Causing Fruit and Crown Rot of Strawberry</b>	Prashant Bhattarai	BSc Ag	TU	Lamjung Campus, IAAS, Sundarbazar, Lamjung	Crop protection
<b>Evaluation of Growth and Yield Parameters of Local Landraces of Rice (<i>Oryza sativa</i> L.) to <i>Azospirillum brasilense</i> and <i>Pseudomonas flourescens</i> in Dang valley</b>	Shishir Dahal	BSc Ag	TU	Campus of Life Sciences, IAAS, Tulsipur, Dang	Crop Science
<b>Effect of seed treatment on germination and seedling health of summer season okra in Chitwan, Nepal using different plant extracts as bio fungicides</b>	Anugya Bhattarai	BSc Ag	AFU	Central Campus, Rampur, Chitwan	Crop Science
<b>Characterization of Nepalese Sweet Potato Landraces (<i>Ipomoea batatas</i> L.) Using Morphological Markers for Food and Feed</b>	Nabin Poudel	BSc Ag	AFU	Central Campus, Rampur, Chitwan	Crop Science
<b>Effects of Rhizobium Inoculation Strains on Nodulation and Yield of Rice Beans (<i>Vigna umbellata</i>) Landraces in Rampur, Chitwan</b>	Bidya Ojha	BSc Ag	AFU	Central Campus, Rampur, Chitwan	Crop Science
<b>Effect of Phosphorus on Differently Spaced Mung Bean (<i>Vigna radiata</i>) in Rainfed Condition</b>	Pritam Thapa	BSc Ag	TU	Lamjung Campus, IAAS, Sundarbazar, Lamjung	Crop/Soil Science
<b>Women Participation in Cardamom Production: A Study of Ilam District</b>	Mahima Gotame	BSc Ag	TU	Mahendra Ratna Multiple Campus, Ilam	Socioeconomics
<b>Variance Component Analysis Among Amaranthus Genotypes in Mid Hills of Nepal</b>	Prabha Adhikari	BSc Ag	TU	Lamjung Campus, IAAS, Sundarbazar, Lamjung	Plant Breeding
<b>Prevalence of Hemoprotzoans in the Dogs of Kathmandu Valley</b>	Pramila Subedi	BVSc & AH	AFU	Veterinary Science and Fisheries, Rampur, Chitwan	Veterinary/Animal Science
<b>Effect of Rooting Hormones and Media on Vegetative Propagation of Bougainvillea glabra cv. Single Pink Through Hardwood Cutting</b>	Jebina Shrestha	BSc Ag	TU	Gauradaha Agriculture Campus, IAAS, Gauradaha, Jhapa	Horticulture
<b>Assessment of Mechanization Status of Paddy Production in the Western Nepal</b>	Sagar Bhandari	BSc Ag	AFU	Central Campus, Rampur, Chitwan	Socioeconomics
<b>Integrated Nutrient Management in Sesame in Lamahi, Dang</b>	Gaurav Thakur	BSc Ag	TU	Prithu Technical College, Deukhuri, Dang	Crop/Soil Science
<b>Prevalence of Fish Tapeworm (<i>Diphyllobothrium latum</i>) in Commercial Fish Farms of Chitwan District</b>	Sampada Devkota	BVSc & AH	AFU	Central Campus, Rampur, Chitwan	Aquaculture
<b>Assessing the Knowledge, Attitude and Practices Towards Rabies from Three Most Affected Districts of Nepal</b>	Alok Dhakal	BVSc & AH	TU	Paklihawa Campus, IAAS, Paklihawa, Rupandehi	Socioeconomics
<b>Productivity and Reproductive Performance of Yak and Their Cross Breeds in Lower Mustang of Nepal</b>	Bijay Paudel	BVSc & AH	AFU	Veterinary Science and Fisheries, AFU, Rampur, Chitwan	Veterinary/Animal Science
<b>Community Engagement in Livestock Development: A Study of National Agriculture Development Company (NADC), Salyan</b>	Susma Thapa	BVSc & AH	AFU	Veterinary Science and Fisheries, Rampur, Chitwan	Socioeconomics

Note: AFU: Agriculture and Forestry University, TU: Tribhuvan University

# NAPA 2020-2021 Research Mini-Grant Funding...

**Table 2. List of generous donors and their contribution to the NAPA RMG pool fund.**

Name	Pledged Amount (\$)	Name	Pledged Amount (\$)
Nanda and Mani Joshi	500	Ananta Acharya	151
Buddhi Gyawali	500	Mukti Ghimire	102
Megha N. Parajulee	300	Sushil Thapa	101
Pradeep Wagle	300	Santosh Dhakal	101
Ramjee Ghimire	300	Shyam Kandel	101
Manoj Karkee	300	Lila Karki and Uma Karki	101
Pramod Pokhrel	300	Aditya Khanal	100
Prem and Usha Bhandari	300	Sharad P. Marahatta	100
Nitya N. Khanal	300	Bharat Shrestha	100
Khusi Ram Tiwari	300	Rajan Ghimire	100
Dilip Panthee	300	Kalpna Khanal	100
Purna Kandel	300	Gita Koirala Bhandari	101
Sushil Paudel	300	Peetambar Dahal	50
Prakash Malla	300	Sonisa Sharma	50
Kabindra Adhikri	300	Keshav Sharma	20
Shiva Makaju	215	Total USD	6,493

## Appeal to Sponsor Research Mini-Grants in Nepal

**[For Research Mini-Grant details, please click the following links:](#)**

**List of 2020-2021 and 2019-2020 Grants**

**<https://napaamericas.org/funded-grants.php>**

**Final Presentations by 2019-2020 Awardees**

**<https://napaamericas.org/minigrants.php>**

**Make a contribution**

**<https://www.napaamericas.org/donate.php>**

### **Your Contribution to NAPA is Tax Deductible**

Effective January 6, 2016, Internal Revenue Service of the United States government has determined NAPA as an entity exempt from federal income tax under Internal Revenue Code (IRC) Section 501(c)(3). Any contributions made to NAPA will be tax deductible under IRC Section 170.



## Research Mini-Grant (RMG) Awardee Corner

### NAPA is Investing in Preparing Next Generation of Young Scientists

- **Bipin Neupane**  
RMG recipient, 2019-2020



I received a Research Mini-Grant (RGM) from NAPA to conduct my undergraduate research in agriculture in 2019-2020. This grant provided me a great opportunity to indulge myself in designing and executing scientific research. It was important specifically at the time of financial and technical constraints that could hinder my ability to learn state-of-the-art quality research. As such, a research grant from NAPA holds up great value.

From this grant, I carried out a field study to characterize maize genotypes based on nitrogen requirement, drought tolerance, genetic variability and successfully published two peer-reviewed articles. The title of my study was “Varietal Evaluation of Promising Maize Genotypes in Mid-Hills of Nepal.” Results showed that multinational maize varieties had greater adaptability than locally released hybrids in mid hills of Nepal (Neupane et al., 2020a). Results also indicated that top dressing of ~54 kg N/ha at 45 DAS was an appropriate time for the topdressing of nitrogen (N) than the later growth stage (Neupane et al., 2020b).



Fig. 1. Data collection during the study period.

My local advisor Mr. Ankur Poudel and NAPA advisor Dr. Pradeep Wagle played an instrumental role in teaching me the concept of research design, data collection, data entry, data analysis, and result interpretation (Fig. 1). Both advisors supported me from research planning to manuscript writing. I was also encouraged to write progress reports and deliver presentations. I had a chance to present a poster at NAPA’s Second Biennial Scientific Conference 2020.

The RMG program is a great initiation taken by NAPA to help students in Nepal ameliorating their inter-and intra-personal skills and professional careers. The dynamic group of NAPA advisors and experts are contributing to bringing a remarkable change among the grant recipients. I would strongly suggest undergraduate students in Nepal take every opportunity from NAPA for their professional development.

#### References

- Neupane, B., A. Poudel, and P. Wagle. 2020a. Varietal evaluation of promising maize genotypes in mid hills of Nepal. *Journal of Agriculture and Natural Resources* 3(2), 127-139. DOI: <https://doi.org/10.3126/janr.v3i2.32491>
- Neupane, B., A. Poudel, and P. Wagle. 2020b. Canopy temperature depression and normalized difference vegetation index as indicators of drought resistance and nitrogen recommendation in hybrid maize genotypes. *Azarian Journal of Agriculture* 7(3), 69-75. DOI: <https://doi.org/10.29252/azarinj.031>

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<http://napaamericas.org>



<https://www.facebook.com/NepaleseAgriculturistAmericas>

<https://www.facebook.com/napa2072>

## NAPA Endowment Funds for its Sustainable Intervention

NAPA's **ENDOWMENT** is the fund generated through a charitable donation of money or property from its members and well-wishers. The purpose of this endowment fund is to generate further revenue or earnings through productive investments and utilize it to achieve the vision of the organization ([www.napaamericas.org](http://www.napaamericas.org)) in alignment with specific purposes as indicated by the generous donors.

This endowment has been designed to **keep the principal amount intact** while utilizing its earnings (typically generated from investment returns, interests, and dividends) to support NAPA's programs/activities, such as professional development initiatives, teaching, research, outreach, and others. The main goal of establishing and expanding the endowment fund is to allow the underlying monetary assets to grow without withdrawals to increase in value over time. Broadly, endowment consists of but is not limited to gifts, grants, and bequests in cash and kind.

As per Advisory Council's recommendation, NAPA Executive Committee has envisioned and bolster its endowment fund that was established in 2017 for the economic and programmatic sustainability of this nascent organization. Your contribution plays a pivotal role in expanding NAPA's flagship programs and activities towards achieving its overarching goal of **Global Food Security through Agricultural Transformation**.

**NAPA's Endowment Fund Advisory Board (EFAB) has set a goal to raise the fund of US \$100,000.00 (US \$ One Hundred Thousand) by May 2022.**

### Endowment Funds Advisory Board (EFAB)

On December 20, 2020, NAPA's Executive Committee formed a 3-member Endowment Funds Advisory Board (EFAB). The board is composed of a Chair (Founding President) and two Directors (Current President and Founding Vice President, and Founding General Secretary). The board has nominated two NAPA life members as Outreach and Investment Coordinators to execute its outreach and investment programs.

The EFAB is established to play a leading role in defining and detailing the procedures for collection,

#### Advisory Board

**Chair:** Dr. Lila B. Karki

**Director:** Dr. Megha N. Parajulee

**Director/General Secretary:** Dr. Prem B. Bhandari

**Outreach & Investment Coordinators:**  
Dr. Basu D. Bhandari and Dr. Aditya R. Khanal

investment, and utilization of endowment funds. Additionally, the board will revise and update the procedure, policies, and modality of endowment funds as needed. The EFAB has been authorized to function for the growth and development of the endowment fund in consultation with EC, advisory council, and NAPA community as deemed necessary.

### Why donate to NAPA's endowment funds?

Overall, a donation to Endowment Funds will help achieve NAPA's overarching goal, **Global Food Security through Agricultural Transformation**. Specifically, the annual earnings from your donation will be utilized to implement (one or the combination of) the following activities:

- Make an impact where a difference for the transformation of agriculture is needed,
- Help needy individuals achieve their academic dreams through scholarships,
- Develop a NAPA model village and/or pilot projects,
- Leave a legacy in the field of social welfare through agricultural transformation,
- Make history by changing people's lives,
- A noble cause of changing the world gradually,
- Lead a small but impactful research and development work,
- Recognize/pay respect to your beloved ones by naming the endowment in their names, and
- Support NAPA's flagship programs and activities.

#### Do endowment sponsors pay taxes?

NAPA is a non-profit, a 501c (3), professional organization. The donations to NAPA endowment are tax deductible. Additionally, the donations to endowments are not taxed and the assets grow free of taxes.

## Appreciation: NAPA'S Endowment Fund is Growing Fast

NAPA community is growing steadily with an increasing number of members from a wide range of agricultural disciplines and geographical regions. Foreseeing its further expansion over time, it is imperative to have a system of regular funding sources to ensure continued NAPA activities. Such financial safety can be achieved via a carefully managed Endowment Fund. Endowed fund principal is not to spend; instead, the earnings from the endowment investments help the programs you choose to implement. In other words, each gift designated for endowment provides NAPA with a permanent financial support/source. Considering this fact, NAPA established Endowment Fund (<https://www.napaamericas.org/endowment.php>) in 2017, and the current EC formed an Endowment Fund Advisory Board that oversees this fund. Any NAPA members and interested generous individuals may contribute to this fund. Several NAPA members have already pledged for this endowment fund. NAPA Executive Committee and the entire NAPA community greatly appreciate the support from these generous donors (six sponsors have been highlighted in this quarter).

