

FEED ETHIOPIA

# FEED ENHANCEMENT FOR ETHIOPIAN DEVELOPMENT

*Empowering smallholder farmers through sustainable forage production systems, improved animal feed supply chains, and economic opportunities in livestock and poultry production*





Beginning in 2009, the USDA funded Feed Enhancement for Ethiopian Development (FEED) projects, implemented by ACDI/VOCA, grew Ethiopia's compound feed production capacity by 50 percent, generating as much as \$5 million in annual animal feed sales, supporting growth in livestock and poultry production, and improving food security.

# BOOSTING ECONOMIC OPPORTUNITY THROUGH BETTER LIVESTOCK NUTRITION

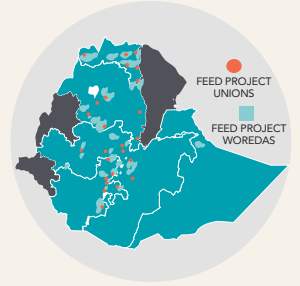
The Feed Enhancement for Ethiopian Development (FEED) project worked to increase the incomes of smallholder farmers by improving their access to, and use of, high-quality feed for livestock and poultry. The project, implemented by ACDI/VOCA, partnered with the USDA Food for Progress Program in six region states of Ethiopia: Addis Ababa, Amhara, Oromia, Somali, Tigray and Southern Nations, Nationalities, and Peoples' Region.

Two-thirds of Ethiopia's population depends, at least in part, on livestock for its livelihood. Feed plays a fundamental role in livestock rearing and makes up 60 percent or more of production costs. Quantity and quality are key constraints to development of the livestock sector. FEED was designed with these facts in mind and has been the only major development project in Ethiopia to focus on the development of livestock feed resources and their contribution to growth of livestock and poultry production.

Project interventions include developing sustainable forage production systems on smallholder farms and communal pastures, setting up cooperative union-based commercial feed manufacturing enterprises, and strengthening

the feed supply chain. The project also supported establishment of new fattening, dairy and poultry enterprises, and expansion of existing ones, to create economic opportunity and provide models of improved food animal management for others to replicate. The project implemented these interventions through a combination of specialized training, technical assistance, and in-kind support.

While FEED emphasized productivity, efficiency, and economic outcomes, its contribution to resilience and food security is no less important. With greater access to affordable, consistent supplies of feed, farmers and pastoralists can maintain their breeding animals when challenged by drought and avoid selling them off at depressed market prices. They can rebuild their herds more quickly once the rains return. Part of FEED's legacy is its contribution to the prevention of food shortages, and even famine, in the face of droughts and a changing climate.



## ACDI/VOCA SUPPORTS ETHIOPIAN DEVELOPMENT FOR 50 YEARS

**1971–1991**

Sends VOCA volunteer experts

**1996–1999**

Forms four Oromia cereal co-ops, reducing fertilizer cost by **\$4 million**

**1999–2004**

Helps coffee farmers' co-op union land **\$5 million** Starbucks deal

**2002–2007**

Builds capacity of pastoralist and agropastoralist communities

**2009–2013**

Trains **18,000** model farmers and establishes **13** co-op union-based feed manufacturing enterprises through FEED I

**2013–2019**

Trains **40,000** model farmers and others and establishes **12** additional co-op union-based feed manufacturing enterprises through FEED II



1970

2021

**1994–1996**

Conducts first farmers' credit survey and trains **400** private retailers

**1996–2008**

Sends USAID Farmer-to-Farmer (F2F) volunteers

**2001–2003:**

Forms **three** co-op unions in post-conflict Eastern Tigray

**2005–2010**

Builds **25** livestock markets in pastoralist communities

**2011–2016**

Creates **6,000** jobs and facilitates **\$326 million** in agricultural exports through USAID-funded Agricultural Growth Program–Agribusiness and Market Development (AGP-AMDe) project

**2017–2021**

FEED III trains **42,000** model farmers and others and grows number of retail feed outlets to 395, putting almost **1.8 million** agriculture dependent households within 10 miles of a sales point

# Developing Sustainable Forage Production

Ethiopia's livestock population is the largest on the African continent with 80 million cattle, sheep, goats, and camels. Their diets consist of crop residues, like straw and stover, and native forage from communal pastures and rangelands. Such diets are low in energy and protein, which limits animal productivity and health. Traditional grazing resources continue to decline from a lack of proper management and conversion to crop production. Droughts also grow more frequent and severe.

