Nepal: Success Stories

Distance learning empowers women in rural Nepal to treat livestock as a business

Ms. Kusumaya K.C. is part of a vital labor force in Nepal that brings animal health services to remote areas of the country. Before getting to work, however, she had to overcome obstacles to education that often limit rural women from realizing their potential.

Through a project of the Feed the Future Innovation Lab for Livestock Systems, Kusumaya participated in a new form of training by distance learning for Village Animal Health Workers. These paravets are in high demand because of the small number of livestock veterinarians in Nepal's countryside. They are certified to provide vital services such as castration.

Participants in the distance learning course, all women, received a Samsung tablet with videos and other digital content, and they also attended 10 days or more of in-person, hands-on training. This approach provided much greater flexibility and did not require 35 days away from the home, as the traditional course did. Compared to classroom training, the distance learning course helped 24% more women become community animal health workers.

Ms. Kusumaya K.C. provides livestock services in Parbat, central Nepal, using techniques she learned in a novel, mostly digital format. (credit: B. Shrestha/Heifer Intl.)

Kusumaya found both short and long-term benefits from her participation. "I have increased my goat flock size and have more than 20 goats at present. The tablet with the digital course is a reference material for me and I can look at that whenever needed," she said. Although her income has decreased during the COVID-19 pandemic, she expresses gratitude that she can provide technical livestock services in her community.

High Level Appreciation

Kusumaya's statements were translated by Bhola Shrestha, a collaborator on this project and an employee of Heifer International in Nepal. He also shared a statement from Dr. Swoyam P. Shrestha, the director of Livestock and Fisheries Research for Nepal Agricultural Research Council, who reviewed the project's digital training materials:

It is highly appreciated as it carries all the basic needs and requirements for Village Animal Health Workers (VAHW). It covers the importance of breeding, requirements of feed and fodder, and value of prevention of diseases in livestock in simple language. It also gives brief treatments and intervention procedures for various livestock and poultry diseases. After the completion of the provided courses, it makes the VAHW able to deal with livestock management, nutrition, and diseases in the absence of subject matter specialists. The pictures and video clips speak more than a thousand words and VAHW can understand and learn by visualizing. It's a wonderful job and hard work done by the team.

The project team is led by Dr. Conner Mullally from the University of Florida, and it includes co-Principal Investigators from Kansas State University, the University of Georgia, the Nepal Agricultural Research Council, Interdisciplinary Analysts, and Heifer International.

The Gender Gap

For Mullally, a central research question was whether or not this distance learning platform would address gender-related issues. An experimental approach with more than 70 female students found that nearly twice as many completed the distance learning as compared to the traditional cohort.

"The answer is yes, this method can provide more access for women," said Mullally, who is very encouraged by the results. "It feels fantastic. Even if questions remain, it's still a big success because of the duration of the impact on the distance learners. It's a very positive result and we should definitely continue on this path."

Women and especially mothers have very high demands in rural households. They may be required to care for the family's livestock because many Nepalese men travel abroad for work. Having the option to study at home provides an opportunity that otherwise might be unthinkable.

Currently the research team is conducting a survey of the distance learning participants that will complement findings from focus groups conducted in 2019. Government agencies in Nepal have expressed an interest in expanding the training for men and women.

Distance learning is only one aspect of this multi-year research project that plans to conclude in 2021. Learn more about the project, Designing and evaluating innovations for development of smallholder female livestock cooperatives in Nepal, and its results on its webpage: https://livestocklab.ifas.ufl.edu/projects/dr-conner-mullally/.

Farmers in Nepal learn to fight hidden disease

A trainer instructs dairy farmers in Jamuni village, near southwestern Nepal's border with India. (credit: Prerana Karki).

You can't change what you can't perceive. Dairy farmers in Nepal learned this year about an invisible enemy that has been robbing them of potential profits, and now they are changing their habits and practices to prevent its return.

The invisible enemy affects the udder of cows and buffaloes often sub-clinically, or without external cues. "The farmers have never heard of sub-clinical mastitis. They say, "Our animals are suffering and we didn't know about it," said Dr. Keshav Prasad Sah, a senior program manager with Heifer International, Nepal. He is leading a year-long research and capacity building project funded by the Feed the Future Innovation Lab for Livestock Systems, titled Improving Dairy Animal Productivity and Income Of Dairy Farmers through Effective Control of Mastitis Disease.

A bacterial infection of the udder, mastitis, reduces the amount of milk produced and contaminates it. This year's project discovered infection rates of 80 percent at the 200 farms investigated across Surkhet, Bardiya, Banke and Dang districts, whereas previous research ranked it as low as 14 percent. To raise awareness at small farms, Dr. Sah's team tested milk and developed training materials for mastitis, and then taught good animal husbandry and milk management practices to more than 200 farmers and animal health workers. Begun in March 2017, the trainings are showing promise.