Contact: [napaendowmentfund2021@gmail.com](mailto:napaendowmentfund2021@gmail.com)

 <p style="text-align: center;"><b>NAPA Endowment Fund</b> <b>Platinum Sponsor</b> <b>Dr. Nanda Prakash Joshi</b> <b>Mrs. Mani Joshi</b></p> <p style="text-align: center;">Total Pledged Amount: \$10,000 (Ten Thousand USD over 5 years) \$2,000/year starting in 2021</p>	 <p style="text-align: center;"><b>NAPA Endowment Fund</b> <b>Platinum Sponsor</b> <b>Dr. Megha N. Parajulee</b> <b>Mrs. Sharmila Parajulee</b></p> <p style="text-align: center;">Total Pledged Amount: \$10,000 (Ten Thousand USD over 5 years) \$2,000/year starting in 2021</p>
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 <p style="text-align: center;"><b>NAPA Endowment Fund</b> <b>Gold Sponsor</b> <b>Dr. Prem Bhandari</b> <b>Mrs. Usha Bhandari</b> <i>in honor of Jit-Shavitra Bhandari</i></p> <p style="text-align: center;">Total Pledged Amount: \$5,000 (Five Thousand USD over 10 Years) \$500/year starting in 2021</p>	 <p style="text-align: center;"><b>NAPA Endowment Fund</b> <b>Gold Sponsor</b> <b>Mr. Dhananjaya Dhakal</b> <b>Mrs. Shakuntala Khanal Dhakal</b></p> <p style="text-align: center;">Total Pledged Amount: \$5,000 (Five Thousand USD over 5 Years) \$1,000/year starting in 2021</p>
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 <p style="text-align: center;"><b>NAPA Endowment Fund</b> <b>Bronze Sponsor</b> <b>Mr. Kiran Ojha</b> <b>Mrs. Sarita Ojha</b></p> <p style="text-align: center;">Total Pledged Amount: NRs. 1,00,000 (One Lakh Rupees over 5 Years) NRs. 20,000/year starting in 2021</p>	 <p style="text-align: center;"><b>NAPA Endowment Fund</b> <b>Green Sponsor</b> <b>Dr. Bharat Pokharel</b> <b>Mrs. Sarita Acharya</b></p> <p style="text-align: center;">Total Pledged Amount: \$500 (Five Hundred USD over 5 Years) \$100/year starting in 2021</p>
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**ENDOWMENT  
FUND ADVISORY  
BOARD**  
~ESTD. 2021~

**Chair**  
Dr. Lila B. Karki

**Director**  
Dr. Megha N. Parajulee

**Director/  
General Secretary**  
Dr. Prem B. Bhandari

**Outreach and Invest-  
ment Coordinators**  
Dr. Basu D. Bhandari  
Dr. Aditya R. Khanal

**NAPA'S Endowment Fund Advisory Board (EFAB), Executive Committee (EC) and the entire NAPA community greatly appreciate your generous pledge to NAPA's Endowment Fund.**

## Appeal for Contribution to NAPA Endowment Fund

Dear Sir/Madam:

The Endowment Fund Advisory Board (EFAB) of the Association of Nepalese Agricultural Professionals of Americas (NAPA) sincerely requests you to consider a donation to its **Endowment Fund**. Your donations to the endowment fund would help NAPA achieve its overarching goal, '*Global Food Security through Agricultural Transformation*.' NAPA is a non-profit, non-governmental, non-religious, and non-political professional organization dedicated to serving humanity through scientific research, teaching, outreach, and charitable initiatives in agricultural and allied disciplines. Since its inception in 2016, NAPA has implemented outstanding programs such as international scientific conferences, scholarships, research mini-grants, webinars, seminars and workshops, peer-reviewed journal, Global Journal of Agriculture and Allied Sciences (GJAAS), a semi-annual book on food security, research and policy briefs, and Agri-Connection – an online quarterly newsletter.

To facilitate and expand its endowment fund, originally initiated in 2017, envisioning the economic and programmatic sustainability of this emerging organization, the NAPA Executive Committee (EC) has established an Endowment Fund Advisory Board in January 2021. The EFAB envisages utilizing the endowment revenue to sponsor NAPA's flagship programs, prioritizing donor-specified activities while allowing the principal to grow through its productive investment strategies.

You can contribute to this noble cause by establishing the fund in your name or your beloved ones' name(s). As a contributor, you can also express your activity of interest to NAPA, consistent with NAPA's mission and vision. It is an incredible opportunity for you to contribute to this cause through an upfront donation or any amount on a monthly or annual basis for any number of years, based on your interest and willingness. **Donations to NAPA endowment funds are tax-deductible.** Our Endowment Fund Donation Recognitions/Tiers are:

Platinum Sponsor ≥\$10,000	Diamond Sponsor ≥\$7,000
Gold Sponsor ≥\$5,000	Silver Sponsor ≥\$3,000
Bronze Sponsor ≥\$1,000	Green Sponsor ≥\$500
Valued Sponsor or Supporter <\$500 (allocated to common/pool fund)	

**Within a first couple of weeks of its establishment, EFAB has already received a pledge commitment of USD 57,405 as of March 31, 2021.**

The endowment fund's beauty is that a sponsor may customize the donation as a single contribution or multiple installments over the years. The tiered recognition level may scale up anytime your support reaches the designated tier, as mentioned above. The EFAB assures you that every donation to this fund will be maintained, managed, and utilized transparently.

Thank you in advance for your solidarity. We look forward to receiving your generous pledge for the endowment fund. We highly appreciate your continued support to NAPA. For more information, please visit: <https://www.napaamericas.org/endowment.php>.

In anticipation,

**Endowment Fund Advisory Board**

## NAPA Webinar Series 22 and 23

NAPA hosted two important webinars during this trimester. The 22<sup>nd</sup> Webinar Session was held with Ms. Moushumi Shrestha, Founder of Shree Kisan Innovation Hub Pvt. Ltd. and Ms. Sunita Nhemaphuki, Founder of R&D Innovative Solution Pvt. Ltd., Nepal.

Shree Kisan Innovation Hub provides services to improve agricultural productivity through innovations, knowledge sharing, simplified solutions, and a sustainable approach. The R&D works in a soil-to-sale model and aims to address the challenges faced by farming communities by addressing the problems in every component of the agriculture value chain.

The presenters shared their stories on struggle and experience while starting the agri-business. Now, they are self-employed as well as provide employment opportunities for others and serve the community through training, technology enhancement, and agri-business promotion.

### Messages from Ms. Moushumi Shrestha:

- Empowerment and involvement of youth and women in business.
- Prepare to respond, recover and rebuild, taking the opportunity to reshape a new tomorrow.
- Integrate and collaborate across sectors to reduce the complexity of the crisis.
- Scale-up and support ventures initiated by young and women entrepreneurs.

### Messages from Ms. Sunita Nhemaphuki:

- Avoid huge investment in infrastructures; it will be too risky during the initial days. If available, use your land rather than renting.
- Build a stable customer base, start with small, and keep on growing the size.
- Start maintaining cash flow, then only the investors will trust you.
- Be innovative.
- Always inform, educate, empower, and engage your stockholders, including government agencies, development agencies, the public, friends, and families.

- Do not follow others blindly; you must have your road map.
- Be prepared for the worst; always should have a plan B in your business. For example, if you cannot sell *Rayo ko Saag*, you should plan to make its *Gundruk*.

The 23<sup>rd</sup> Webinar Session was held with Mr. Mitra Raj Dawadi, the Director of Dawadi Agro-enterprises and other organizations. Mr. Dawadi discussed the importance of research on the seed sector in Nepal. He encouraged researchers and academicians all over the world to create opportunities in Nepal and conduct research and help in producing high-quality seeds.

### Messages from Mr. Mitra Raj Dawadi:

- Need of crop variety development based on local cultivars and farmers' demand.
- Conduct research on plant growth regulators/hormones, micronutrients, and enzymes.
- Capacity building of both private and government sectors in quality seed production.
- Coordination and cooperation between private sector and Nepal Agricultural Research Council (NARC).
- Long-term technical and financial supports are needed for the seed production industry in the country.
- Increase the seed replacement ratio to 25% from the current 15% in open pollinated varieties.
- Nepal has a diverse agroclimatic zones, there is a possibility to produce diverse type of products, and there is a very good possibility of seed zoning.

Both webinars were live-streamed via Zoom and Facebook. NAPA webinar series coordinated by a Webinar Committee is led by Dr. Khushi Ram Tiwari, teaming up with Dr. Dilip Panthee and Mr. Maha P. Gelal.

NAPA President Dr. Megha N. Parajulee welcomed the speakers and participants, and NAPA Vice President Dr. Pradeep Wagle delivered the vote of thanks.

# Evidence of Origin and Cultivation of Basmati Rice in Nepal

## Panel Discussion

On December 28, 2020, NAPA organized a panel discussion on "Evidence of Origin and Cultivation of Basmati Rice in Nepal." Basmati is a special long grain aromatic rice grown and produced in a particular region of the Indian subcontinent for centuries. It is traditionally grown, sold, and consumed in Nepal since ancient times. After India applied for registration of Basmati rice to European Union (EU) as a protected geographical indication (GI), Nepal has submitted an opposition letter to the EU. The program was organized to collect more evidence on ten potential areas and prove Nepal also belongs to a place of origin of Basmati rice. Dr. Balkrishna Joshi, Senior Scientist at Nepal Agricultural Research Council (NARC) presented a paper entitled "Intellectual Property Right on Basmati Rice: Current Scenario and Evidences." Dr. Joshi indicated ten potential areas where we can collect information in the forms of stories, anecdotes, formal documents, and folklore, and so forth (Fig. 1). Other panelists and participants shared their views and suggestions.

More than 40 people attended the presentation that was live-streamed via Zoom and Facebook. NAPA President Dr. Megha N. Parajulee welcomed the speakers and participants, and NAPA Vice President Dr. Pradeep Wagle delivered the vote of thanks.

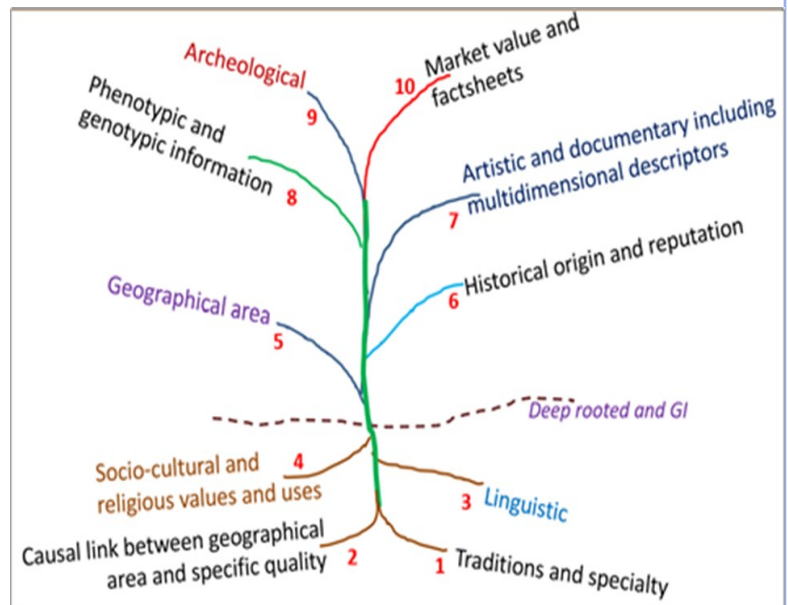



Fig. Ten potential areas to collect evidence on the place of origin of Basmati rice.

Association of Nepalese Agricultural Professionals of Americas (NAPA) presents:

## Evidence of Origin and Cultivation of Basmati Rice in Nepal

### Panel Discussion

 <p><b>Dr. Dilip Panthee</b> Associate Professor North Carolina State University Member, NAPA Webinar Committee</p>	 <p><b>Dr. Bal Krishna Joshi</b> Senior Scientist Nepal Agricultural Research Council</p>	 <p><b>Dr. Narayan Regmi</b> Joint Secretary Ministry of Industry, Commerce &amp; Supplies, Government of Nepal</p>
 <p><b>Dr. Khusi Ram Tiwari</b> Senior Plant Breeder Bayer Crop Science Chair, NAPA Webinar Committee</p>	 <p><b>Dr. Deepak Bhandari</b> Executive Director Nepal Agricultural Research Council</p>	 <p><b>Dr. Ram Baran Yadav</b> Director Directorate of Agricultural Research - Province 2 Nepal Agricultural Research Council</p>
 <p><b>Dr. Megha N. Parajulee</b> Professor Texas A&amp;M University President, NAPA</p>	 <p><b>Dr. Hari Bahadur KC</b> Joint Secretary Ministry of Agriculture &amp; Livestock Development, Government of Nepal</p>	<p> <b>LIVE</b> <a href="http://www.facebook.com/napa2072">www.facebook.com/napa2072</a></p>

Zoom ID: 483 409 8100      Dec 28, 2020 7:30 PM CST (USA) / Dec 29, 2020, 7:15 AM (Nepal)

# Scientific Writing and Publication Panel Discussion

On February 13, 2021, NAPA, with the support of its Student Coordination Committee (SCC) organized a panel discussion on "Scientific Writing and Publication." This member-only event was moderated by SCC Advisor Dr. Santosh Dhakal and SCC Chair Ms. Shubhechha Sharma. NAPA Vice President and the key presenter Dr. Pradeep Wagle presented on the topic "How to Write Better Scientific Manuscripts?" His presentation discussed the whole journal cycle, including but not limited to the following points:

- Why do you publish a manuscript?
- Basic manuscript writing tips.
- What is plagiarism, and how to avoid it?
- Predatory journals and staying away from them.
- Manuscript components: Title, Key points/Highlights, Index Terms and Keywords, Abstract, Introduction, Materials and Methods, Results and Discussion, Conclusion or Summary, References, and Tables, and Figures.

The second presentation was on "Publication in High impact Journals" by Dr. Sangeet Lamichhaney, Asst. Professor, Kent State University, Ohio. He discussed how publications in high-impact factor journals (>40) are defined and received globally. Dr. Lamichhaney

explained that such journals are written in a simple and non-technical language and have wider readerships beyond a specific field. They usually cover groundbreaking research. Paper published in higher impact factor journals is highly cited and gets wider exposure in the media. He added, to publish in those journals, a scientific discovery that has an impact beyond a specific field of study is required.

Our third presenter scheduled was Dr. Kabindra Adhikari Soil Scientist at the USDA-ARS, Temple, Texas. Unfortunately, he was not able to give his presentation by himself, because of the snow and poor road conditions he was not able to reach home. Dr. Wagle covered his slides on the "Writing of Review Articles."

Fourth Panelist Dr. Maya Subedi, a Research Associate at Agriculture and Agri-Food, Canada, briefly talked about the challenges and experiences of early career researchers while writing a manuscript.

This program was attended by over fifty-five participants from Nepal, the USA, and Canada. It was a lively program with a lot of interaction, and Q&A. Subby Sharma facilitated the Q&A session. NAPA General Secretary Dr. Ramjee Ghimire thanked everyone, including panelists, presenters, and participants, and adjourned the program.



## Association of Nepalese Agricultural Professionals of Americas (NAPA) & Student Coordination Committee (SCC) Present **PANEL DISCUSSION** on **Scientific Writing and Publication**



### Presenter:



**Pradeep Wagle, PhD**  
Research Ecologist  
USDA-ARS, EI Reno, OK, USA

### Moderators:



**Shubhechha Sharma**  
PhD Student  
Michigan State University  
MI, USA



**Santosh Dhakal, PhD**  
Research Associate  
Johns Hopkins University  
MD, USA

### Panelists:



**Kabindra Adhikari, PhD**  
Soil Scientist  
USDA-ARS, Temple, TX, USA



**Sangeet Lamichhaney, PhD**  
Assistant Professor  
Kent State University, OH, USA



**Maya Subedi, PhD**  
Research Associate  
Agriculture & Agri-Food, Canada

**USA Time:**  
**February 13, 2021**  
**(Saturday)**  
**7:15 PM CST**

**Nepal Time:**  
**February 14, 2021**  
**(Sunday)**  
**7:00 AM**

## Photographs in Action



**Photograph I:**

Soybean plantation after terminating cover crops on ongoing cover crop evaluation trial for soybean cyst nematode.