FEED rehabilitated and expanded existing nurseries and established new ones in collaboration with cooperatives and district extension offices. The project also piloted a "quality declared seed" marketing association with private sector forage seed producers to improve quality of seed for commercial trade. By producing seeds of alfalfa, Rhodes grass, elephant grass, pigeon pea, and more, nurseries boost availability and affordability of forages with high productivity and nutritional value. When combined with the project's hands-on training program, farmers raise forage on their farms that can produce more meat and milk. They can also preserve it for use as hay during the dry season and drought or sell it for income. With over 90,000 model smallholder farmers and agro-pastoralists trained in sustainable forage production, farmers can now rely less on outside feed and still improve livestock productivity.

"[FEED] has intervened during a critical period that challenged our existence and helped us for the success of the cooperative."

—Bewnetu Gizachew, Selam Dairy Cooperative chairman

## FORAGE PRODUCTION FOSTERS RESILIENCE AND SUSTAINABILITY



51 forage seed nurseries  
established or rehabilitated



7 commercial seed  
and forage production  
enterprises established



1 Quality Declared Seed  
marketing group piloted



9,000 hectares of land  
supporting sustainable  
forage production



*Ninety percent of trained smallholder farmers adopted better ways to grow and preserve forage on their own land.*

### **FEED SUCCESS**

Building on FEED I successes and momentum, in 2013 USDA awarded ACDI/VOCA a grant for a three-year follow on project, FEED II, so that it could continue supporting livestock- and poultry-sector growth through feed resource development. After its response to the major drought that hit Ethiopia in 2015, the project was extended further to aid in mitigation of the impact on farmers and their livestock, help with their recovery, and strengthen food security and household resilience. FEED III, awarded in late 2017, expanded the reach of its activities into new communities across Ethiopia.

# Supporting the Commercial Animal Feed Industry

Proper formulation and processing maximize the use of feed. Good animal nutrition supports higher levels of productivity, efficiency, health, and profitability, particularly of animals with improved genetic potential. The geographic distribution and large memberships of cooperative unions in Ethiopia make them uniquely positioned to connect smallholder farmers to products and services.

By introducing feed manufacturing into cooperative unions, FEED increased smallholder

access to, and affordability of, quality animal feed. The project established 25 commercial enterprises, including six in each of Tigray, Amhara, Oromia, and SNNP regions and one in the outskirts of the capital city, Addis Ababa. These union-led feed enterprises increased national finished feed production capacity by 50 percent over that which existed at the beginning of FEED I.

FEED support consisted of training on feed manufacturing as a business, technical aspects, such as formulation, quality control, equipment operation and maintenance, and in-kind support. The project invested nearly \$900,000 through grants leveraged with \$450,000 from grant recipients to procure equipment and build facilities. Despite many challenges, sales grew as new facilities came online and smallholder farmers—through training and marketing efforts—learned the benefits of these types of products and how to use them effectively.

