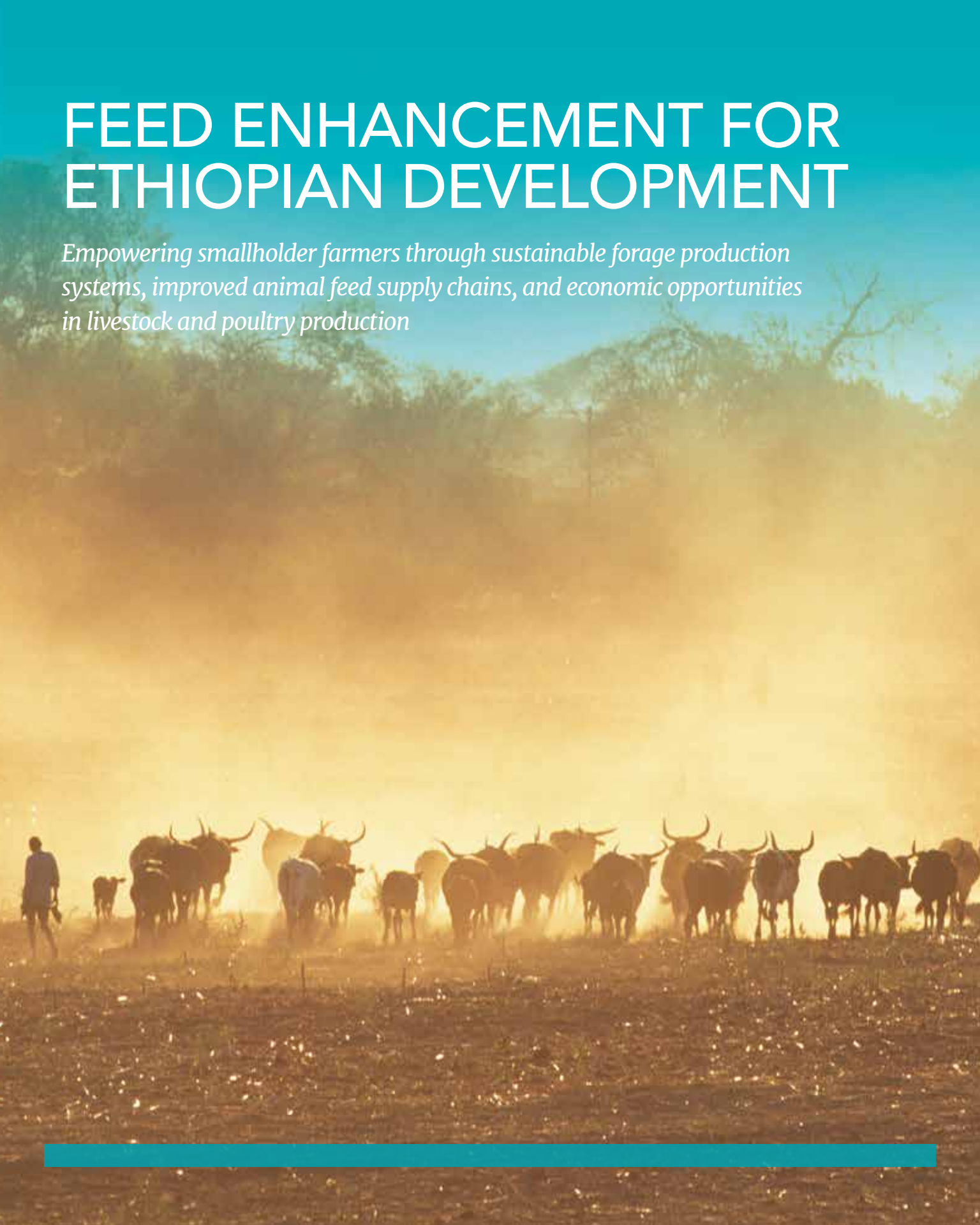


FEED ENHANCEMENT FOR ETHIOPIAN DEVELOPMENT

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





Since 2009, FEED has grown Ethiopia's compound feed production capacity by 50 percent, generating cumulative sales of nearly \$6 million, supporting growth in livestock and poultry production, and improving food security.