*Source: Sita Thapa*



**Photograph II:**

Saving the seeds: Different approaches used to save sorghum seeds in the Texas A&M AgriLife Research.

*Source: Sushil Thapa*



**Photograph III:**

Utilizing hair cortisol as a non-invasive method of assessing heat stress in animals in pastoral system.

*Source: Sanjok Poudel*



## KidsZone: Please Encourage Your Kids to Participate

Dear NAPA members and AC readers,

We are very excited to announce a **KidsZone** in the Agri-Connection Newsletter from the next issue onwards.

Please inform and encourage your kids to participate. Creations such as arts, drawings, and any forms of writings (short essay, poem, story, memories, etc.) related to agriculture and allied sciences are accepted. **KidsZone** also includes features on kids, animals, plants, life at school, and issues of particular interest to kids.

**Please include the following:**

Name  
Grade  
State/District  
Photo



# KIDS TODAY, SCIENTISTS TOMORROW!

Email: [ag.sushilhapa@gmail.com](mailto:ag.sushilhapa@gmail.com)  
CC: [napa2072@gmail.com](mailto:napa2072@gmail.com)

## Featured NAPA Member of the Quarter (Jan - Mar 2021)



# Congratulations!



## Pramod Pokhrel, Ph.D.



Dr. Pramod Pokhrel is a life member of NAPA. He serves NAPA as the chair of the Career and Outreach Committee (COC). He also serves as a member of the Resource and Capacity Building Committee (RCBC) and coordinates Research Mini-Grant (RMG) activities.



# NAPA

## MEMBER OF THE QUARTER

**NAPA is delighted to recognize Dr. Pokhrel as a Featured Member of the Quarter for his valuable contribution to the organization.**

### Profile:

Dr. Pramod Pokhrel, a Postdoctoral Research Associate at Texas A&M University, joined NAPA as a life member in 2020. Within a short period, he has made remarkable contributions to the organization. He has created and maintained the NAPA - Graduate Assistantship web page with the help of dedicated student members. Dr. Pokhrel serves as the chair of the Career and Outreach Committee (COC). The COC team organizes interactive programs focusing on prospective graduate students and others. Dr. Pokhrel is actively involved in developing a NAPA professional database. He assists in updating the NAPA website and designing electronic content such as flyers, e-book cover, and presentation materials.

Dr. Pokhrel serves as a member of the Resource and Capacity Building Committee (RCBC) and manages and coordinates Research Mini-Grant

(RMG) activities. He initiated an online proposal submission system for RMG and streamlined the blind review of received grant proposals. Dr. Pokhrel maintains the grant applicants' database and communicates with grant applicants and their local and NAPA advisors.

During the NAPA – 2nd International Biennial Scientific Conference 2020, he served as a technical coordinator and session moderator.

Dr. Pokhrel earned his Ph.D. in Agronomy from Texas A&M University in 2020, M.S. in Plant Soil and Environmental Science from West Texas A&M University in 2016, and B.S. in Agriculture from Tribhuvan University in 2010. His research focuses on cropping systems and simulation modeling.

Congratulations, Dr. Pokhrel. We appreciate your contribution to the organization!

## NAPA Committees

### NAPA Executive Committee (2020-2022)

#### President

Dr. Megha N. Parajulee

#### Vice President

Dr. Pradeep Wagle

#### General Secretary

Dr. Ramjee Ghimire

#### Joint Secretary

Dr. Dev Paudel

#### Treasurer

Dr. Santosh Dhakal

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Ms. Gita Koirala Bhandari  
Dr. Nityananda Khanal  
Dr. Shyam L. Kandel  
Dr. Sushil Thapa  
Dr. Uma Karki

#### Advisory Council

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Dr. Drona Rasali  
Prof. Gopi Upreti  
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Dr. Lila Karki  
Dr. Nanda P. Joshi  
Dr. Narayan Khadka  
(Legal Advisor)  
Dr. Pectambar Dahal  
Dr. Prakash Malla  
Dr. Suman Rimal Gautam  
Dr. Yam B. Thapa

#### Nepal Liaison

Mr. Kiran Ojha

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#### Co-Chair

Dr. Santosh Dhakal

### Student Coordination Committee (SCC)

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#### Co-Chair

Mr. Bikash Ghimire

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Mr. Nabin Sedhain  
Mr. Pawan Devkota  
Mr. Rishi Khatri  
Mr. Sudhir Yadav  
Ms. Sudikshya Paudel  
Mr. Sujana Bhattarai  
Mr. Yogendra Raj Upadhyaya

#### Advisor

Dr. Santosh Dhakal

### Research/Policy Brief (RPB)

#### Editor-in-Chief

Dr. Bed P. Khatiwada

#### Editors

Dr. Bhim Chaulagain  
Dr. Shanta Karki

### IT Committee

#### Chair

Dr. Dev Paudel

### Career and Outreach Committee (COC)

#### Coordinator/Chair

Dr. Pramod Pokhrel

#### Members

Ms. Asmita Nagila  
Mr. Bishwoyog Bhattarai  
Mr. Deependra Dhakal  
Mr. Dinesh Phuyal  
Ms. Isha Poudel

### Global Journal of Agricultural & Allied Sciences (GJAAS)

#### Editor-in-Chief

Dr. Megha N. Parajulee

#### Managing Editors

Dr. Bharat Pokharel  
Dr. Pradeep Wagle

#### Editors

Dr. Chakra Budhathoki  
Dr. Jagadish Timsina  
Dr. Kalidas Subedi  
Dr. Krishna P. Paudel  
Dr. Nabaraj Devkota  
Dr. Prem B. Bhandari  
Dr. Uma Karki

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#### Coordinator

Ms. Gita Koirala Bhandari

#### Members

Ms. Ambika Tiwari  
Dr. Kripa Dhakal

### Resource and Capacity Building Committee (RCBC)

#### Coordinator/Chair

Dr. Nityananda Khanal

#### Members

Dr. Aditya Khanal  
Dr. Bharat M. Shrestha  
Dr. Buddhi Gyawali  
Dr. Manoj Karkee  
Dr. Pramod Pokhrel  
Dr. Rajan Ghimire  
Dr. Sharad P. Marahatta  
Dr. Sonisa Sharma

### Webinar/Talk Organizing Committee (TOC)

#### Chair

Dr. Khushi Ram Tiwari

#### Members

Dr. Dilip Panthee  
Mr. Maha P. Gelal

# NAPA Membership Update

<b>Member Categories</b>	<b>Members</b>
Founding Life	5
Regular Life + Senior Life	98
General/Regular	24
Student	130
Associate Life, International	2
Associate Life, Nepal	59
Associate, International	2
Joint Life	4
Family/Joint	14

## Welcome New NAPA Members on Board!

### Life Members

Dr. Parmeshwor Aryal, Florida  
 Mr. Ramesh Pandit, Iowa  
 Mr. Ram K. Kadariya, New Hampshire  
 Dr. Sangeet Lamichhaney, Ohio  
 Dr. Durga Chapagain, Ohio  
 Dr. Maya Subedi, Canada

### Joint Life Member

Mrs. Sarita Pandit, Iowa

### Associate Life Member

Dr. Surendra Karki, Nepal

### General/Regular Member

Dr. Subodh Adhikari, Idaho

### Student Members

Mr. Deependra Paneru, University of Arkansas at Pine Bluff  
 Ms. Anjana Dulal, Kentucky State University  
 Ms. Priyanka Devkota, Mississippi State University  
 Mr. Anil Babu Baniya, University of Florida  
 Mr. Deepak Ghimire, University of Nebraska  
 Mr. Madhav Subedi, University of Georgia  
 Ms. Sujata Bogati, University of Georgia  
 Ms. Aastha Pudasainee, Michigan State University  
 Mr. Rajan Shrestha, Texas A&M University

**Please renew your membership (become a life member if possible) if you have received renewal emails from NAPA.**

## An Appeal To Join/Renew NAPA Membership

We would like to request potential members to join NAPA - a **common professional platform for all of us**. Meanwhile, we request all members who are not currently in good standing to renew their memberships. Members' contributions thus far to bring NAPA to the current level is greatly appreciated. We request our dedicated members and well-wishers to promote NAPA to the next level by recruiting eligible friends/colleagues/students in your network. New NAPA members must write the recruiter's name in the "referred by" row in the membership form. The highest three recruiters will be recognized at our Biennial Scientific Conference.

### A few reasons to join/renew NAPA membership:

NAPA is a member-driven voluntary organization. Members can benefit from the association to advance their career growth, develop organizational practices and leadership skills at all stages. Some of the membership benefits include:

- Peer-to-peer networking and research collaboration opportunities
- Professional development and advancement
- Serving on various committees
- Opportunity to publish scientific works in NAPA's various outlets (Journal, Book, Research/Policy Brief, and Agri-Connection)
- Opportunity to sponsor scholarships and research mini-grants in preferred agricultural institutions and disciplines in Nepal through NAPA
- Eligibility for organizational awards, scholarships, and endowment funds
- Opportunity to share scientific works, experiences, and expertise via association's Talk Sessions (Webinars) and Online Teaching/Learning Programs
- Joining global expert repository to contribute to Nepalese Agriculture and beyond
- Keeping up-to-date on association's programs and activities
- Volunteering and charitable opportunities
- Discounted rates for registration and hotel reservation during scientific conferences organized by the association



The life membership fees have been adjusted from \$500.00 to \$200.00 (\$300.00 for eligible couples) to encourage eligible members to become life member of the organization. Please check for more details on Joining NAPA at <http://napaamericas.org/join-napa.php> and membership type and fees at <http://napaamericas.org/membership.php>. We look forward to welcoming you for a great cause. Please let us know if you have any questions and willingness to volunteer in various committees.



Thank you.

On behalf of NAPA Executive Committee,  
Dr. Pradeep Wagle  
Vice President

Chair, Membership Drive Committee



## Book review

# My Reflection on NAPA Book "Principles and Practices of Food Security"

- Basu Dev Kaphle

Joint Secretary, Ministry of Agriculture and Livestock Development



## PRINCIPLES AND PRACTICES OF FOOD SECURITY

SUSTAINABLE, SUFFICIENT, AND SAFE FOOD FOR HEALTHY LIVING IN NEPAL

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Drona P. Rasali

Co-Editor-in-Chief/Managing Editor  
Prem B. Bhandari

Editors  
Uma Karki, Megha N. Parajulee,  
Ram N. Acharya, and Raju Adhikari



**ASSOCIATION OF NEPALESE AGRICULTURAL PROFESSIONALS OF AMERICAS (NAPA), USA**

NAPA has recently published a book entitled "Principles and Practices of Food Security: Sustainable, Sufficient, and Safe Food for Healthy Living in Nepal." As a senior government officer in Nepal, I have gone through this book for its applicability in the Nepalese context.

Food and nutrition security leading to food sovereignty has emerged as a national concern mainly after its importance mentioned in the constitution of Nepal and other major policy documents like the Agriculture Development Strategy (ADS, 2015-2025). Besides, programs and policies on food and nutrition security are important for livelihood security, the general welfare of the population, and poverty reduction. In this context, proper knowledge of the fundamental concept of food security is essential for planners, policymakers, practitioners, and scholars. I found that this book addresses the fundamental issue of food security that Nepali society is currently dealing with.

This book, contributed by many well-known scholars, contains four major sections. The first section, "General and Socio-economic Issues of Food Security," has seven chapters covering socio-economic issues of food security in Nepal. The second section, "Sustainable Agricultural Production for Food Security," has five chapters addressing various aspects of agriculture for food production. The third section focuses on "Food Safety Regulations, Healthy Eating, and Climate Change Impacts" with three dedicated chapters". Finally, the fourth section was on "Two Technologies of Specialty" with two chapters. This book can be an essential resource for anyone interested in learning more about food security, particularly, policy makers, researchers, and academicians. I suggest NAPA publish the abstract of the book chapter in the Nepali language for the next edition. Finally, I would like to thank the NAPA team for this excellent book publication.

For past issues of Agri-Connection, please visit the link below:  
<http://napaamericas.org/agri-connection.php>

## Featured Article

### Food Security Status and Challenges: Policy Options and Choices

Food and nutrition security leading to food sovereignty has emerged as a national concern after its importance mentioned in the constitution of Nepal and other major policy documents like the Agriculture Development Strategy. This article aims at providing the status and challenges of food security and rights to food in Nepal. It also suggests policy options and choices for a sustained and inclusive food security system in Nepal. The article extensively draws on information and data derived from a detailed review of existing food security and rights to food-related literature, policies, and plans on agriculture and economic development in Nepal. The information is supplemented by expert consultations and the experiences of authors working in Nepal. The article analyzes and synthesizes spatial and temporal production and requirements of food production to summarize the trend of food availability, access, stability, and utilization patterns in Nepal.

The three primary sources of the food supply in Nepal are domestic production, import, and food aid (e.g., food for work and food during emergencies). On the production front, Nepal has diverse climatic conditions suitable for growing various crops required for human consumption. In the last 25 years, food and nutrition issues have received much attention from the country's policymakers. They strive to address food security challenges primarily from the growing population and their ever-increasing food demand, higher disposable incomes (because of remittance inflows), and improved connectivity in the hills and mountains. This challenge is also because of the increased availability of data and information on food consumption and nutrition. Regardless, seasonal food insecurity is most prevalent in the mountains, emergency-prone areas, and low-income households with persistent gender inequalities. The availability of limited land for cultivation, inadequate functional network of transportation, and limited market availability accompanied by poor governance in market management systems are the main reasons for food shortages.

In Nepal, the agricultural sector is the major source of livelihood and provides employment opportunities to approximately two-thirds of her population. The availability of adequate food is necessary for achieving food security and ensuring the right to food. Agriculture, in this regard, has a paramount role. However, other sectors such as tourism and remittances from abroad also play key roles in ensuring economic and physical access to food on a sustained basis and optimal utilization of food to achieve nutritional objectives. Cereals, especially rice, are the highly preferred and prioritized staple food in the country. There is a growing demand for rice due to its easy accessibility and change in food habits. Due to topography, climate, relatively better connectivity, and access to markets, rice production is mainly concentrated in the Terai plains. Thus, difficult terrain with limited road con-

nectivity in hills and mountains and fewer opportunities for employment and income in rural areas make food security a spatial problem. Furthermore, food insecurity is also a phenomenon of intra-household relations influenced by socio-cultural norms, behaviors, and practices. Besides, poor post-harvest management that lacks adequate and suitable technologies for value addition, storage, and preservation facilities have constrained food availability even in food surplus areas.