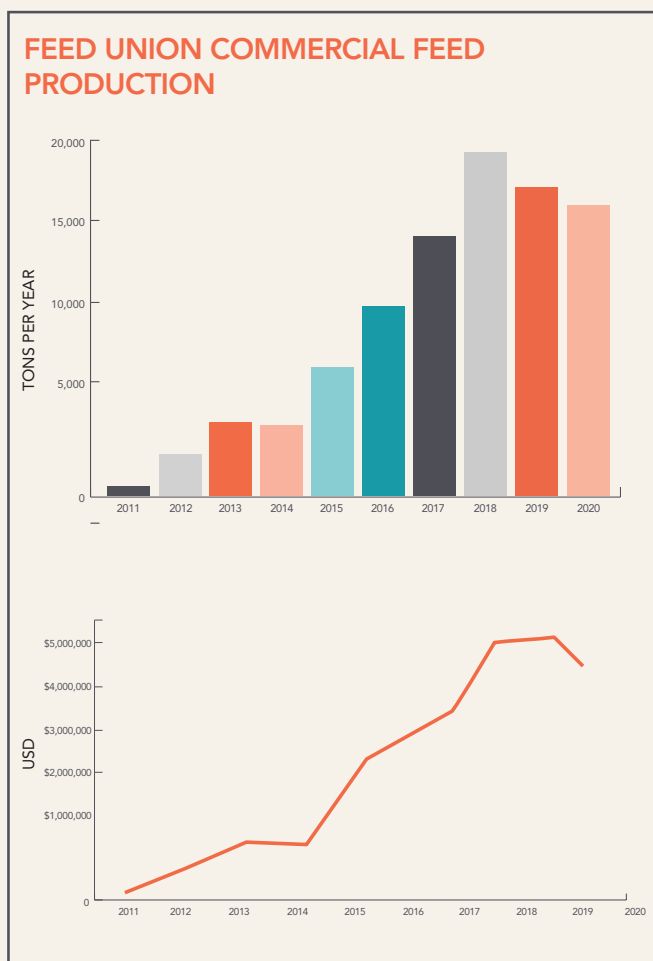


## FEED INGREDIENT SUPPLY CHAIN AND MANUFACTURING BOOSTS PRODUCTIVITY

**25** feed manufacturing cooperatives established

**395** feed sales outlets established

**1.8 million** ag dependent households within 10 miles of a sales outlet





### FINDING COST-EFFECTIVE FEED INGREDIENTS

Feed ingredients make up as much as 90 percent of the cost of producing concentrate feed. Low supplies result in high ingredient prices and limit livestock sector growth. Seasonality in supplies causes large price fluctuations. Adverse climate events can quickly drive market prices even higher. FEED addressed these uncertainties by increasing supplies and access to ingredients like molasses. FEED also trained feed processors in strategic procurement and inventory management.

As with any commercial enterprise, feed manufacturing depends, in part, on those who provide needed inputs and services. For commercial feed enterprises, this includes laboratory services for feed analysis, formulation, feed equipment manufacturing, maintenance, and repair. Most of all, these enterprises require reasonably priced feed ingredients to maintain productivity, profitability, and good service to their customers.

FEED invested nearly \$400,000 to establish, expand and build capacity of businesses such as those that manufacture feed processing equipment and convert food processing byproducts into animal feed. A bulk wholesale molasses business was established at Wonji Farmers' Cooperative Union to streamline access to this important feed ingredient. Near-infrared spectroscopy (NIRS) was

initiated at a commercial laboratory to make access to nutrient analysis of feeds timely and affordable.

Veterinary Drug and Animal Feed Administration and Control Authority staff and the Animal Feed Industry Association members were provided training in good manufacturing practice (GMP) and hazard analysis and critical control points (HACCP) principles, and more to help them promote practices that lead to better feed quality and safety. FEED collaborated with the USAID-funded Livestock Systems Innovation Lab and Kansas State University to assess mycotoxin risk to animal feeds and the Bill and Melinda Gates Foundation and University of Florida to develop approaches to fodder production and drought-resilient feeding systems.



# Introducing and Expanding New Enterprises

Livestock fattening, dairy, poultry, and forage production can be profitable enterprises in Ethiopia and a means to increase smallholder farmers' incomes. FEED leveraged investments of over \$1 million in such enterprises, not only to stimulate economic activity and boost incomes, but also to create models of good feeding practices and business management that other can emulate. B2Bs and trade fairs were held across Ethiopia to promote their products and connect them with input suppliers and new market opportunities.

