



Lumbini Hydroponics farm owner, Ishwor Poudel (left) and his siblings stand inside one of their green houses



USAID



FARMER TO FARMER
The USAID John Ogonowski and Doug Bereuter Farmer-to-Farmer Program

BUILDING THE CAPACITY OF NEPALESE FARMERS IN HYDROPONIC TECHNOLOGY

Ishwor Poudel was first exposed to hydroponic greenhouse production technology as a migrant worker in Qatar and Oman. As the son of a farmer, Ishwor quickly realized the potential for this no-soil, environmentally friendly and low labor technology in Nepal, where farmers are still heavily reliant on many labor- and time-intensive farming techniques. Ishwor was determined to take this new technology back to his home country – and that’s exactly what he did.

After spending twelve years overseas, Ishwor returned to Nepal in 2018 and, with his siblings, established the Lumbini Hydroponics farm in Rupandehi District with a \$50,000 investment and 10-year land lease. Ishwor built greenhouses and used his limited knowledge of hydroponic farming to grow a variety of vegetables and started supplying the produce to nearby hotels and supermarkets. A few months into his new, expensive venture, his lack of technical skills

became evident when his farm began to face a host of challenges. His vegetables started wilting, the roots and nodes were rotting, there was low germination of seed, and several issues related to temperature maintenance and water pH management began to crop up. Ishwor couldn’t find adequate technical support for his farm in Nepal because hydroponics is still largely unexplored in the country; a visit to nearby India also proved unfruitful. His inability to find solutions was rapidly putting his farm and investment at the risk of foreclosure.

Dr. John Griffis, an associate professor from Florida Gulf Coast University with over three decades of experience in hydroponic greenhouse production, arrived in Nepal in July 2019 to help Ishwor and his family troubleshoot. Dr. Griffis’ two-week assignment was part of USAID’s Farmer-to-Farmer program, which sends American farmers and agribusiness professionals to various countries around the world to provide

short-term technical assistance in food security and agricultural processing, production and marketing. During the assignment, Dr. Griffis worked closely with Ishwor and his staff, as well as with other prospective hydroponic farmers, to identify and mitigate the issues they were facing. Through this exchange, Ishwor and his staff received training, skills building and knowledge that were otherwise unavailable. Dr. Griffis noted, "It was great that Ishwor had the prior

"I like the way that the Farmer-to-Farmer Program focuses on knowledge transfer and technical assistance" -Ishwor Poudel

experience growing crops overseas. He was able to explain the problems he saw in his crops and he was also able to quickly understand how to implement possible solutions." Dr. Griffis' training covered correct water pH management using locally available acetic acid, nutrient management techniques to manage crop fertilization, and the use of dilute calcium nitrate to improve blossom set and cure assorted leaf and root issues caused by calcium deficiencies. He also shared ideas for using controlled temperatures to increase germination and recommended structural changes to the greenhouses to increase airflow and maintain temperature. "Ishwor is starting to build a new greenhouse with improved automation that should allow him to control growing temperatures better. The leafy crops he plans to produce in the greenhouse will perform much better for him when he has better control of the growing environment. He should see a considerable increase in production next season in this new facility," according to Griffis.

The benefits of the training have been evident in the success that Ishwor and his farm have enjoyed since Dr. Griffis departed. Ishwor and his family have expanded their operations as a result of increased yields and profits. They have added three new greenhouses through a low-interest loan and their total farm investment is roughly

\$155,000. The government has also recognized Ishwor's entrepreneurial and creative ideas and is supporting the farm with an additional \$20,000. Additionally, Ishwor is emerging as a hydroponics greenhouse construction service

provider and has extended his services to construct greenhouses for other interested parties in his district. Overall, Lumbini Hydroponics increased its sales by at least 5 percent in 2019 and Ishwor believes he will continue to see this increase in 2020 as production will increase from his new greenhouses.



CRS F2F team, volunteer John Griffis and Ishwor Poudel, owner of Lubmini Hydroponics, observe the farm during a planning meeting.

As a farmer who had the capital but lacked the technical expertise to run his farm effectively, Ishwor is especially grateful for the Farmer-to-Farmer Program technical assistance model, stating, "I like the way that the Farmer-to-Farmer Program focuses on knowledge transfer and technical assistance, as it is more important than inputs for business sustainability."

Ishwor and his family are using USAID Farmer-to-Farmer assistance not only to improve their own lives and livelihoods, but they are also strengthening the economy of their town and the surrounding area by serving as role models in their community.

FARMER^TOFARMER
The USAID John Ogonowski and Doug Bereuter Farmer-to-Farmer Program