Cereals, vegetables, and fruits have a significant contribution to food and nutrition security in Nepal. Rice, maize, wheat, millet, and barley are the primary food grains covering about 75 percent of the cultivation area and supply about 71 percent of the total calorie requirement. Rice supplies about 40 percent of the food calorie intake and contributes nearly 20 percent to the Agriculture Gross Domestic Product (AGDP) and almost 7 percent to Gross Domestic Product (GDP). Similarly, livestock is also a key component of food and nutrition security that provides about 177 calories per day per person. The trend of the food basket composition with more animal proteins is rapidly changing. However, ensuring fair prices, quality assurances, and food safety remain major concerns.

The government of Nepal is continuously dealing with food security issues through different policies, legal provisions, plans, and programs. Despite decades of planned development efforts in the agricultural sector, significant progress is yet to be achieved in increasing the production and productivity of agricultural commodities and ensure food security. Most of the Nepalese population still relies on agriculture for their livelihood; the agricultural sector, therefore, has a crucial role in ensuring food security for all. The recent trends of growth in the agricultural sector, increased purchasing capacity, and changing consumption patterns, specifically in urban areas, have shown ample opportunities to transform Nepal's food security situation. These opportunities provide a strong base for strengthening the food security system in Nepal through meaningful engagement and formulation of appropriate policies, plans, programs and setting up institutional mechanisms of the Government of Nepal at federal, provincial, and local levels.

**Prepared by Mr. Basu Dev Kaphle**

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# Agricultural Innovation: The Exclusive Choice for Feeding the World

A concise version of the essay that won Second Place Award in the Student Writing Contest organized by NAPA during the Second Biennial International Scientific Conference 2020.

As a new decade begins, the world is confronted with tough questions: 'How should agriculture be transformed to feed increasing population? Which strategy can help us combat environmental problems generated by agricultural production?' These questions yet do not have concrete answers due to the dynamic nature of agriculture and demand concerted efforts to narrow-down solutions.

Despite a continuous increase in food production with the advent of industrialization in the 1900s, about 815 million people go to bed hungry even today. Besides that, FAO projects 2 billion more mouths by 2050, who will want to eat better in the prospering world. However, heightening climate change and environmental deterioration makes it daunting for farmers to feed 9 billion people in the coming three decades without overwhelming the planet. Given that our past route of agricultural development was unsustainable and resource-intensive, the current agriculture and food system must change to sustainably nourish people while taking care of the planet. Going beyond agricultural mechanization and green revolution for feeding the world will require groundbreaking innovations.

## **Agriculture innovation: marking a new watershed**

Agricultural innovation involves bringing new food products/processes or altering the existing production systems through demand-driven research and development. Innovation is pivotal to revitalize our degraded land, attract young minds in agriculture, triumph over limitations with prosperity, and achieve the long-cherished zero hunger goals. Moreover, innovation is statutory to overcome poverty, lower the production risk, correct market failures, and reduce food waste (Tomich et al., 2019). As our existing technology is inadequate to address dynamic problems in the future, a smarter solution is indispensable. Scaling up agriculture with new tools and techniques could resolve our existing problems and provide guidance for the future. The staggering investment in agri-food technology summing \$17 billion – a fivefold increase as compared to that of 2012 – is an indication that innovation is receiving historic attention (AgFunder, 2018). Capitalizing on this investment could be a milestone towards a sustainable future.

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## **Integrating agriculture with technology**

Information and communications technology (ICT) enabled approach bears the potential to improve market access, entrepreneurship opportunity, information access, and good agricultural practices (GAPs). For instance, promoting blockchain could drive the authenticity of our products from GAP or organic practices for their sale with premium. Similarly, precision agriculture is evolving promisingly and offers data-driven technology towards efficient and productive farming. Drones, robots, remote sensing, GPS, GIS, and AI are used in farms more than ever before for greater reasons. These relatively new technologies, apart from their role in disease pest control, adverse weather forecasting, harvesting, and alike, provide an opportunity to improve productivity and promote sustainability of the planet.

## **Small farms: potential for the future**

Although small farms have been often overlooked, yield plateauing in industrialized farms has shifted attention to small farms due to the large yield gap. This yield gap provides a huge prospect to unfold the underlying unrealized potential. Furthermore, small farms have a very short supply chain, which eventually delivers more food to people and serves as a lubricant to the rural economy (Hazell, 2005).

## **Reducing food waste**

While around 800 million people crave food as they suffer from extreme hunger, 3000 tons of food is wasted every minute (Harvey, 2019). This wastage occurs at the producers' end in developing countries due to poor infrastructure; however, in the developed countries, food is wasted at the consumers' end. Prompting behavioral and psychological change to encourage rational consumption coupled with re-



# Agricultural Innovation: The Exclusive Choice for Feeding the World...

search to control wastage during the production process can help us tackle food wastage. Moreover, measures such as serving a small portion, discouraging leftovers, and zero tolerance to wastage can have positive connotations but only with firm determination.

## Exploiting the genes

Transgenic crops with desirable traits like insect resistance and herbicide tolerance served as a boon, both as food and fiber, to the voracious world. After three decades of the introduction of transgenic crops and major success, including golden rice, recent advances such as Clustered regularly interspaced short palindromic repeats (CRISPR) have made genome editing more realistic and much efficient than ever before (Jaruzelski et al., 2017). This approach could drive our innovation to induce a higher degree of immunity to infestation and resistance to several biotic and abiotic stresses. CRISPR will further allow breeders to exploit the potential of crops to produce more food with improved nutritional value. Genome editing is likely to turn C<sub>4</sub> rice into reality (Carr, 2016), shaping the secured future of staple food for Asia.

## Conclusion

Our path to sustainably feed the world are not less challenging than Kennedy's moon mission. As only innovation can obviate the likely future food crisis, policies should overcome the bottlenecks of agricultural innovation in low- and middle-income economies. The national innovation strategy should also focus on the agro-food sector. Preferential taxation scheme for farmers, programs to improve land access, and market support and technologies may support agri-

-food innovation. Unlike the conventional system, dominantly subsistent, we need to flourish the environment to adopt a more entrepreneurial approach. The enacted policy should make agriculture more competitive with constantly evolving innovations to meet new trends of demand. Rethinking subsidy on biofuels, policy to favor plant-based foods, and strengthening university-industry links are some other steps that we should take. The sustainable future of agriculture can be well realized if the wave of integration and innovation are rolled out globally.

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# Growing Cover Crops: A Potential Approach for Sustainable Pest Management

- Sita Thapa, Prakriti Bista, Sanjok Poudel, Sushil Thapa

## Introduction

Soil health is the foundation of productive sustainable agriculture. Cover cropping with its positive impact on soil physical and biological processes can improve soil health. In general, cover crops are plants that provide soil cover. Cover crops are primarily biological conservation tools to prevent soil erosion by water and/or wind. Therefore, they are sometimes referred to as green manures or living mulches. However, cover crops are also grown to suppress weeds, build soil fertility and help control pests and diseases (Fig. 1). If managed properly, cover crops can be soil builders, soil looseners, soil water conservers, erosion fighters, and nutrient providers. They may also be used as hay crops, silage crops, seed crops, and for grazing livestock. Cover crops are usually planted before, within, or after the main/cash crop in a rotation. Sometimes, they are also planted as strip intercropping with one or more crops.

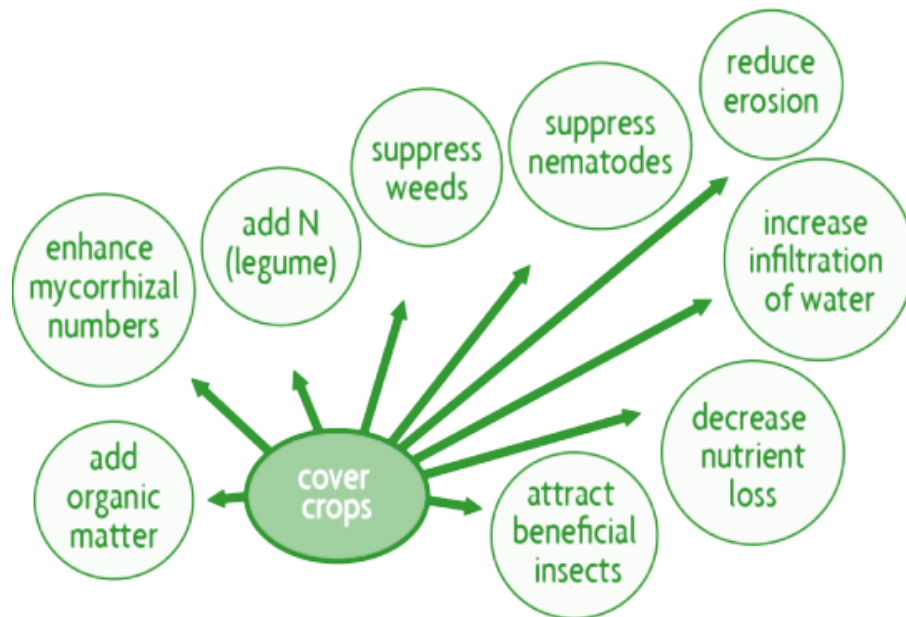


Fig.1. Multiple benefits of cover crops. (Source: Sare.Org)

## Cover crops in disease and pest management

Sustainable pest management starts with building healthy soils. It is well known that crops grown on biologically active and healthy soils can resist disease and pest pressure better than those grown on soils having poor fertility, very high or low pH, low biological activity, and poor soil structure. Growing cover crops adds more organic matter to the soil and increases biological activity. Soilborne diseases are considered a major limitation to crop production, especially in poorly managed soils. In the United States, soilborne plant pathogens are responsible for about 90% of the 2000 diseases in major crops (Lewis and Papavizas, 1991; Mokhtar and El-Mougy, 2014). Cover crops can play a crucial role in managing these soilborne diseases, insects, and soil-dwelling pests like nematodes in many ways as given below.

1. A non-host cover crop between cash crops can increase the length of a crop rotation and provide additional time between susceptible crops which can reduce the population build-up of pathogens and pests. Cover crops like oat, rye, sorghum-sudangrass, etc., are non-host to root-knot nematodes (Thapa et al., 2020). Similarly, cereal rye, clover, and mustard are reported to be non-host to soybean cyst nematodes (Fig. 2). Including these cover crops in rotation can reduce the number of soybean cyst nematodes for the following soybean season (Harbach, 2019).

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2. A healthier soil with more plant-accessible nutrients can grow healthy plants with ability to fight diseases and pests on their own. Cover crops like sorghum-sudangrass, sweet clover, and oilseed radishes can improve soil structure and soil drainage conditions and reduce soil compaction thus improving the overall soil quality. The improved soil quality can reduce many soilborne diseases that pose a greater threat to poor soil conditions (Wallace, 2012).
3. Cover crop, live biomass, or residue mulch, can keep the cucurbits fruits or tomatoes off the ground, reducing the amount of soil (pathogens) splashed onto fruits or plants. Cover crops can improve the population of beneficial organisms in the soil. Using cover crops like peas, sudangrass, rapeseed, oats, and rye as green manure reduced the yield loss in potatoes by *Verticillium* wilt. Davis et al. (2010) found that potato roots were covered by some other less aggressive fungi replacing *Verticillium dahlia*.
4. Cover crops provide food and shelter to the natural enemies of insect pests year-round, boosting their numbers during the cash crop season. In a study in Texas, strip cropping of wheat or spring canola increased the number of predators which significantly suppressed aphid population in cotton (Parajulee and Slosser, 1999). In another study in California organic vineyard system, planting buckwheat (*Fagopyrum esculentum* Moench) and sunflower (*Helianthus annuus* L.) as summer cover crops resulted in the reduced density of leafhoppers and thrips and increased the numbers of predatory spiders, and *Anagrus epos* Girault (Hymenoptera: Mymaridae), a major leafhopper parasitoid (Nicholls et al., 2001).
5. Cover crops from the family Brassicaceae can produce a compound called glucosinolates that may render the host plants unpalatable or toxic to pests and reduce the population of several plant-parasitic nematodes like root lesion nematode and root-knot nematode (Wang et al., 2009). Root lesion nematodes have preferences among different types of oilseed radishes (Thapa et al., 2020).
6. Some cover crops like radish cultivar 'defender' can be a trap crop for sugar beet cyst nematodes. Planting oilseed radish before the main crop can reduce the population of sugar beet for the following season (Black et al., 2018).



Fig. 2. Cereal rye rolled before soybean planting for the management of soybean cyst nematodes.

(Source: news.psu.edu)

### Use of cover crops in Nepal

Nepal has extremely complex farming systems because of the diversity in climatic conditions ranging from cold temperate (>2,500 m) to tropical at lower elevations (<500 m). Farming on steep hillslopes increases the vulnerability to soil erosion and the potential for loss of soil fertility (Subedi, 1999; Gardner and Jenkins, 1995). In Nepal, cover crops are planted to cover land and reduce erosion or provide green manure or mulches. It is common in the country to plant crops like rye, millet, buckwheat, clover, sorghum in rotation as a quick catch crop or for erosion control. Some legume crops are incorporated to improve soil fertility. While the pest management value of these cover crops is not studied well in Nepal, based on the studies in other countries, they have potential to provide multiple benefits. Some of the cover crops commonly used and proven effective in soil properties improvement and

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sustainable production are rye, buckwheat, clover, sorghum, and hairy vetch. Researchers in the United States and other countries have found that these cover crops are also effective in managing soilborne diseases and pests (Davis et al., 2010; Harbach, 2019).

Like in other countries, soil-borne diseases cause economic loss in the Nepali farming system with more losses on vegetable production. The two most common economic soil-borne diseases in Nepal are damping-off and root rot diseases caused by the fungus complex: *Rhizoctonia* spp. *Fusarium* spp. and *Pythium* spp. It was found that cover crops cereal rye and rapeseed improved soybean stands in plots inoculated with *Rhizoctonia solani* and decreased levels of soybean cyst nematode in the soil (Wen, 2017). They also found that cereal rye increased soil suppressiveness to *R. solani* and *F. virguliforme*. Most of the time damping-off and root rot diseases cause more damage under wet and poor soil conditions. Cover crops like sorghum-sudangrass, sweet clover, and oilseed radishes can improve soil structure and soil drainage conditions and reduce soil compaction (Wallence, 2012).