Through their cooperatives, smallholder farmers pooled resources and applied trainings, technical, and in-kind support to start new businesses, like Friyat Women's Poultry Enterprise, which raises

and sells pullets in the Tigray region of northern Ethiopia. Members benefit from commercial activity on a scale larger than they could achieve individually.

Other cooperative unions, like Wonji and Licha Hadiya, have complimented their feed manufacturing enterprises by fattening cattle using the feed concentrate produced by their own facilities. Investing in the private sector also benefits smallholder farmers. Mastewal Dairy Farm in western Oromia connects smallholder dairy farmers with larger, more distant markets, while also improving milk safety and shelf life through the use of new, small scale pasteurization and packaging technology.

For smallholder farmers to fully benefit from formulated concentrates and improved forages, proper feeding and management of livestock and poultry are required.

Both classroom and hands-on training played an integral role in FEED's approach to sharing knowledge and maximizing adoption. It started with "training the trainers," a process of upgrading the knowledge of district agricultural extension agents. With support from FEED, these agents then carried out trainings in their home districts for model farmers, who shared their new knowledge with at least three neighbors.

Farmers gained access to forage seed and seedlings, allowing them to try different types of improved forages and see what works best for them. Extension agents and FEED technical specialists followed up with farmers, offering ongoing technical support for lasting impact. Improving feed quantity, quality, and management increased milk production per household by 80 percent, supporting more milk per cow and more cows per household. It also reduced the time needed to fatten cattle for market by 28 days, reducing the amount of feed needed by 10 percent. Household egg production increased over 7 fold. Value of household livestock, poultry, dairy and forage related sales increased by 48%.



### BUILDING FARMER CAPACITY

Training was crucial to the success of FEED. That's why the project trained over 90,000 extension agents and model smallholder farmers in forage production, hay and silage making, proper nutrition and feeding management of dairy cattle, fattening livestock and poultry, and basic record keeping. FEED also organized local experience-sharing visits for farmers, so that they can travel to other farms and learn from others. Trainings were developed into videos which, together with pico projectors provided by the project, continue to support extension programming.

"I bought more dairy cows, improved my house, provided my four children with all required school supplies, and improved my dairy barn...all of these developments will help me increase my income and give me the potential to expand my business."

—Lemlem Watarro, dairy farmer and Habebo Dairy Cooperative member



### NEW ENTERPRISES GROW AGRICULTURAL TRADE

**43** livestock and dairy  
**7** poultry and  
**7** forage enterprises  
established or expanded  
through leveraged investments

# Stories of Expansion and Resilience



## Yegnanesh's Story

To help smallholder farmers increase their income, FEED supported female entrepreneurs like Yegnanesh Aschale. Yegnanesh bought 10 chickens to support herself and her family; however, when the chickens produced more eggs than expected, she began selling to her neighbors. Soon she realized she needed to scale up operations to meet demand.

Yegnanesh was one of 18 entrepreneurs to receive a FEED business support grant. Leveraging this grant, Yegnanesh built two structures complete with feeding and water facilities. In two years, she sold 7,200 hens to local poultry farmers and earned nearly \$6,000 in profit. Her success brought recognition from the Ethiopian Ministry of Livestock and Fisheries, which started organizing events at Yegnanesh's farm so that she could share her experience with other farmers.

One such farmer, Fanta Gote, bought 500 chickens from Yegnanesh, and said "the presence of [her] farm in the area is helping me... I can get chickens at [a] reasonable price and have learned a lot from her experience and knowledge."

