



*“African Smallholders and the Challenge of Assured Compliance:  
What Have We Learned From Our Interventions?”*  
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## **The increasing Importance of Quality Assurance to Smallholder Dairy Farmers in East and Southern Africa: The Experience of Land O'Lakes**

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### **The Dairy Sector in East and Southern Africa**

Dairy farming is a good development option for many countries in Africa. In the ASARECA/IFPRI report entitled *Strategic Priorities for Agricultural Development and Agricultural Research-for-Development in Eastern and Central Africa*, it is noted that “when EAC is viewed as a region, milk emerges as the most important commodity sub-sector for both Ag GDP and GDP generation.”

Over 80 percent of the milk in East and Southern Africa (ESA) is produced by smallholder farmers in peri-urban and rural areas. This offers great potential for impacting large numbers of households with broad income distribution benefits. However, 80 percent of the milk marketed does not enter a cold chain and is neither pasteurized nor packed. Without cold storage, bacteria, some disease-causing, begin multiplying at an exponential rate within two hours of milking. Therefore, the current smallholder production and marketing systems raise considerable challenges in building competitive industries and achieving quality standards.

Unlike investment and revenue generation for many of the high-value crop commodities, investment and revenue generation in the dairy sector are not driven by export sales to international markets. Dairy is more domestic-market-oriented, although there are growing regional exports, both formal and informal, within the subcontinent.

For most countries in ESA, milk quality at the farm gate is currently not a key requirement for market access in the dairy sector. A farmer who does not meet the quality standards of the local cooperative- or processor- owned milk collection center can often sell his milk to traders in the informal market. There are no significant market rewards for higher-quality milk at the producer-supply level. However, quality does play a factor in market access and retention at the retail level, and there are many examples of lost market opportunities and revenue because quality was not maintained. Financial incentives and rewards tend to come more from value addition.

Unlike the supply chain for most high-value commodities, most of the milk marketed in ESA flows through informal milk marketing channels. The resulting challenges to the regulatory environment are significant. While most countries in ESA have dairy standards on the books, they lack the capacity to enforce them. In addition, most of the standards on the books were adopted from European countries many years ago, which, not surprisingly, now tend to be dated and generally inappropriate for the current African environment.

Some governments in ESA have tried to revive their regulatory role in the sector by making improvements in the Bureaus of Standards and revitalized dairy boards, but there remains a general lack of trust in the governments' abilities to regulate the quality standards for the rapidly expanding industry. In most cases, this inability is related to the lack of resources, equipment and skills needed to do the job. Even though the political will may exist, it is unrealistic to think that local governments will be able to regulate and transform the informal sector effectively anytime in the near future.

COMESA and EAC are busy working on the harmonization of dairy standards for their regions, which should be approved later in 2007. While there are already a number of quality improvement measures being adopted along the dairy value chains in these regions and a growing number of dairy processors who recognize the importance of ensuring quality to protect their brand name and market opportunities, it will take dairy processors in the EAC and COMESA regions considerable time before they can meet these new standards. Hence, these measures are more likely in the immediate future to have an impact on export opportunities, rather than on domestic markets.

Still, **quality** and **safety** are essential requirements for a thriving dairy value chain. Safe milk handling practices, the ability to test milk quality in the supply chain and industry standards that are embraced by all stakeholders are important ingredients in forming a vibrant commercial scale dairy sector. Milk may be "nature's perfect food"; however, it can be a vector for life-threatening diseases and other health risks, especially for children. Therefore, **compliance** is necessary throughout the production, collection, processing and distribution systems. In fact, food retailers are placing requirements on the dairy processors to meet their own high-quality standards as a requirement for market access.

Commercial-scale dairy processors must reduce the high bacterial load in the raw milk supply, lower somatic cell counts and eliminate antibiotic and pesticide residues in the milk supply. Unresolved, these fundamental quality issues will continue to have a negative impact on processing operations and, ultimately, product quality and safety. Through the harmonization of dairy product standards for the COMESA region, the industry has begun to address these issues and develop a program of measures to improve the quality of the raw milk supply and dairy products across the region. Product shelf life is short compared to non-African markets. This reduces the distribution radius, to avoid spoilage at retail selling points, and thereby impedes brand exposure, brand growth and market penetration.