A judicious use of cover crops can help minimize many soilborne diseases, insect/pests along with weed suppression, and improvement of soil fertility, soil quality, and overall soil health. Cover cropping can be a good option to include in planning Integrated Pest Management strategies. To use cover crops as a pest management tool, the first step is to know the type and severity of pests that exist in our field, such as nematode, fungus, or insect. The second step is to identify the cover crop that is non-host to that pest. For instance, if there is root-knot nematode damage in tomatoes, any grass cover crops such as oat, rye, and sudangrass can be a good option to reduce the root-knot nematode population in the following season.

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## नापा कविता संग्रह “कृषिका सुसेलीहरू” लोकार्पण

गत फेब्रुअरी १५, २०२१ तदनुसार फाल्गुण ३ गते वसन्त पञ्चमीका दिन एसोसियसन अफ नेपालीज एग्रिकल्चरल प्रोफेशनल्स अफ अमेरिकाज (नापा) द्वारा सम्पादित तथा प्रकाशित पहिलो कविता संग्रह “कृषिका सुसेलीहरू” को एक भर्चुअल कार्यक्रमको आयोजना गरी विमोचन गरियो। नापाका अध्यक्ष डा. मेघनाथ पराजुलीले उक्त कविता संग्रहको मुद्रित संस्करण, र अतिथि सम्पादक श्री टीकाराम वाग्ले र उपाध्यक्ष डा. प्रदीप वाग्लेले डिजिटल संस्करण संयुक्त रुपमा लोकार्पण गर्नुभएको थियो । नापाका सदस्यहरु श्रीमती अम्बिका अधिकारी तिवारी, डा. नित्यानन्द खनाल, एवं डा. भरतमान श्रेष्ठ र अतिथि सम्पादक श्री टीकाराम वाग्लेले यस कविता संग्रहमा समावेश कविताहरूको संकलन र सम्पादन गर्नुभएको हो। संलग्न अधिकांश कविताहरू नापाको २०१८ र २०२० को द्वैवार्षिक सम्मेलनमा समावेश भएका वा वाचन गरिएका मध्येका थिए; केही भर्खर सम्पन्न नापाको वार्षिकोत्सव (जनवरी ३, २०२१) मा वाचन भएका र केही भने अन्य विभिन्न समयमा प्राप्त भएका थिए। संलग्न सबै कविताहरूमा कृषिलाई मूल विषय बनाइएको छ र विशेषतः नेपालको कृषिका बहूआयामिक पक्षहरू, कृषिको रुपान्तरण र दिगो विकासको पक्षलाई महत्वका साथ प्रस्तुत गरिएको छ ।

नापाका सचिव डा. रामजी प्र. घिमिरेले संचालन गर्नु भएको उक्त लोकार्पण कार्यक्रममा नापाका अध्यक्ष डा. मेघनाथ पराजुलीले स्वागत मन्तव्य राख्नुभएको थियो । आफ्नो मन्तव्यको क्रममा डा. पराजुलीले नापाले आफ्नो स्थापनाकाल देखि नै कृषिका प्राविधिक, अनुसन्धान, शिक्षा, प्रसारका विषयहरूमा कार्यक्रमहरू गर्नुको साथै साँस्कृतिक विषयहरूमा पनि कार्यक्रम गर्ने गरेको कुरा बताउनुभयो । साथै वहाँले सम्पादक समितिको अथक प्रयासले गर्दा यो प्रकाशन सम्भव भएको कुरा अवगत गराउँदै उक्त समितिका सदस्यहरूलाई धन्यवाद दिनुका साथै यसलाई निरन्तरता दिइने बताउनुभयो ।

सम्पादक समितिका सदस्यहरू श्रीमती अम्बिका तिवारी र डा. भरतमान श्रेष्ठले कविता संग्रह सम्पादन प्रक्रिया एवं अनुभवबारे प्रकाश पार्नुभएको थियो । सम्पादक समितिको अध्यक्षको जिम्मेवारी वहन गर्ने अवसरकोलागि नापाका कार्यसमितिलाई धन्यवाद दिँदै श्रीमती तिवारीले नापाका पूर्व अध्यक्ष डा. लिला बहादुर कार्कीले नापाका कार्यक्रमहरूमा कवितालाई पनि महत्वका साथ संलग्न गर्दै जाने नीति लिनुभएकोमा कृतज्ञता प्रकट गर्नुभयो । वहाँले कविता सर्जकहरुधेरै जसो विद्यालय जाने भाइ-बहिनीहरू हुनहुन्छ भन्ने जानाकारी दिँदै वहाँहरूको कृषिप्रतिको मायाको मुक्तकण्ठले प्रशंसा गर्नुभयो । डा. श्रेष्ठले यो कविता संग्रह प्रकाशन गर्न विगत एक वर्ष देखि कोविड महामारीको कारणले भएको लकडाउनले र प्रविधिमा भएको समसामायिक विकासले पनि मद्दत पुगेको, र यसमा विभिन्न

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Association of Nepalese Agricultural Professionals of Americas (NAPA)

भौगोलिक स्थानमा बसेर पनि सम्पादक समिति सदस्यहरूले निकै मेहनत गरेको कुरा बताउनुभयो। विशेषतः अतिथि सम्पादक श्री टीकाराम वाग्लेले कविताहरूको व्याकरण शुद्धिकरणमा पुऱ्याउनुभएको योगदानको उल्लेख गर्नुभयो ।

नापाका सल्लाहकार प्रा. श्री गोपी उप्रेतीले कविता संग्रहमा संलग्न कविताहरूको शब्दचित्र सहित समालोचना गर्नुभएको थियो, जसलाई पेज नं. २७ मा प्रस्तुत गरिएको छ । तत्पश्चात चार जना कवि तथा कवयत्रीहरू क्रमशः गरीमा उपाध्याय, शरद मरहठ्ठा, यमूना घले र नित्यानन्द खनालले संग्रहमा समावेश आ-आफ्ना कविताहरू प्रतिनिधि कविताको रुपमा वाचन गर्नुभएको थियो।

नापाका सल्लाहकार एवं संस्थापक अध्यक्ष डा. लिला बहादुर कार्कीले नापाले साँस्कृतिक कार्यक्रमहरू जस्तै कविता वाचनलाई उच्च महत्व दिँदै आएको, यसलाई विगतका दुवै सम्मेलनमा समावेश गरिएको र भविष्यमा पनि यस्ता कार्यक्रमहरू समावेश गर्दै जाने आशा व्यक्त गर्नुभयो । संग्रहमा समाविष्ट कविताहरूको अध्ययन गर्दा नापाका सदस्यहरूको नेपाली भाषा र संस्कृतिप्रति निकै निष्ठा रहेको र सो बारे अपार ज्ञान पनि भएको कुरा बताउनुभयो। यस्ता किसिमका कार्यक्रमहरूले सदस्यहरु अझ बढी जोड्न मद्दत पुग्ने एवं थप उर्जा दिने कुरा बताउनुभयो ।

एन. आर. एन. अमेरिकाका डा. स्वर्णमि वाग्लेले संग्रहमा समावेश कविताहरू अध्ययन गर्दा उच्च कोटीका भएको पाएको र यस्ता कृतिहरूलाई केवल वाचन र प्रकाशनमा मात्र सीमित नराखी बृहत नेपाली जनसमुदायहरू माझ पुऱ्याउनुपर्ने कुरामा जोड दिनुभयो । वहाँले नेपाल भित्र त्रिभुवन विश्व विद्यालय स्थित केन्द्रीय पुस्तकालय, कृषि सञ्चार महाशाखा, विभिन्न सञ्चार हाउसमा पनि पुऱ्याइ बिक्री-वितरण गर्ने र यिनको संकलन र संरक्षण गर्न सकिने कुरा बताउनुभयो ।

# नापा कविता संग्रह "कृषिका सुसेलीहरू" लोकार्पण ...



समालोचक गोपी उप्रेतीले पनि समावेश कविताहरू ज्यादै मर्मस्पर्शी रहेको, सो कविताहरूमा नेपालको कृषि प्रणालीलाई स-व्याख्यान गरिएको, कृषिप्रति चासो र जोखिम दर्शाइएको, विशेषतः युवायुवतीहरूका कविताहरू उत्कृष्ट र मन छुने खालका रहेको र यो संग्रहलाई आमरूपमा पुर्याउन जरुरी रहेको कुरा बताउनुभयो । कविताहरू कृषिमा सम्बद्ध र आम जनमानसकालागि निकै जानकारीमूलक हुने विश्वास व्यक्त गर्नुभयो । वहाँले यस संग्रहलाई प्रकाशन गरी कृषि समूह, सहकारी, विद्यालय, कलेजहरुसम्म पुर्याई बिक्री-वितरण गर्नुपर्ने र सोको लागि आफ्नो तर्फबाट पनि सक्दो सहयोग गर्ने कुरा बताउनुभयो । उक्त कार्यक्रम जूम प्रविधि मार्फत र नापाको फेसबुक मार्फत प्रत्यक्ष प्रसारण गरिएको थियो । कार्यक्रममा नेपाल, अमेरीका, क्यानडा, अष्ट्रेलिया लगायतका देशहरूमा रहेका नापाका सदस्यहरू सहभागी भएका थिए।

कार्यक्रमको अन्त्यमा बोल्दै नापाका उपाध्यक्ष डा. प्रदीप वाग्लेले कविता संग्रहका सम्पादक समितिका सदस्यहरू, कवि कवयत्रीहरू, लोकार्पण कार्यक्रममा सहभागी सबैलाई धन्यवाद दिँदै कार्यक्रमको समापन गर्नुभयो।

कविता संग्रहको डिजिटल संस्करण नापा वेबपेजमा निःशुल्क उपलब्ध छ।



**Congratulation!!**

United States Department of Agriculture



Certificate of Merit

awarded to

Pradeep Wagle

This award is based upon an official performance appraisal rating of Outstanding for the rating period October 1, 2019 through September 30, 2020.

January 2021

*Lo O. U.*  
Director, Plains Area

Scanned with CamScanner

## कृषिका सुसेलीहरू (नापा कृषि कविता संग्रह अंक-१): समीक्षात्मक टिप्पणी

- प्रा. गोपी उप्रेती

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साहित्य भनेको नै मानिसले अनुभूत गरेका समवेदना, भावना, मनोदशा र चेतनालाई भाषाको माध्यमबाट अभिव्यक्त गर्ने तथा सम्प्रेषण गर्ने कला हो। स्रष्टाले अनुभूतिकरण गरेका संवेदनाका तरंगहरू, भावनाहरू र मनोदशाहरू उसका सिर्जनामा अभिव्यक्त भएका हुन्छन्। त्यसकारण साहित्य मानव अनुभूतिको अभिव्यक्ति हो। मानव जीवनले भोगेका अनुभव, अनुभूति र उसको इच्छा, चाहना र परिकल्पना कलात्मकरूपले अभिव्यक्त गर्नु नै साहित्य सिर्जना गर्नु हो।

अम्बिका अधिकारी तिवारी, नित्यानन्द खनाल, भरतमान श्रेष्ठ, र अतिथि सम्पादक टीकाराम वाग्लेद्वारा संकलित र सम्पादित यो "कृषिका सुसेलीहरू" कविता संग्रहमा ६९ वटा कविता समाविष्ट गरिएका छन्। यी सबै कविताहरू कृषिको उत्पादन प्रणालीमा रूपान्तरण नगरी, कृषि खाद्यान्नमा आत्मनिर्भर नभै देशमा समृद्धि आउन सक्दैन र देशले विकास गर्न सक्दैन भन्ने चेतनामूलक सन्देश सम्प्रेषण गर्ने हेतुले लेखिएका छन्। एकातिर पहाड, पर्वत, मदेश सबैतिरबाट युवा शक्ति रोजगारको खोजीमा विदेशीने अवस्था, अर्कोतिर पहाड, उपत्यका, मदेशका कृषियोग्य जमीन जनजनशक्तिको अभावमा बाँझै रहने अवस्था र विदेशबाट आयतित खाद्यान्नमा डरलाग्दो परनिर्भर अवस्थाको पुष्ट्युक्तिमा लेखिएका यी कविताहरू अति नै सान्दर्भिक र महत्वपूर्ण छन्।

कृषि र पर्यावरण साहित्य सिर्जनाको विषयवस्तु बन्न नसकिरहेको परिप्रेक्ष्यमा नापाको पहलकदमीमा कृषि साहित्यको यो कविता संग्रहको प्रकाशन हुनु निकै प्रसंशनीय र स्वागतयोग्य कार्य हो। आज हामीलाई कृषि र पर्यावरण साहित्यको ठूलो खाँचो छ, खासगरी नेपाल जस्तो कमजोर कृषि उत्पादन प्रणाली र कमजोर पर्यावरण धरातल भएको देशमा। हामीलाई दिगो कृषि उत्पादन प्रणाली, माटो, जमीन, जल, जंगल, जैविक विविधता र जीवन बचाउने चेतनामूलक साहित्यको आवश्यकता छ। "कृषिका सुसेलीहरू"को यो कविता संग्रहले एकातिर नेपालको कृषि क्षेत्रमा देखा परेका समस्या, विसंगति, विग्रह र कृषकहरूको अवस्थाको सटिक ढंगले चित्रण गरेको छ भने अर्कोतिर कृषि उत्पादन प्रणालीलाई मर्यादित र व्यवसायिक नबनाई देशले समृद्धि प्राप्त गर्न सक्दैन भन्ने चेतनामूलक सन्देश पनि सम्प्रेषण गर्न सक्षम भएको छ।

यो कविता संग्रहका अधिकांश कविताहरू युवा पुस्ताका कवि र कवयत्रीहरूबाट रचयित भएकाले पनि यो कविता संग्रहको विशेष महत्व रहेको छ किनभने कृषि विकास भनौं वा देश विकासको कुरा गरौं, त्यो सबै युवा पुस्ताकै नेतृत्व र पहलकदमीमा हुने हो। अधिकांश कविताहरूमा कविता सिर्जना गर्ने सिकारुपको झ-झल्को देखिए पनि यस कृषि कविता संग्रहले माटो, बिउ-बिजन,

जल-जमीन, जंगल, जीवन र जैविक विविधता नै हाम्रो बाँच्ने, बचाउने आधारशिला हो र देशको समृद्धिको मेरुदण्ड हो भन्ने सन्देश दिन सफल भएको छ। सबै कविताहरूले राम्रो र अर्थपूर्ण भाव सम्प्रेषण गरेका छन् तथापी केही प्रतिनिधिमूलक कविताहरू र तिनीहरूले अभिव्यक्त गरेका चेतनामूलक सन्देश जो अर्थपूर्ण र मनन योग्य छन्, तिनका बारेमा यो समीक्षात्मक टिप्पणी तपाईंहरू समक्ष प्रस्तुत गर्न पाउदा खुशी लागेको छ।

कवयत्री गरिमा उपाध्यायको "कृषिमा समृद्धि" कविताका निम्न उद्धरणले धेरै कुरा उजागर गर्छन्। उनी भन्दछिन् हाम्रा हरिया, पहाड, पाखा, वन र बेशीहरूमा प्रविधिको विस्तार गरी समृद्धिको जग बसाएर व्यावसायिक बन्दै सपना साकार पारे हामी किन विदेशीनु र रुनु पर्दछ र?