——— **7,200** hens sold, **\$6,000** in profits

*"Without the support of [FEED], I wouldn't be where I am today. I can't tell you how much your support means to me."*

—Yegnanesh Aschale, entrepreneur and FEED grant recipient



## Tafesse's Story

Tafesse Binchamo, 55, lives on nearly a hectare of land in Zato Shodela Kebele in the Kedida Gamela district of SNNPR with his wife and five children. Before taking part in FEED trainings, Tafesse allocated all his land to growing crops and grazed his six cattle on a small, communal pasture. Without sufficient feed, his cows each produced only four to five liters of milk per day.

With support from FEED, Tafesse decided to use half his land for crops and the other half to grow high producing varieties of forage. Now, his cows produce 16 liters of milk per day, allowing Tafesse to sell milk, butter, cheese, and even surplus forage to others.

His family has more milk to consume at home, and he can afford to pay school fees for his children. Encouraged by these results, Tafesse plans to expand his dairy activities and begin fattening cattle in the future.

——— Tafesse's cows now produce **16** liters of milk a day

## FEED Project Recognized for its Remarkable Work in the Livestock Sector

On November 19, 2017, the FEED project was recognized for its "remarkable achievement and contribution to the development of livestock and fisheries sector" in Ethiopia. The project was recognized by the Federal Ministry of Livestock and Fisheries on the occasion of National Livestock Week held from 13-19 November 2017 in Addis Ababa. The FEED project received recognition as the top NGO in this field of development work in three of the four regions in which it works as well as its contribution at the national level. The awards and certificates were presented by President of the Federal Democratic Republic of Ethiopia, Dr. Mulatu Teshome and Minister of Livestock and Fisheries, Professor Fekadu Beyene.



President Mulatu Teshome presents a certificate to Dr. Carl Birkelo, FEED COP and ACDI/VOCA Country Representative.



## RESILIENCE IS KEY FOR THE SUSTAINABILITY OF LIVESTOCK-OWNING HOUSEHOLDS

In 2015 and 2016, large parts of Ethiopia experienced the worst drought in decades, resulting in water and fodder shortages. According to the Joint Government and Humanitarian Partners Report, some areas lost 50 to 90 percent of crops, and 19.5 million livestock faced feed shortages. The drought significantly impacted one third of FEED's implementing districts. "It is crystal clear that the drought was the worst of the droughts that occurred in the last 50 years," said Jemal Gidey, regional deputy director for the Bureau of Agriculture and Rural Development.

Government agencies in the hardest hit areas looked to FEED's cooperative unions for help in mitigating the negative effects of the drought on livestock owners. In response, these unions produced 8,000 metric tons of feed concentrate, with some working triple shifts to meet the urgent need. Their contribution to saving livestock was felt throughout the affected communities.

"A huge number of our livestock resource that would have been lost was rescued mainly because of them. They [FEED unions] have done a commendable job. They rescued the animals. Not a single animal was dead [in our area]," said Sebho Hagos, deputy head of the Regional Cooperative Promotion Agency in Tigray region.

"USDA's sustained investment in Ethiopia's feed sector is bearing fruit. Through the establishment of cooperative union-based feed manufacturing enterprises, FEED has expanded opportunities for the growth of livestock and poultry production in Ethiopia and created new business opportunities and returns for cooperative union members and their communities. It has also introduced a new piece to the country's food production system—a piece that provides added flexibility in responding to shocks to the system, i.e., greater resilience and food security."

Carl P. Birkelo  
ACDI/VOCA FEED Chief of Party

Thanks to project interventions, over 90,000 smallholder farmers and Ethiopian government extension agents were trained, and an additional 250,000 farmers benefited from the sharing of best practices. 9,000 hectares of farm and communal grazing lands were made more productive through improved forage management and land reclamation. The commercial feed manufacturing enterprises and feed sales outlets established with project support brought 1.8 million agriculture-dependent households within 10 miles or less of union-made feed, generating \$4-5 million in feed sales per year.

The Feed Enhancement for Ethiopian Development (FEED) project is funded by the United States Department of Agriculture (USDA).

ACDI/VOCA is an international development nonprofit that envisions a world in which all people are empowered to build healthy families and resilient communities.

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