One participant, Bhuwan Rijal, 49, a livestock technician from western Nepal, has increased his income from dairy five-fold, said Dr. Sah. Previously, Rijal earned US $48 per month from selling the milk from one cow and one buffalo. His family of seven retained two liters of milk daily; the remaining four were sold.

Bhuwan Rijal stands in his upgraded livestock shed, where he implements best management practices for milk mastitis disease control. (credit: Keshav Prasad Sah)

Then on March 7, Rijal joined 25 other technicians for a training on good husbandry practices. "He didn't have any idea about sub-clinical mastitis," said Dr. Sah. "The training motivated him, and he understood that on his farm, mastitis was a managerial problem." Rijal cleaned up his act and improved the way he kept, milked and housed his animals. He acquired two more cows, increasing production from 6 to 30 liters per day. His income from dairy has risen to US$211 per month.

In June, after learning from Dr. Sah's team, more than a dozen trainers fanned out across four districts of mid-western Nepal. They shared their new knowledge and motivation in structured sessions with 219 farmers, mainly women. By the time the project ends in January 2018, Dr. Sah hopes to have reached 400 farmers.

Training is just one of five objectives of the project (see all at http://livestocklab.ifas.ufl.edu/what-we-do/dr-keshav-prasad-sah/). These initial research successes are limited to a small portion of Nepal's extensive dairy sector, which represents the majority of livestock's contribution to GDP. At least 500,000 households in Nepal produce dairy products. In the coming year, Dr. Sah's project will generate further evidence on the efficacy of various interventions so that their potential for reducing mastitis in Nepal can be quantitatively assessed.

There's an App for that – Even cow diets

What is bringing together traditional dairy farmers, young mobile app developers, and a fifty-something year-old researcher? Why, smartphone-assisted milk production in Nepal, of course!

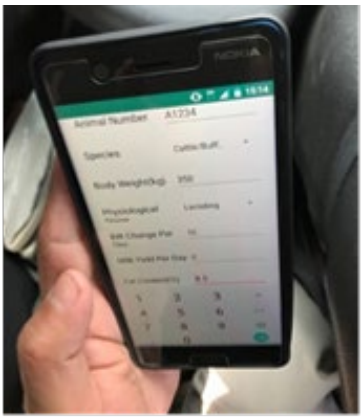

Figure 1 The feeding app is available in Nepali and English (credit: B. Shrestha)

Built upon more than a year of research, a new smartphone app is guiding household dairy farmers in the Nepali and English languages. It is the culmination of the project "Feeding Support Tool Development for Enhancing Dairy Animal Productivity for Improved Livelihood of Smallholder Dairy Farmers in Nepal" from the Feed the Future Innovation Lab for Livestock Systems. Encouragingly, 94% of involved farmers stated that using the tool increased milk production by their cows and buffalo and reduced the cost of feeding.

Creating the digital Feeding Support Tool involved pulling together the expertise of several communities that seldom interact. What do village farmers know about creating apps, and what do computer programmers know about farming? Bridging these divides was project leader Bhola Shankar Shrestha, age 50, of Heifer International Nepal, with vital governmental collaboration from the Nepal Agriculture Research Council and the National Dairy Development Board.

Shrestha knew that smallholder famers lacked knowledge about how to feed their cows and buffaloes properly. "None of the farmers were thinking about balancing rations," said Shrestha about his fellow citizens in Nepal. Then in 2013, he discovered that a World Bank-funded feed balancing program in India led to milk productivity gains of 15%. "I saw that it can be done," he said.

Need for feed

Starting the project in October 2016, Shrestha reviewed dairy animal feeding practices of households in southern Nepal, and he found poor management and poor knowledge about feeds among farmers. His team spent four months analyzing feed samples from winter and summer seasons, and these results have become part of the new app. Although tailored to the Nepali context, the app will likely find many international users, because stakeholders across six target countries of the Livestock Systems Innovation Lab have identified lack of quality animal feed as the primary constraint to improving livestock productivity.

Figure 1 This Milk Collection Cooperative in Nuwakot District, Nepal, participated in the study (credit: J. Harper)

Next, Shrestha reviewed a widely used software program for balancing feed rations, but he discovered that it often froze, did not allow users to enter data for buffaloes and had other problems.

Building on his experience with databases during 23 years at the Nepal Agricultural Research Council, Shrestha created an Excel-based program with many thousands of entries based on analysis of more than 150 feed samples from 50 different commercial and home-grown feeds. The Excel-based program offered the complexity that researchers like, but it lacked the convenience that busy farmers want. "This is not user-friendly. So we need a mobile app," concluded Shrestha.

As an interim step, Shrestha advised farmers in person in three rural districts of southern Nepal, and he coached them on keeping a notebook and recording feeding practices and milk production. He also interacted with local milk cooperatives who receive milk from smallholder farmers and function also as marketing agents and community centers.