Market research and consumer studies indicate that East African consumers are increasingly concerned over milk quality and safety from both formal and informal sources, especially when they are buying milk for their children. Eventually, this growing awareness will have an impact on domestic markets and increase the pressure on dairy processors in ESA to take quality assurance measures more seriously. In time, these market signals will work their way down the value chain to the smallholder farmers.

While there is already pressure on smallholder dairy farmers in ESA to adopt quality enhancement measures, in order to ensure market access, the pressure will grow further, as consumer preferences for quality milk increase, retailer demands for high and consistent quality increase, policy harmonization continues to move forward and improvements in regulatory enforcement continue.

Land O'Lakes has been supporting smallholder dairy development in sub-Saharan Africa since 1994. Increasing dairy production, smallholder market access and milk consumption have been key outputs of virtually all Land O'Lakes projects. Market access and increasing milk consumption cannot be achieved without addressing milk quality. What follows is a summary of Land O'Lakes' insights, experiences, successes and lessons learned as they relate to the importance of quality assurance to smallholder dairy development. The information is presented in a value chain format, beginning with milk production and ending with consumer protection.

### **Quality Measures in Production Systems**

Quality starts with the cow. Animals that are properly managed produce ample quantities of pure milk. Smallholders must be trained in intensive animal management to increase productivity and assure milk quality standards. This requires:

- Vaccination against notifiable diseases;
- Veterinary care to control mastitis and other diseases;
- Proper breeding to improve/maintain genetics;
- Proper feeds that are free of pesticide residues;
- Animal holding areas and milking parlors that do not promote the spread of diseases; and
- Proper milking procedures.

Milking procedures are the first line of defense to prevent milk contamination. If the cow is healthy, the milk is relatively free of bacteria. Therefore, certain hygiene and food safety protocols must be applied to prevent introduction of contaminants, including:

- Washing hands before milking;
- Washing the udder and teats before milking, and dry with a clean towel;
- Using a clean aluminum milk container; and
- Observing withdrawal periods for animals receiving antibiotics.

This may appear to be simple and manageable, but the reality is that clean water may not always be available at the milking point. This is the first point of failure in the quality control system. Also, cattle owners may not be aware that milk from animals receiving antibiotics should not be consumed. Only aluminum milk cans should be used for collection; however, farmers often use plastic jerry cans or recycled plastic food containers because they are less expensive.

*Successes:* Land O'Lakes and other implementing organizations assisting in dairy sector development in Africa have had considerable success in assisting farmers in adopting a number of quality-enhancing measures. These include:

- Use of milk collection centers to distribute appropriate inputs to smallholder producers.
- Improved hygiene in the on-farm milk handling process.
- Use of affordable teat dip sanitizers and other clean udder hygiene methods.
- Qualified veterinarians contracted to train smallholder producers on disease control, vaccination and use of antibiotics.
- Feed and seed providers using quality inputs linked to smallholders through cooperatives and collection centers.
- Improved breeding practices.
- Construction of improved animal holding areas and milking parlors.
- Increased use of aluminum milk cans.

Land O'Lakes has provided technical support in the development of policy reforms aimed at improving milk quality at the farm level, including a government ban in the use of plastic jerry cans in Uganda.

Land O'Lakes utilizes a Business Development Services (BDS) approach to increase access and utilization of quality-enhancing inputs and services to dairy farmers. For example, Land O'Lakes supports commercial arrangements between equipment providers and dairy cooperatives to increase access to milk cans. Farmers can repay the cost of the cans through deductions from their milk payments.

*Lessons Learned:* Smallholders need technology that is affordable and practical, given their limited resources. They must have the necessary training and inputs and be encouraged to achieve specified milk quality standards. If their milk does not meet the standard, it must be rejected by the collection center. The success of technology adoption is directly related to market access, and production interventions must be combined with support to market development.

### **Quality Measures in Collection Systems**

Collection centers receive milk from hundreds of smallholders on a daily basis. The potential for contamination is very high. These collection centers may be owned by a cooperative, a commercial farm, or a dairy processor or they may be run as a private business. Managing successful collection centers requires establishing quality assurance and traceability protocols such as:

- Creating a record keeping system that documents each member/supplier;
- Testing each batch received (no matter how small) and recording the results by member;
- Using multiple tests, such as cryoscopy and/or lactometer for adulteration, titratable acidity test for bacteria load, and mastitis detection;
- Rejecting milk that falls below specified standards; and
- Taking corrective action when a member repeatedly delivers milk below quality standards.