पाखा यी हरिया पहाड वनका उद्योग धन्दा गरौं।

बेंसी, लेक घुमी घुमी प्रविधिको विस्तार आफैं गरौं ॥

आस्थाका सपना बुनौं अब सधैं पर्दैन प्रवासिन।

बन्दै जाउँ न व्यावसायिक सबै पर्दैन हामी रून् ॥

कवि गणेश बेलबासेको "माटोको मर्म" कविताले माटोको महत्वलाई मात्र उजागर गरेको छैन, यो कविताले "माटो" मानव सभ्यताको उत्पत्ति र मानिसका सपनाहरू फुल्ने फल्ने धरातल हो भन्ने यथार्थतालाई सम्प्रेषण गरेको छ।

यही माटोमा फुल्छन् युगीन सपनाहरू

भोक मेटाउने समृद्ध पलहरू

माटोले लेखेका जीवनहरू

माटो खाएर भविष्य कोर्छन्

माटोमै हराभरा भएर

माटोमै बिलाउँछन्

त्यसैले माटो युगीन सपनाहरूको धरातल हो

"कृषि कविता" शीर्षकमा रामहरी अधिकारीका यी उद्धरणले कृषि नै सबैको उद्धार गर्ने र दुःखमा सबैलाई आश्रस्त पार्ने भरोशायोग्य पेशा हो र कृषि पेशालाई महत्व दिन सके देशको प्रगति सुनिश्चित हुन सक्छ किनभने उद्यम, व्यापार र रोजगारीका अवसर कृषिबाट नै उत्प्रेरित हुन्छन् भन्ने सत्यलाई उजागर गरेका छन्।

कृषि हो सबको घरे घरमहाँ, गोदाम भर्ने पनि,

कृषि नै जनको मुलुक भरको, उद्धार गर्ने पनि।

कृषिले दुःखका हरेक क्षणमा, आश्रस्त तुल्याउँछ,

मान्छेको अति नै कठीन घडीमा, जीवन्त तुल्याउँछ।१।

## कृषिका सुसेलीहरू (नापा कृषि कविता संग्रह अंक-१): समीक्षात्मक टिप्पणी

कृषिमा दिउँ है महत्व सबले, यो देशको खातिर,  
जानुपो किन पर्दथ्यो अरु मुलुकमा, खोजेर लौ जागिर ।  
चल्छन् उद्यम औ ब्यापार पनि ति, सुधार कृषि गरे,  
कृषिकै भरमा सहस्र प्रगती, यो देश भित्रै भरे ॥६॥

"ऊ कृषक" कविताकी आरती खुलालका यी उद्धरणले सफा हत्केला र औंलाहरूले माटोले पोतिएका किसानका हातलाई गिज्याउन सकेनन् र माटोमा उसले रोपेका धानका बाला भन्दा हीरा र सुन चम्किएनन् भनेर कृषि कर्म गर्न लाज मान्ने सुकुलगुण्डे प्रवृत्ति प्रति ब्यंग्य गरेकी छिन्।

मेरा निखर सफा हातका औंलाले  
उसका माटोमा भएको औंलालाई  
कहिल्यै गिज्याउन सकेन।  
लजाइरहे त केवल आफ्नै सफा हत्केलाहरू।

हार अनि नैराश्यताको दुनियाँमा  
उसले माटोसँग आशा गर्न कहिल्यै छोडेन।

हीरा अनि सुनको जमानामा,  
ती सुन उसले रोपेको धानको बाला  
भन्दा कहिल्यै चम्किएन।

"कृषिमा नै नेपालको उन्नति" देख्ने कवयत्री अम्बिका अधिकारी तिवारी आफ्नो कवितामा बोल्छिन्- उर्बर माटो र नदीनालाले सज्जिएको हाम्रो देशमा गरे के हुँदैन? खाँचो छ त केवल हाम्रो आफ्नै पौरखी पाखुरा र स्वाभिमानमा विश्वास र बाँच्न चाहने दृढसंकल्प सहितको उद्यमसिलता। उनको कविताको यी उद्धरणले यथार्थताको सटिक चित्र प्रस्तुत गरेको छ ।

फर्केर हेर त,  
आफ्नो एउटा सानो मिहिनेतले पहेंलपुर अन्न झुल्छ  
यहाँ,  
सदाबहार फलफूल तरकारीहरू डाँडाकाँडा भिरपाखा  
ढाकेर फल्छ यहाँ  
गाई भैसी भेडा बाख्रा कुखुरा अनि ढुकुर, मयूर रमाएर  
चर्छ यहाँ  
भरिपूर्ण छ हामी पौरखी नेपालीलाई आफ्नै पाखुरा र  
स्वाभिमानमा बाँच्न यहाँ

"युवा वर्गलाई कृषि प्रधान देशको आग्रह" कवितामा कवि पद्मनाथ आत्रेयले हिमाल, पहाड र तराईको सुन्दरताको वर्णन गर्दै यहाँको सुनौला भूमिमा नहुने के छ र हामी जे पनि त उत्पादन गर्न सक्छौं भन्ने सन्देश प्रवाह गर्नु भएको छ । युवाहरूलाई आव्हान गर्दै भन्नुहुन्छ - क्षणिक विलासितामा नहराऊ, माटोमै समृद्धि र भविष्य खोजौं। यो सन्देशले युवाहरूलाई कृषि उद्यमसिलतामा प्रेरणा जगाउने काम गरेको छ, जो मननयोग्य छ।

यता पहाड सुन्दरै, उता हिमाल सुन्दरै ।  
तराईको त के कुरा, सुनौल खेत सुन्दरै  
गरे हुँदैन यहाँ के, मनैभरी वनैभरी ।  
बिउ मुना टुसाउछन्, विकासले सधैंभरी  
भुमी बने तिमी बन्छौं, क्षणीकता नहेर है ।  
रमेर देशमै मरौं, बिलाशिता नरोज है ।  
रमाइलो छ देशमै, जुटौं सवै युवा मनै ।  
भुमी हाम्रो भविष्य हो, उठौं सवै युवा जनै ।

"कृषि जीवन र जगत" कवितामा कवयत्री अमिता कंडेलका यी उद्धरणहरू मननयोग्य छन्। उनका कविताका यी उद्धरणले अब चुप लागेर बस्ने बेला छैन, जुमुराएर उठ्नुपर्छ, बाँझा जमीन फोर्नुपर्छ र कुलोहरू सोझ्याउनुपर्छ भन्दै सबैलाई सकारात्मक सोचका साथ कर्मसिल हुन आव्हान गर्दछिन्। त्यसरी नै उनी भन्छिन् माटोको नियत त जीवन दिनु हो, जीवनको रक्षा गर्नु हो, माटो भन्दा पर न त जीवन छ, न त जगत नै छ। त्यसैले उनी सबैलाई आव्हान गर्छिन् माटोको पूजा गर्नु।

अब,  
उठ्नु पर्छ हलोधारीहरू  
जुमुराउनु पर्छ कोदाला र आँसीहरू  
फोर्नु पर्छ बाँझो जमीनहरू  
सम्याउनु पर्छ ढिस्का र कान्नाहरू  
सोझ्याउनु पर्छ कलकल बग्ने कुलोहरू

नियतिहरूको नियत  
चाहे जे सुकै होस्  
माटोको नियत सधैं जीवनको रक्षा गर्ने हुन्छ  
माटो भन्दा पर

न जीवन छ, न त जगत छ  
ओ मान्छेहरू हो  
आऊ माटोको पूजा गरौं।

यो कविताभित्र जीवन र जगत बोलेको छ। कविताले जीवन बाँच्ने दर्शन पनि बोकेको छ। कृषि विकासको सुन्दर भविष्य निर्माण गर्न उत्प्रेरणामूलक सन्देश प्रवाह गरेको छ।

कृषि उत्पादन प्रणाली भनेको जमीन, जल, जीव र जैविक विविधताको सन्तुलित उपयोग र संयोजनमा विकसित प्रणाली हो। यो प्रणालीलाई 'चार ज' को अन्योन्यासित प्रणालीको रूपमा बुझ्नुपर्ने हुन्छ। नेपालको प्राकृतिक सम्पदा भनेको नै यी नै 'चार ज' हुन् र यिनको प्रणालीगत सन्तुलित विकासमा मात्र दिगो कृषि उत्पादन प्रणाली सम्भव छ। कोरोना भाईरसको संक्रमणले सिकाएको महत्वपूर्ण पाठ के हो भने आयआर्जन र जीविकाका सबै क्षेत्रहरू ध्वस्त हुँदा, कृषि उत्पादन प्रणाली नै अन्तिममा जीवनधात्रे एक मात्र भरपर्दो आधार हो भन्ने तथ्य। यो तथ्यलाई आत्मसाथ गरेर नेपाल जस्ता विकाससिल देशहरूले कृषि उत्पादन प्रणालीलाई विशेष प्राथमिकतामा राखी कृषि विकासको दीर्घकालिन रणनीति बनाउनु नितान्त आवश्यक छ। जब सम्म कुनै पनि देश खाद्य सुरक्षामा आत्मनिर्भर हुँदैन, तब सम्म त्यो देश कुनै पनि क्षेत्रमा सुरक्षित हुन सक्दैन। किनभने, खाद्य-सुरक्षा नै सबै सुरक्षाको आधारशिला हो। त्यसैले त भनिने गरिन्छ नि "कृषि मुलशच्य जीवनम"।

अन्यमा सबै कवि कवयत्रीहरूलाई अझ मीठा र सुरिला भाकामा कृषिका सुसेलीहरू सिर्जना गर्ने जागर चलिरहोस् र नापालाई ती सुसेलीहरू नेपाली कृषकहरूका कानमा गुन्जायमान गर्न सफलता मिलोस्। आशा गरौं "नापा" एकदिन नेपाली कृषकका घरमा ज्ञान-विज्ञान र संज्ञानको भरोसा र आकर्षणको केन्द्र बन्न सकोस्। "कृषि मुलशच्य जीवनम" को संवाहक बन्न सकोस् भन्ने शुभकामना र शुभेच्छा सहित धन्यवाद।

(लेखकले यो समालोचना कविता संग्रह लोकार्पणको कार्यक्रम - फेब्रुअरी १५, २०२१ मा प्रस्तुत गर्नुभएको थियो ।)



# दिगो विकासको लागि कृषिमा सहकारीकरण

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## परिचय

नेपालको अर्थतन्त्रको मेरुदण्ड कृषिमा करिब ६० प्रतिशत नेपाली जनाताले व्यवसाय गरिरहेका छन् । जमीन कृषि उत्पादनको आधार हो । सन् २०१२ को राष्ट्रिय कृषि तथ्यांक अनुसार नेपालमा एक हेक्टरभन्दा कम जमीन भएका ८९ प्रतिशत घर परिवारसँग ४७ प्रतिशत भूमि छ । यही सीमित जग्गा र श्रोत साधनको उपयोगबाट पारिवारिक आवश्यकता पूरा गर्नुपर्ने भएकोले किसान थप जोखिम मोलेर व्यवसाय परिवर्तन गर्न चाहदैनन् । त्यसैले नेपालको धेरैजसो कृषि अझैपनि निर्वाहमुखी छ । कृषि तथा पशुपालनको दिगो विकास र व्यवसायिकरणको लागि जनश्रम, जमीन, जलस्रोत र उत्पादनका सामाग्रीहरूका साथै कृषिको बिशिष्टिकृत ज्ञान र सीप हुनु अनिवार्य छ । कृषिमा व्यवसायिकरणको लागि सरकारी र गैह्रसरकारी निकायहरूले कृषि प्रविधि हस्तान्तरण लगायतका कार्यक्रम संचालन गर्दै आएको भएता पनि थोरै मात्र त्यस्ता कार्यक्रमहरू वास्तविक कृषकहरूकहाँ पुग्न सकेका छन् ।

## राज्यबाट सन्चालित जनताका लागि सम्बृद्धि कार्यक्रम



चित्र १. समन्वय र सहकार्यको अभाव झल्काउने तस्बिर (श्रोत: जे. आर. जोशीको फेसबुक)

नेपालको संघिय सरकारमा २५ वटा मन्त्रालयहरू छन् ।

तिनीहरू मध्ये कृषि तथा पशुपन्छी, वन, उर्जा जलस्रोत तथा सिंचाइ, भूमि-व्यवस्था सहकारी तथा गरिबी निवारण, उद्योग बाणिज्य, श्रम रोजगार तथा सामाजिक सुरक्षा र अर्थ आदि जस्ता मन्त्रालयहरूबाट किसानलाई दिने सेवाले नै कृषि क्षेत्रको विकास निर्धारण गर्दछ । चित्र १ मा देखाइए जस्तो यिनै मन्त्रालयहरू बीचमा उचित समन्वय र सहकार्य हुन नसक्नुको कारणले कृषि र कृषिमाआधारित उद्योगहरू दिनानुदिन धरासायी हुँदै गएका छन् । कृषकहरूले आफूले उब्जाएको उपजको राम्रो बजार पाएका छैनन् । उदाहरणको लागि बारा र सर्लाहीका उखु किसानहरूले उखुको मूल्य भुक्तानी नपाएको कुरा वर्षेनी समाचार बन्ने गरेको छ ।

