



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

FOOD SYSTEMS FOR NUTRITION INNOVATION LAB (FSN-IL)

REDUCING GINGER STORAGE LOSSES WITH WOMEN PRODUCERS IN NEPAL



IN NEPAL, ginger is a highly valued spice crop produced primarily by smallholder women farmers in the impoverished middle hills region. Ginger is a rhizome that is used widely in Nepal and globally as a spice and flavoring in food dishes and beverages. Ginger also offers a wide range of health benefits as an antioxidant countering the effect of hypertension and diabetes.

Women typically cultivate ginger on a small plot of land and sell about 75% of their crop at harvest time, retaining the balance for home consumption or sale to local markets. At harvest time, prices are depressed while prices during the off season may increase up to three-fold. Women are compelled to sell their ginger at low prices when harvesting because they lack adequate storage options. Post-harvest practices are generally poor thereby resulting in high post-harvest losses and low pricing by buyers.

OUR MISSION

As part of FSN-IL, our project aims to reduce fresh ginger storage losses for smallholder women producers and their families by scaling up socially appropriate cost-effective ginger storage innovations in three middle hills municipalities in Palpa District in Nepal.

OUR OBJECTIVES

OUR OBJECTIVES are to identify scalable household-level fresh ginger storage technologies and strengthen market linkages for smallholder ginger producers by providing them with greater bargaining power and the ability to sell during the “off-season” when prices are higher. This will be our pathway to increase net incomes of small-holder ginger producers by at least 30%. We will identify strategies to expand the adoption of these storage innovations to a larger number of ginger producers through cost-effective extension and private market pathways.



OUR PRIORITIES

WE WILL CONDUCT RESEARCH on three storage unit prototypes that will maintain ideal temperatures and humidity levels to store ginger rhizomes for five to six months with minimum losses and reduction in quality. These three prototypes include:

- The improved pit storage method.
- An inexpensive raw brick storage unit.
- An inexpensive bamboo storage technology, proven very effective in neighboring India.

Inside the storage units, the ginger is placed on layers of a substrate consisting of sand, soil, and/or straw. We will place sensors that monitor temperature and humidity inside the storage units and have the data transmitted to the producer's mobile phones to keep a record of the variation. The types of units (pit, brick, bamboo) will depend upon environmental conditions, the cost and availability of materials and labor, size/amount of ginger stored, and location of the unit. We will compare the quality of ginger after different storage times for end uses such as seed or marketing and consumption.

Our research also includes the preparation of ginger for storage after it is harvested, including but not limited to washing, curing, grading, and treatment with natural pesticides and fungicides. We will experiment with different cleaning devices to reduce labor and water requirements.

Finally, we will conduct a benefit-cost analysis comparing pre- and post-adoption of improved ginger storage technologies. Research will look at fresh ginger market prices and correlate them with boosts in income for producers after two to six months of storage.



FEED THE FUTURE **FOOD SYSTEMS**
FOR NUTRITION INNOVATION LAB

purdue.ag/nepal-ginger