Problems arise when standards are not enforced in a consistent manner, especially in dry seasons when production volumes do not meet demand. Also, traders and transporters collect milk from multiple smallholders and combine the milk in large aluminum cans for transportation to the collection center. The good milk is mixed with the bad milk, and traceability becomes impossible. Informal traders and transporters must be brought into the system and given the technical training required to maintain quality. If necessary, they should apply lactometer and alcohol tests at the farm gate. The collection center manager must be vigilant for members/suppliers that consistently supply inferior quality milk. Corrective action must be taken, and a qualified technician must be sent to the offending producer to identify and correct the cause.

Cooling tanks are essential components of successful collection centers. Acquiring a cooling tank is a major challenge for most collection centers, as they usually need financial assistance. This requires preparation of a bankable business plan and linking the collection center to potential sources of funding. Alternatively, the cooling tank may be provided by the processor as part of a long-term supply contract. Cooling raw milk as quickly as possible and keeping it cool until it reaches the processor are other essential components of quality assurance.

*Successes:* Land O'Lakes and a number of other development organizations have successfully established milk collection centers throughout East and Southern Africa. This includes organizing and training farmers on the importance of quality assurance;

implementing quality and safety standards and testing protocols in the collection and bulking system; and assisting the collection centers to buy testing equipment and cooling tanks on commercial terms or with minimal subsidy. Once collection centers are established, training is provided on the multiple recommended tests—including the lactometer test for adulteration by addition of water or chemical preservatives and the acidity test to measure the development of microbial growth in the milk—in addition to business and financial management and operations management.

*Lessons Learned:* The collection center is more than just a milk bulking point. It should be developed into a resource center for its members and linked to input and service providers. It is the most effective mechanism to link technical training, services and quality inputs to smallholder producers. The collection center is the best point to establish rigorous testing and traceability systems. To achieve quality assurance and traceability, professional managers must be hired to operate collection centers. Many cooperatives prefer to use their members to manage collection centers. However, these community members rarely have the technical skills required. The result is that they operate as community projects, rather than as for-profit businesses. Professional management is needed to maintain quality, efficiency and profitability.

Operating costs, especially the costs of power, are constraints to profitable management of a milk collection center. With escalating fossil fuel costs, the need for alternative energy sources is imperative. As most milk collection centers have installed capacity of 500 to 5,000 liters each, they are too large for the currently available low-cost, low-tech solar systems.

#### **Quality Measures in the Informal Retail Sector**

More than 80 percent of milk marketed in East and Southern Africa is distributed and sold through informal and mostly unregulated systems. Consumers are aware of the potential health risks of consuming milk of unknown origin; however, the risks are eclipsed by easier availability and lower prices than branded dairy products. Consumers often boil milk at home and believe that this is adequate. Regulatory organizations understand the potential health risks. However, most lack the resources to correct the problems. The problems include:

- Raw milk is handled by multiple transporters and traders before reaching the consumer;
- Milk is rarely chilled during collection and distribution;
- Bacteria in milk double every 20 to 30 minutes at ambient temperature;
- Evening milk that has been left unrefrigerated overnight may be added to morning milk, thereby reducing quality;
- Milk is poured from one container to another during the distribution and sales processes, increasing the risk of contamination; and
- Informal traders do not have adequate training in food safety.

*Successes:* Land O'Lakes has worked with city councils and dairy boards in Kenya and Uganda to establish milk quality and safety protocols in the informal market. Critical to this work has been the organization of traders into groups and associations. Once organized, the informal traders can be engaged in dialogue and training and are more easily able to establish standards and practices. In Uganda, Land O'Lakes supported the formation and development of the Uganda Dairy Traders Association (UNDATA), which is now establishing self-imposed milk quality standards on its members and requiring that all milk handled by association members pass through a cold-storage chain. Land O'Lakes complements its technical training with association development and strategic planning, which help to professionalize the organization.

There are numerous examples of successful urban milk bars trained in food safety practices, which include the following:

- The milk bars have supply contracts from reliable sources.
- They have simple testing equipment.
- They use batch pasteurization to remove pathogens.
- They have refrigeration.
- Many process value-added products, such as yogurt.
- Some use simple packaging that allows them to distribute by bicycle within their neighborhoods.
- They have established a consumer franchise and therefore are motivated to maintain the quality and safety of their products.
- They have been inspected and certified by regulatory authorities and display their certificates for consumers to see.