Before the project ended in March 2018, farmers using the app were compared to a control group without the app. Those using the app reported that they produced 8% more milk from buffaloes, and 15% more milk from cows than the control group.

Scaling Up

This project was featured at a workshop with many high-ranking officials. Dr. Bimal Kumar Nirmal, the Director General of Nepal's Department of Livestock Services, established a committee to develop strategies and action plans for scaling-up innovations. The committee plans to promote rapid, low cost analysis of feed samples using Near Infrared Reflectance Spectrophotoscopy (NIRS). It also pledged to expand training for the Feeding Support Tool in ten or more major dairy zones across seven provinces. Fifty cooperatives have already been trained, for which Shrestha acted as a resource person.

As use of the app spreads, Shretha is sure that many more than the initial 200 farmers in his project will learn how to balance animal rations.

Now the challenge before him: convince more farmers that they can improve their dairy production, and by extension their quality of life, by paying attention to something new on their smartphones. In Nepal, there's now an app for that.

Figure 1 Project PI, Bhola Shrestha (credit: J. Harper)

Webinar Triggers Far Reaching Actions in Nepal

At a university workshop in Nepal in August 2022, faculty members learned how to avoid predatory journals. (credit: Nirajan Bhattarai)

Have you ever wondered what happens after a webinar ends? This story shows that a topic of great interest can inspire people on the other side of the globe to act upon knowledge gained. Here is what happened: A webinar about predatory journals held in June 2022 generated so much interest in Nepal that it was replicated as an in-person workshop in August. Then those participants were inspired to hold a post-workshop activity for university students the same month reaching a total of 84 participants. Moreover, the Agriculture and Forestry University decided to institutionalize best practices on how to avoid predatory journals. The workshop was particularly relevant for the nearly 100 new faculty members recently hired by the Agriculture and Forestry University (AFU). Most of these young researchers are being 'attacked' by predatory publishers, according to Nirajan Bhattarai, the director of AFU's Continuing Education Center.

"These trainings on predatory academic practices have been very useful to us," wrote Anju Adhikari, an assistant professor at the Agriculture and Forestry University in Rolpa, Nepal. "For me, it was an eye-opening training as I am a new faculty member. I suggest the team to conduct the same training to our remaining faculty members as well."

First steps

The timely topic of predatory journals might have been missed if not for an entire webinar series organized by the Feed the Future Innovation Lab for Livestock Systems. The series, Maximizing Your Research Impact, was the brainchild of the Local Capacity Development team, co-led by Sandra Russo and Nargiza Ludgate at the University of Florida.

This team recognized a gap in awareness about the journal publication process among researchers abroad. They connected with Terry Kit Selfe, a translational research librarian at the University of Florida, who developed the materials for the webinar series.

Webinar five of six, titled "Avoiding Predatory Journals: Make your Publication Count," was held on June 10, 2022, and attended by 123 people mainly from Burkina Faso, Niger, Ethiopia, Rwanda and Nepal. The webinar presentations are available in English and French on the Livestock Systems Innovation Lab's website, and a recording posted on YouTube has had more than 100 views.

Next Stop, Nepal

Webinar participants from Nepal brought this content to the attention of AFU's Continuing Education Center, and it connected with Dr. Ludgate from the Livestock Systems Innovation Lab. Within a matter of weeks, a workshop was developed and executed in collaboration with the National Young Academy of Nepal (NaYAN) in Kathmandu.

On August 4 and 5, 2022, 39 faculty members gathered at the Prince Village Resort of Chitwan in southern Nepal. One of several featured speakers named Basant Giri, a senior scientist at the Kathmandu Institute of Applied Sciences and co-chair of NaYAN, shared results of NaYAN's survey of Nepali researchers and how this organization could support them in resisting predation.

On Day 2, small groups shared presentations about a predatory journal that they had dissected the previous day. The workshop concluded with guidelines for authorship, a question-and-answer session, and the awarding of certificates.

"The training was one of the best and effective ones. I'd recommend forming a forum at an institution level and also a network at inter-institution level for sharing and learning experience," wrote Ramesh Silwal from Tribhuvan University.

Moving Forward

Professor Silwal and other workshop attendees from Tribhuvan University's Institute of Forestry wasted no time in sharing what they had learned. On August 15, 2022, they gathered 45 students at the Hetauda Campus in Makwanpur for a half-day workshop on "Sensitizing the Academic Career." It covered report writing, manuscript writing, journal publication procedures and avoiding predatory practices.

At an institutional level, AFU is developing policies to address malpractice. They are building awareness of bad actors and plan to hold workshops for all students in their final semester.

Students at the Hetauda Campus of the Institute of Forestry learned about academic publishing at a workshop initially inspired by a Livestock Systems Innovation Lab webinar. (credit: Nirajan Bhattarai)