BOOSTING ECONOMIC OPPORTUNITY THROUGH BETTER LIVESTOCK NUTRITION

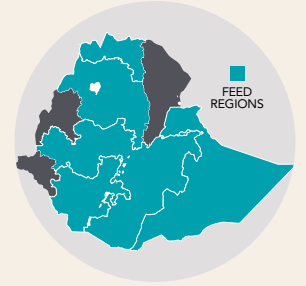
The Feed Enhancement for Ethiopian Development (FEED) project works to increase the incomes of smallholder farmers by improving their access to, and use of, high-quality feed for livestock and poultry. The project, implemented by ACDI/VOCA, partners with the United States Department of Agriculture Food for Progress Program in six regions of Ethiopia: Addis Ababa; Amhara; Oromia; Somali; Tigray; and Southern Nations, Nationalities, and Peoples' Region (SNNPR).

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. Recognizing these facts, FEED 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-

based commercial feed manufacturing enterprises, and strengthening the feed supply chain. The project also supports establishing new fattening, dairy, and poultry enterprises, and expanding existing ones, to create economic opportunity and provide models of improved food animal management for others to replicate. The project implements these interventions through a combination of specialized training, technical assistance, and in-kind support.

While FEED emphasizes 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. In this way, FEED contributes to the prevention of food shortages, and even famine, in the face of droughts and weather extremes.



ACDI/VOCA HAS SUPPORTED ETHIOPIA FOR 45 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

2013–2017

Trains **30,000** model farmers and establishes **12** additional co-op union-based feed manufacturing enterprises through FEED II



1970

2017

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

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, 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 rehabilitates and expands existing nurseries and establishes new ones in collaboration with cooperatives, district extension offices, and the private sector. 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 or drought, or sell it commercially for income. Farmers can acquire seeds by purchase or through revolving distribution, in which a farmer reimburses a nursery with seed harvested from their own forage. New farmers then receive that seed. With over 33,000 model smallholder farmers and agropastoralists trained to date in sustainable forage production, many 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



5,000 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 successes and momentum, USDA in 2013 awarded ACIDI/VOCA a cooperative agreement for a three-year follow-on project, 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, through mid-2018, to mitigate the impact on farmers and their livestock, help with their recovery, and strengthen food security and household resilience.

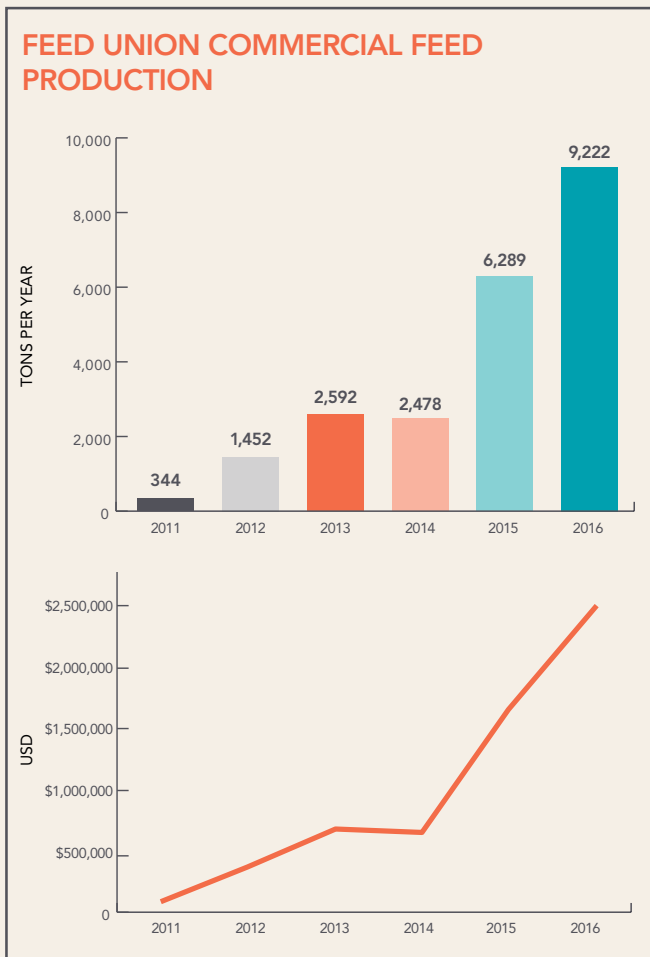
Supporting the Commercial Animal Feed Industry

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 increases smallholder

access to, and affordability of, high-quality animal feed. The project established 25 commercial enterprises, including six enterprises in Tigray, Amhara, Oromia, SNNPR, and one in the outskirts of the capital city of Addis Ababa. These union-led feed enterprises have increased national finished feed production capacity by 50 percent since the beginning of FEED I.