संघिय मन्त्रालयहरूले कार्यक्रम बनाउँदा जनताले भोगिरहेका समस्या समाधानमा प्राथमिकता दिनुभन्दा आफूलाई अनुकूल हुने किसिमको कार्यक्रम संचालन गरिरहेको पाइएको छ । जस्तै आ. ब. २०७६/७७ मा तालिम र गोष्ठीमा १९ अर्ब ९ करोड रकम थियो भने आ. ब. २०७७/७८ मा कोरोना कहरले स्वास्थ्य र कृषि जस्ता क्षेत्रलाई प्राथमिकतामा राखेर प्रस्तुत गरिएको बजेटको तालिम र गोष्ठीमा रु ४० अर्ब ५७ करोड छुट्याएको देखिन्छ

(संघिय बजेट वक्तव्य, २०७७/७८) । यी मन्त्रालयको अलावा विभिन्न आयोगहरू र गरिबी निवारण कोष जस्ता संस्थाहरूले कृषकको नाममा ठूलो धनराशी खर्च गरेको दावी गरेता पनि तिनीहरूको प्रतिफल न्यून छ । अर्कातर्फ संघिय, प्रदेश र स्थानीय सरकारबीच समन्वयको कमी छ । नेपालको संबिधानले गाँस, बास, शिक्षा, स्वास्थ्य, एवं सामाजिक सुरक्षा र गरिबीको अन्त्य जस्ता जनताका मौलिक अधिकारका सेवा कार्यान्वयन गर्ने अधिकार स्थानीय सरकारलाई दिएको छ । सरकारले शिक्षा, स्वास्थ्य र आयआर्जन जस्ता विकासका खम्बाहरूलाई एउटै टेबुलमा राखेर सेवाप्रवाह गरेमा बालबालिकाले जीवन उपयोगि शिक्षा लिनुका साथै स्वास्थ्यकर खाध्य उपयोगबाट स्वास्थ्य र सृजनशील नागरिक उत्पादनहुने देखिन्छ । यस्ता समन्वयकारी भूमिका निभाउनुका साथै विषयगत विशिष्टिकृत ज्ञान र सेवा आवश्यक पर्ने ठाउँमा त्यस्ता कर्मचारीहरूको पदस्थापन भएको छैन । कार्यरत कर्मचारीहरूको पुरानो कर्षशैलीले गर्दा उनीहरूले प्रदान गरेको सेवाबाट आशातित परिणाम आउन सकेको छैन ।

## दिगो विकासको लागि कृषिमा सहकारीकरण...

### दिगो तथा वातावरणमैत्री विकास

सन् २०१५ दिगो विकास लक्ष्यहरू प्राप्त समयावधी समाप्ति पछिका उपलब्धिहरूलाई संस्थागत गर्दै बाँकी लक्ष्य प्राप्तिका लागि सन् २०१५ सेप्टेम्बर २५-२७ मा यु. एन. का सदस्य राष्ट्र र सरकार प्रमुखका प्रतिनिधिहरूको ७० औं महासभाले दिगो विकासका १७ वटा लक्ष्यहरू तयार गरेको छ । प्राकृतिक विकास लाभ र गतिबाट प्राप्त प्रतिफललाई वर्तमानका पुस्तामा मात्र सीमित नगरी भविष्यका पिँढीलाई समेत सुनिश्चितता प्रदान गरिनु दिगो विकास हो । प्राकृतिक सम्पदाहरूको अत्याधिक विनाशबाट उत्पन्न हुने वातावरणीय दुष्परिणाम र भविष्यका सन्ततिहरूलाई जिउने अधिकारको हनन् नहुने गरी विकासको फल वर्तमान पुस्ताले उपयोग गर्नुपर्छ भन्ने मान्यता नै दिगो विकास हो । त्यसैले, वातावरण र विकासबिचको सन्तुलनलाई नै दिगो विकास भनिएको छ । विकास र वातावरण बीचमा सन्तुलन र संयोजन गर्दै भावी सन्ततिको स्वच्छ वातावरण र सन्तुलित अर्थतन्त्रमा बाँच्ने मौलिक हक सुनिश्चितता गर्दै अहिलेको पुस्ताको गुणस्तरीय जीवन अभिवृद्धि गर्ने मान्यताको यसले वकालत गर्दछ । तर यसको कार्यान्वयनका लागि उचित तयारी हुन सकेको छैन । यसैको परिणामले बर्षेनी बाढी, पहिरो, डुबान, नदी कटान, अनावृष्टि र अतिवृष्टि जस्ता प्राकृतिक विपत्तिले ठूलो धन जनको क्षती भइरहेको छ ।

यस्ता समस्याहरूको बाबजुद अहिले फलफूल नर्सरी, खाद्यान्न बालीको बीउ उत्पादन र बितरण, र ब्याडको लागि पशुपन्छीका नश्ल सम्बन्धी व्यवसायहरू केही फस्टाएका छन् । केही कृषकहरूले व्यवसायिक बीउ उत्पादन गरिरहेका छन् । यस्ता प्रयासहरूलाई अझ गति दिई दिगो बनाउन नेपालमा यदाकदा सहकारीकरणको प्रयास गरिएको छ र त्यसलाई अझ सशक्त बनाउन जरुरी देखिन्छ ।

### कृषि वस्तुको उत्पादन, प्रशोधन र बजारीकरणमा सहकारीको भूमिका

चित्र २ मा देखाइए जस्तो जसरी एउटा बृक्षको काण्डले माटोमा भएको पोषण तत्वलाई जराको माध्यमबाट रुखको पातसम्म पुऱ्याउने र पातले तयार गरिदिएको खाना रुखको सम्पूर्ण भागमा समानुपातिक बितरण गरेर जीवित राख्दछ, त्यसरी नै सहकारीले आफ्ना सम्पूर्ण सहकारी सदस्यहरूलाई उत्पादनका लागि आवश्यक पर्ने सामग्रीहरू उपलब्ध गराइ त्यसबाट उत्पादन भएको वस्तुलाई संकलन, प्रशोधन गरी ब्रान्डसहितको सामग्री उपभोक्ता समक्ष पुऱ्याउनुपर्ने हुन्छ । उत्पादित वस्तुले

बजारमा भइरहेका वस्तुसँग प्रतिस्पर्धा गर्नुपर्ने भएकाले ती वस्तुहरू उपयुक्त मूल्यका साथै गुणस्तरयुक्त हुनु आवश्यक छ । त्यसकारण सहकारीको कार्यसमितिले आफूसँग उपलब्ध स्रोत एवं बजारबाट आयात गरिएका स्रोत, साधनहरूलाई उत्पादक समक्ष पुऱ्याएर त्यसको अधिकतम उपयोगबाट उत्पादित वस्तु उपयुक्त मूल्यमा खरिद गरिदिनुका साथै स्थानीय सरकार र आफ्ना उत्पादक, बिक्रेतासँग दोहोरो, तेहेरो भूमिका निर्वाह गर्नुपर्ने कारणहरूले यो कार्यसमितिको निर्माणमा उत्पादक र व्यापारमा संलग्न मध्येबाट कम्तीमा दुई तिहाई संख्या र बाँकी उद्योग वाणिज्य संघ, स्थानीय सरकारको कृषि, शिक्षा र जनस्वास्थ्य प्रवर्धन गर्ने निकायका कर्मचारी र जनप्रतिनिधि सम्मिलित समावेशी भएमा कामगर्न सजिलो हुने देखिन्छ ।



चित्र २. नमुना कृषि सहकारी बृक्ष (श्रोत: महा प्रसाद गेलाल)

सहकारी निर्माण गर्दा एक वा दुई पालिकाहरूका जनतालाई समेटेर सबैलाई पाएक पर्ने ठाउँ र त्यसमा उत्पादनका लागि बिक्री बितरणका सामाग्रीहरूको संरक्षण एवं किसानले उत्पादन गरेका वस्तुहरूको संकलन, प्रशोधन, संरक्षण र बजारीकरण जस्ता संरचनाहरू निर्माण गर्न सकिने फराकिलो ठाउँ आवश्यक हुन्छ । यस्तो ठाउँमा गाउँ/ नगरपालिकाले उच्च-प्राथिकतामा राखेका सम्भाव्य बाली/ ब्यावसायहरू; दूध, फुल, मासु, अन्न, फलफूल, तरकारी, रुद्राक्ष, बुद्धचित्त, रबर र जडीबुटी, श्रीखण्ड, रक्तचन्दन आदि मध्ये धेरै नाफा गर्न सकिने एवं धेरै वर्ष टिकाउ हुने व्यवसायको छनोट गरी कुन-कुन बाली र व्यवसाय

## दिगो विकासको लागि कृषिमा सहकारीकरण...

एकैसाथ उत्पादन वा संचालन गर्न सकिन्छ? जस्ता विषयको लेखाजोखा गरी इच्छुक उत्पादकहरूबाट कार्ययोजना तयार गर्न लगाई वडाअध्यक्ष्य एवं सदस्यहरूको नेतृत्व मार्फत गाउँ गाउँका जनतामा "हाम्रो गाउँ हामी आफैले बनाउँ" भन्ने भावनाका साथ कार्यान्वयन गर्नु आवश्यक छ । उत्पादन क्षेत्रका सबै गाउँ/टोलका जनतालाई सहकारीमा आबद्ध गराउने जिम्मेवारी सहकारी कार्यसमितिले लिनुपर्छ । यसरी सहकारी र कृषि प्राविधिकले तयार गरेको किसानको कार्ययोजनालाई धितोको आधार मानेर वडा कार्यलयको जनप्रतिनिधिको सिफारिसमा नजिकमा रहेको वित्तीय संस्थाले सहूलियत ऋणमा लगानी प्रवाह गर्नु वान्छनिय हुन्छ । यस किसिमको ऋणमा कस्ता उत्पादनका सामाग्री खरिदमा, उत्पादन वा प्रशोधनमा ऋणको उपयोग गर्नु भन्ने सहूलियत पाइने एव नियामावली भन्दा बाहिर गई ऋणको दुरुपयोग गरे वा समयमै किस्ता नबुझाएमा धेरै मूल्य बराबर दण्ड, हर्जना तिर्नुपर्ने जस्ता सचेतना समयमै गराउनुपर्ने हुन्छ । किसानलाई आवश्यक पर्ने उत्पादनका गुणस्तरिय सामाग्री जस्तै: बीउ, मल, बिरुवा, चल्ला, दाना, औजार उपकरणका साथै सबै अनुदानका कार्यक्रम सहकारी मार्फत वडाका जनप्रतिनिधि र कृषि प्राविधिकको सिफारिस मार्फत कार्यान्वयन गरिनाले उत्पादकसंग भएका स्थानीय स्रोत साधनको अधिकतम सदुपयोग गर्नुका साथै कार्यक्रमको अपनत्व हुनजान्छ । यसरी तयार गरिएका परियोजनामा ब्याज अनुदानको ऋण प्रवाह, बाली, व्यवसायको बीमा प्रिमियम, सिंचाइमा र व्यवसायमा प्रयोग गरिएको विद्युत महसुल अनुदानका साथै प्रशोधनका लागि मशिन र ढुवानीका साधन खरिद एवं परिचालनमा राज्यको अनुदान स्थानीय सरकार मार्फत (एकद्वार प्रणाली) सिधै सम्बन्धित ब्यक्ति/संस्थाको बैंक खाता वा वित्तीय संस्थाको खातामा जम्मा गरिने व्यवस्था हुनु आवश्यक छ । उदाहरणको लागि, अहिले स्याङ्जा जिल्लाको गल्याङ नगरपालिकाले दूध उत्पादनमा व्यवसायिकरण गर्ने योजनाले दुग्ध विकास संस्थान वा सहकारीले खरिद गरिदिएको मुल्यमा प्रती लिटर रु. १५।-थप गरेर कृषकलाई भुक्तानी गरिरहको छ (रेडियो कान्तीपुरको एग्री मोभ, भाद्र १२, २०७७) ।

सहकारीद्वारा उत्पादनको लागि आवश्यक सामाग्री किसानकोमा पुऱ्याउने र उत्पादन भैसकेपछि सहकारीले खरिद, प्रशोधन र बजारीकरण गर्नुपर्छ । यसरी किसानबाट वस्तु खरिद गर्दा जनश्रम र उत्पादन सामाग्रीको लागतलाई आधार मानी मूल्य निर्धारण गरि खरिद गरिदिनु पर्दछ । उदाहरणको लागि, दुग्ध सहकारी संस्था वा दुग्ध विकास संस्थानले फ्याट र

एसएनएफलाई आधार मानेर दूधको भुक्तानी गरिरहेकाछन् । यस्तै सिद्धान्तहरूलाई आधार बनाएर मासुको लागि कुखुरा पाल्ने कृषकलाई कुखुराको मासु उत्पादनको लागि चल्ला एवं दाना सहकारीले दिने र ४३-४५ दिनको उमेरका कुखुरा सहकारीले नै किनिदिनुपर्छ । यस्तै प्रकारले बंगुर पालनमा बच्चा जन्मेर पालन गरेको ४ महिना पछि किनिदिने गर्नु पर्दछ । यसै गरेर बाख्रापालन, तरकारी, अन्न, फलफुल उत्पादन, रबर, च्याउ, रुद्राक्ष, रक्तचन्दन जडीबुटी आदि सबै खेती/व्यवसायमा सहकारीले उत्पादनको सामाग्री दिने र उत्पादित वस्तु खरिद गरी प्रशोधन एवं बितरण गर्ने जस्ता कार्यले त्यो क्षेत्रलाई औधोगिक नगरीको रूपमा विकास गर्न सकिन्छ ।