FEED support consists 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 buy 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 union-based feed manufacturing enterprises established

144 feed sales outlets established



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. Adverse climate events can quickly drive market prices even higher. Seasonality in supplies causes large price fluctuations. FEED addresses these uncertainties by increasing supplies and access to ingredients, like fish and fruit processing byproducts and molasses. FEED also trains 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 is investing nearly \$400,000 to establish or expand businesses, such as those that convert fish or fruit processing byproducts into valuable animal feeds. The private sector adopted near-infrared spectroscopy (NIRS) as a method for better access to timely, affordable nutrient analysis. A website run by the Ethiopian Meat and Dairy Industry

Development Institute facilitates marketing of feed ingredients to manufacturers and others.

The Veterinary Drug and Animal Feed Administration and Control Authority and the Animal Feed Industry Association are benefitting from training in good manufacturing practice (GMP), hazard analysis and critical control points (HACCP), and more to help them promote practices that improve feed quality and safety. FEED is collaborating with the USAID-funded Livestock Systems Innovation Lab and Kansas State University to assess mycotoxin risk to animal feeds. FEED is also working with the Bill and Melinda Gates Foundation and the University of Florida on fodder production and drought-resilient feeding systems.



Introducing and Expanding New Enterprises

In Ethiopia, livestock fattening, dairy, poultry, and forage production can be profitable enterprises and a means to increase smallholder farmers' incomes. FEED is leveraging 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 others can emulate.

Through their cooperatives, smallholder farmers pool resources and apply trainings and technical and in-kind support to start new businesses, like Friyat Women's Poultry Enterprise, which raises and sells broilers 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 feed concentrate produced by their own facilities. Investing in the private sector also benefits smallholder farmers. Mastewal Dairy Farm in western Oromia connects smallholder farmers with larger, more distant markets, while also improving milk safety and shelf life through 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 trainings are integral to FEED's approach to sharing knowledge and maximizing adoption. It starts with training the trainers, a process of upgrading the knowledge of district agricultural extension agents. With support from FEED, these agents then carry out trainings in their home districts for model farmers, who share their new knowledge with at least three neighbors.

Farmers gain 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 follow up with farmers, offering ongoing technical support for lasting impact. Improving feed quantity, quality, and management has increased milk production per household by 80 percent, supporting more milk per cow and more cows per household. It has also reduced the time needed to fatten cattle for market by 28 days, reducing the amount of feed needed by 10 percent.



BUILDING FARMER CAPACITY

Training is crucial to the success of FEED. That's why the project has trained 48,000 extension agents and model smallholder farmers to date 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 organizes local experience-sharing visits for farmers, so that they can travel to other farms and learn from them firsthand.

"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



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



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

Yegnanesh's Story

To help smallholder farmers increase their income, FEED supports 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 neighbors. Soon she had 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 profits. Her success brought recognition from the Ethiopian Ministry of Livestock and Fisheries, which organized events at Yegnanesh's farm so that she could share her experience with other farmers.

One farmer, Fanta Gote, bought 500 chickens from Yegnanesh, and said that "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."

"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 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 a day.

With support from FEED, Tafesse decided to use half his land for crops and the other half to grow seven varieties of forage. Now his cows produce 16 liters of milk a 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.



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 their 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 Jamal Gidey, regional deputy director for the Bureau of Agriculture and Rural Development for Tigray Region.

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 for 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 not only expanded opportunities for the growth of livestock and poultry production in Ethiopia but also created new business opportunities and returns for 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, by 2018, an expected 58,000 smallholder farmers and Ethiopian government extension agents will be trained, and more than 120,000 farmers will benefit from the sharing of best practices. Sustainable forage production will be established on 8,000 hectares of farms and communal grazing lands. Commercial feed manufacturing cooperatives will establish additional feed sales outlets to bring at least 1 million agriculture-dependent households within 10 miles or less of union-made feed. Feed sales are projected to surpass \$3 million per year.

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

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

Learn more about USDA at www.usda.org

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