सरकारी अनुदानलाई पारदर्शिताका साथ लक्षित वर्गमा पुऱ्याउन र गुणस्तरिय सामाग्रीहरू सहकारीले थोक मूल्यमा खरिद गरि उत्पादक समक्ष समयमै पुऱ्याइने कार्यले मूल्यमा सस्तो र समयको बचत गर्न सकिन्छ । यसरी किसानको उत्पादन सहकारीले खरिद गरी त्यसलाई प्रशोधन मार्फत धेरै किसिमका परिकारहरू बनाइ बजार बिस्तार गर्न सक्दछ । उदाहरणको लागि किसानबाट सहकारीले मकै खरिद गरेपछि सुकाउने, ग्रेडिंग गर्ने, र पिस्ने, चामल, पिठोको रोटी र पशुदाना जस्ता परिकार बनाउन सके तुरुन्तै बजारमा पुग्छ । यसरी धेरै कृषकको सहभागिताले ठूलो परिमाणमा वस्तुको उत्पादनका साथै सरकारी सेवाको प्रभावकारी उपयोगले गुणस्तरयुक्त वस्तु उत्पादन हुन्छ । यस्ता वस्तुहरूको खपत सहकारी समुदाय भित्र नै धेरै हुन्छ । उदाहरणको लागि, मकै बिक्री गर्ने किसानले कुखुराको मासु खरिद गर्छ र कुखुरा बिक्री गर्ने किसानले चल्ला र दाना खरिद गरेर लैजाने गर्दछ । यसरी सहकारी मार्फत उत्पादन एवं उत्पादित सामान छोटो अबधि भित्रै खरिद र बिक्री हुनाले किसानको बिक्री मूल्य र उपभोक्ताले खरिद गर्ने मूल्यको फरक कम हुन्छ । हाम्रो वस्तु उत्पादनदेखि उपभोक्ता सम्म पुऱ्याउने कार्यमा गुणस्तरिय उत्पादनका सामाग्री सस्तो मूल्यमा किसानले पाउने र उत्पादित वस्तु सहकारीले खरिद गरी तुरुन्तै प्रशोधन गर्ने साथै स्टोरको संरक्षण अबधि घट्नजाने भएकाले वस्तुको नोक्सानीलाई घटाउन सकिन्छ ।

प्राङ्गारिक उत्पादनको माग दिनानुदिन बढिरहेको छ तर यस किसिमको उत्पादन भने थोरै हुने गर्दछ । नेपालमा रासायनिक मल र किरा मार्ने बिषादी उत्पादन गर्ने कारखानहरू छैनन् । माटो मलिलो बनाउन जैबिक मल, हरियो मल, कोशेबालीहरू, प्रांगारिक मल आदि लगाउन सकिन्छ । बाली बिरुवाहरूमा लाग्ने किरा नियन्त्रणका लागि "एकिकृत शत्रुजीव व्यवस्थापन प्रणाली

## दिगो विकासको लागि कृषिमा सहकारीकरण...

अपनाउन सकिन्छ । एकिकृत शत्रुजीव व्यवस्थापन प्रणाली बाली-बिरुवाको बिकासमा बाधा गर्ने शत्रुजीवहरूलाई वातावरणीय असर नपर्ने गरी रोकथाम गर्ने विधि हो। खाद्य प्रसोधन र विविधिकरण गर्दा प्रयोगमा नआएर खेर जाने वा कुहिने वस्तुको प्रांगारिक मल उत्पादन गरी प्रयोग गर्न सके एकातर्फ हाम्रो वस्तुको उत्पादन लागत घट्नजान्छ भने अर्कातर्फ वातावरण मैत्री हुनजान्छ । यसरी गाउँ/टोल, समुदायमा भैरहेका बेरोजगार, अर्धबेरोजगार जनशक्तिको परिचालनले गाउँको पैसा गाउँमै चलायमन हुनुको अतिरिक्त शहरको पैसा गाउँसम्म ल्याउन मद्दत पुग्दछ । खाद्यवस्तुको उत्पादनदेखि नै गुणस्तरयुक्त वस्तुहरूको उत्पादन गर्नसकिने र त्यसले स्वदेशी बजार मात्र नभएर आयातित वस्तुलाई बिस्थापित गर्नुका साथै अरु देशमा सजिलै निर्यात गर्न सकिन्छ । यस किसिमले स्थानीय सरकारको नेतृत्वमा कृषिलाई व्यवसायीकरण गर्न सकेमा उत्पादित वस्तुको लागत घट्न गई नाफा आर्जन हुने भएकोले निजी क्षेत्रको लगानी आकर्षित गर्न सकिन्छ ।

सहकारीमा आबद्ध इच्छुक व्यवसायीको परियोजना सञ्चालनबाट कति लगानी कुन-कुन ठाउँमा गरेर कति अवधि पछि कसरी र कति नाफा आर्जन गर्न सकिन्छ भनी व्यवसायको विस्तृत लेखाजोखा गरिनुपर्ने हुँदा सबै उत्पादक, प्रशोधन वितरकहरूसँग यस्तो ज्ञान नहुन पनि सक्छ । त्यसैले सहकारीलाई सक्षम बनाउन स्थानीय सरकारले मौजुदा कृषि प्राविधिकहरूबाट आबधिक सेवा दिने व्यवस्था मिलाएमा एकातर्फ उत्पादकले स्थलगत तुरुन्तै कृषि प्रविधि पाउँछ भने अर्कातर्फ परियोजना निर्माण गर्न र कार्यसमितिलाई सबै सूचना अद्यावधिक राख्न सजिलो हुन्छ ।

कार्यसमितिले उपभोक्ताको अनुमानित मागका आधारमा खाद्यपदार्थ उत्पादन बजारीकरण गरिने हुँदा माग र आपूर्तिको समन्वय हुनगई बजार मूल्य स्थिर रहने बढी सम्भावना देखिन्छ । भौगोलिक विविधताले कुनै क्षेत्रको मौसमको बाली अरु क्षेत्रमा बेमौसमी हुन सक्छ । सहकारीले यस्तो अवसर आफ्ना सदस्यहरू बीचमा पुऱ्याइ उपयोग गर्न सक्छन् ।

खाद्यपदार्थ बजारीकरण गर्ने ठाउँमा विद्युतिय सवारी साधनको चार्जिङ स्टेसन बनाई रातको समयमा विद्युत महसुलमा छुट दिने व्यवस्था भएमा उत्पादित वस्तुको बजारीकरणमा थप सहयोग पुग्न जाने देखिन्छ । प्रचुर सम्भावना रहेको गाउँ गाउँको पर्यटन क्षेत्रहरूमा होम स्टे एग्रो-टुरिजमको सेवा बिस्तार गर्न सकेमा यस्ता कार्यक्रमले एकातर्फ रोजगारी सृजना हुन्छ भने अर्कातर्फ हाम्रा स्वदेशी कृषि उपजले बजार लिन सजिलो हुन्छ ।

यसको नमुनाको रूपमा लमजुङको घलेगाउँ नै पर्याप्त हुन्छ ।

कार्यसमितिमा आबद्ध सबैले वित्तीय संस्थाबाट लिएको ऋण फिर्ता गरिसकेपछि यसको ब्रान्ड वा कम्पनीको रूपबाट सेयर बजारमा सूचीकृत गरिँदा समितिमा आबद्ध सबै सदस्यहरू प्राइमरी सेयर सदस्य भई बजारमा राख्न सकिन्छ। यस्तो कार्यले उत्पादन, संकलन, प्रशोधन र व्यापारीकरणमा संलग्न सबै लगानीकर्ताले समतामूलक मुनाफा पाउनुका साथै कम्पनीको मालिक हुने अवसर मिल्नेछ ।

अन्त्यमा, जसरी खोलामा बगिरहेको पानीलाई बाँध बाँधेर खेतबारीमा उपयोग गरिन्छ, त्यसरी नै हामीसँग भएका सीमित स्रोत-साधनलाई सहकारी मार्फत सघन रूपबाट कृषि उत्पादन, प्रशोधन र बजारीकरणमा उपयोग गरिएमा कृषिको उत्पादकत्वमा वृद्धि, बजारमा गुणस्तरीय खाद्य पदार्थको सुनिश्चितता, राज्यको लगानीमा मितव्ययिता र पारदर्शिता हुन गई रोजगारीका अवसर सिर्जनाले आयात घटाउनुका साथै करदाताको संख्यामा वृद्धि जस्ता कारणहरूले योगदानमा आधारित सामाजिक सुरक्षाको कार्यान्वयनमा सहयोग पुग्न गई दिगो विकास गर्न सकिन्छ ।

(नोट: लेखक नेपाल सरकार कृषि सेवाका पूर्व कर्मचारी हुनुहुन्छ । यस लेखमा प्रकाशित बिचारहरू लेखकका निजी हुन् । लेखलाई सम्पादन गर्न डा. रामजी घिमिरे, डा. भरत श्रेष्ठ, र डा. सुशील थापाले सहयोग गर्नु भएको थियो।)



## कृषक आवाज: अजय कुमार चौधरी



### पानीमा उद्यम, १४ जनालाई रोजगारी

मेरो नाम अजय कुमार चौधरी हो । मैले कृषि क्याम्पस रामपुरबाट कृषिमा स्नातकसम्मको अध्ययन पूरा गरेको हुँ । पछि मैले त्रिभुवन विश्वविद्यालयबाट समाजशास्त्रमा स्नाकोत्तर तहको अध्ययन पूरा गरें । हाल मैले तिलोत्तमा-१७, कानपारा, भैरहवामा “कृषि पर्यटन प्रवर्धन तथा भिलेज रिसोर्ट एण्ड रिसर्च प्रा.लि.” नामक संस्था र कृषि फार्म सञ्चालन गर्दै आइरहेको छु ।

मेरो व्यवसाय वा कृषि फार्मको विशेषता भनेको पानीमा खेल्न पाइने व्यवस्था हो । यहाँ पानीमाथि खेल्ने, पानीमाथि नाच्ने, पानीमाथि खाने, र पानीमाथि सुत्ने व्यवस्था छ । जम्मा ६ विगाहा क्षेत्रफलमा फैलिएको फार्ममा ४ विगाहामा पानी छ भने २ विगाहामा फलफूल खेती, तरकारी खेती, र पशुपालन छ । यस फार्ममा आउने ग्राहकहरूले पानीमा मनोरञ्जन लिनुका साथै स्थानीय र ताजा उत्पादन (तरकारी, फलफूल, मासु) को स्वाद समेत लिन पाउँछन् । हाल फार्ममा मेरो परिवारका झण्डै १४ जनाले कर्मचारीको रूपमा रोजगारी पाइरहेका छन् । यसो भन्नुको मतलब यो पूर्ण रूपमा पारिवारिक फार्म हो ।

*ॐ भूर् भुवः स्वः, तत् सवितुर्वरेण्यं।*

*भर्गो देवस्य धीमहि, धियो यो नः प्रचोदयात् ॥*

यो नै मेरो मूल प्रेरणाको स्रोत हो । प्रकृतिमा नै भएका चिजहरूबाट मैले ज्ञान आर्जन गरेको हुँ । दिगो पर्यावरणको विकासमा केही सहयोग गर्न सकिन्छ कि भनी म लागिपरेको छु ।

सुरुमा यस खालको काम गर्नु भन्दा कसैले पनि विश्वास गरेनन् । बैंकहरूले पनि ऋण दिन मानेका थिएनन् तर मैले आफैं सीप र क्षमता अनि सानोतिनो लगानीबाट व्यवसाय सुरु गरें । गाउँमा श्रमिकको अभाव हुँदै गएको, बेरोजगारी बढ्दै गएको, र गरिबी तथा अभावका कारण श्रीमान्-श्रीमती बीच झै-झगडा हुने गरेको प्रशस्त देखें । यस्तो अवस्थामा गाउँमै रोजगारी सिर्जना गर्नुपर्छ भन्ने लाग्यो । गाउँमा भएका सबैले कृषि कर्ममा लाग्ने हो भने सबैलाई आर्थिक रूपमा सवल बनाउन सकिन्छ र रोजगारी पनि गाउँमै उपलब्ध हुन्छ भन्ने

सोचेर मैले व्यवसाय सुरु गरेको हो । हाल भइरहेको आम्दानीले १४ जनालाई तलब सुविधा दिएर पनि राम्रै बचत हुने गरेको छ ।

मेरो यो नौलो प्रयासको कदर गर्दै थुप्रै स्थानीय र क्षेत्रीय संघ संस्थाहरूबाट प्रशंसा पत्र पनि पाएको छु । फरक खालको व्यवसाय भएकोले ग्राहकको चाप अति धेरै छ । दैनिक ५०-१०० जना ग्राहक आउने गरेका छन् । जसको कारण आफ्नै कृषि उत्पादनले पुग्याउन गाह्रो परिरहेको छ । त्यसैले ५ गाउँका अन्य ५०० जना महिला कृषकहरू कृषि र पशुपालनमा संलग्न हुने अवस्था आएको छ ।



फोटो १. अजय कुमार द्वारा संचालित रिसोर्ट

मेरो भविष्यको लागि केही योजनाहरू छन् । फार्मको क्षेत्रफल ठूलो भएकोले चारैतिर रेल (service train) बनाउने योजना छ । त्यस्तै अन्य ५०० जना स्थानीय महिलाहरूलाई कृषि र पशुपालन सम्बन्धी तालिम दिने र उनीहरूको उत्पादन आफैँले किनिदिने योजना छ । पानीमाथि खाने, बस्ने, सुत्ने, र मनोरञ्जन (नाचगान) गर्ने सुविधालाई अझै व्यवस्थित बनाउने योजना पनि छ ।

भविष्यमा यस प्रकारको वा अन्य प्रकारको व्यवसाय गर्न चाहने युवाहरूलाई मेरो यो सुझाव छ कि आफूसँग भएको ज्ञान र सीपलाई बजारको माग बमोजिम उपयोग गर्न सक्नु नै सफलताको पहिलो पाइला हो । त्यसैगरी व्यवसायमा एकैचोटि नाफा नहुने भएकोले धैर्य धारण गर्ने, परिश्रम निरन्तर गरिरहने साथै इमान्दारिताका साथ र आत्माविश्वासका साथ काम गर्ने । केही समय लाग्ला तर सफलता अवश्य हासिल गर्न सकिन्छ ।

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## कृषि कविता

बाटो खनियो,  
माटो खनिएन ।  
ऋण भनियो,  
अनुदान भनिएन । । (१)

विदेशी खाइयो,  
स्वदेशी खाइएन ।  
सस्तो चाहियो,  
स्वस्थ चाहिएन । । (२)

घर छाइयो,  
गोठ छाइएन ।  
तालिम पाइयो,  
सीप पाइएन । । (३)

गाउँ गइयो,  
खेत गइएन ।  
विकासे भइयो,  
विकसित भइएन ॥ (४)

सभा गरियो,  
साधना गरिएन ।  
सवारी भरियो,  
भकारी भरिएन ॥ (५)

बिचौलिया चिनियो,  
किसान चिनिएन ।  
चाउचाउ किनियो,  
चामल किनिएन । । (६)

मौलिकता मेटियो  
मनोवृत्ति मेटिएन ।  
कुलो भेटियो,  
पानी भेटिएन,  
अनि,  
खेत भेटियो,  
खेती भेटिएन । । (७)



- सुशील थापा