*Lesson Learned:* Banning hawked milk is not a viable option in most cases. The long-term goals are milk quality, safety and traceability mechanisms to lift the overall industry standards to meet international expectations. However, movement toward these goals should not be done too rapidly. It must be a gradual ramp-up process that does not create chaos and unemployment in the informal sector. Organizing and providing technical training to traders and hawkers and gradually bringing them into the commercial dairy value chain as collectors, distributors, and re-sellers is important. Too often, the informal sector is ignored or marginalized by dairy boards and development projects, doing nothing to promote their transition to more formal methods of operation.

Also critical is the development of a road map or master plan for the industry. Too often, governments threaten to ban the informal sector but do not follow through; as such a radical shift could collapse the industry. Critical decisions about the future of the industry (e.g., will raw milk be banned in urban centers?) must be made and communicated to stakeholders. Based on the decisions, timelines and investment requirements can be outlined to form the road map. Most countries lack this road map, stalling the development of the industry.

Establishment of successful milk bars in major urban areas is a viable step toward a regulated and commercial-scale dairy value chain. However, it is very difficult to implement controls in small towns and villages across Africa. Informal milk hawking has created thousands of jobs for those who might otherwise be unemployed. It delivers a steady income stream to peri-urban dairy farmers. We must consider the impact on these fragile informal systems as we attempt to implement controls and standards.

### **Quality Measures in Commercial Dairy Processing**

A few processors have invested in more mature quality improvement programs in their plants. They have installed laboratories that exceed the capabilities of the bureaus of standards in their respective countries. They have invested in Hazards Analysis and Critical Control Points (HACCP) procedures in collection, processing and distribution systems. Equipment has been upgraded to improve compliance. They have invested in collection systems. Managers and technicians have received rigorous training, so their plants can qualify for ISO certification.

However, the broad majority of processors have not made such investments. While cost is an inhibiting factor for many of the smaller and medium-sized processors, the overall perception among dairy processors in ESA is that investments in quality-enhancing measures are not rewarded in the marketplace. In the current

environment, increased costs associated with the adoption of improved quality measures cannot easily be passed on to consumers, and short-term profitability decisions take priority over long-term, strategic quality investments. Contrary to this line of thinking, there is growing evidence that processors who have invested in quality assurance programs are being rewarded in the marketplace.

Processors must contend with the following problems on a daily basis:

- High bacterial loads in raw milk are reducing product shelf life;
- High bacterial counts in raw milk are a direct cause of reduced quality in dairy products;
- Antibiotic residues prevent efficient yogurt and cheese production;
- Antibiotic and pesticide residues do not meet regional trade standards and thereby restrict export trade;
- A lack of cold chain in collection systems reduces quality;
- A lack of cold chain at retail reduces distribution efficiency and causes products to spoil quickly; and
- Consumers have inaccurate perceptions about poor milk quality, even with processed products.

*Successes:* Land O'Lakes and our implementing partners foster a relationship of collaboration and partnership between producers and processors. We encourage processors to do the following:

- Involve commercial-scale dairies in improving standards at the milk collection centers that supply them.
- Invest in cooling tanks at the collection centers.
- Procure aluminum milk cans to transport milk from the producers to the collection centers.
- Install testing equipment at the collection centers.
- Train smallholders and commercial farms.
- Invest in retail cold storage, where necessary.
- Train retail staff on dairy product handling.

If producers and processors do not work together on compliance, it is very difficult for regulatory and development organizations to raise the bar. However, when producers and processors see quality compliance as a common goal, they will work together to raise the industry standard. It is much easier for processors to produce high-quality products when the raw material meets high standards.

Land O'Lakes has also been successful in linking processors to markets and assisting them to meet the quality requirements of these markets. Examples include co-packing of UHT milk for export markets, developing new and/or improved products to meet retail requirements and promoting dialogue between processor, retailer and consumer associations.

*Lessons Learned:* Without financial motivation, it is difficult to convince a smallholder producer to invest in quality and safety compliance. He receives the same price for raw milk, regardless of quality, unless it is so bad that that day's production is rejected. Where is the motivation for compliance? Land O'Lakes is working with industry stakeholders to implement "Quality Payment Systems" in the production and collection side of the dairy value chain. This means that the price of the raw commodity is determined by specific standards. These standards may include bacterial load, titratable acidity, absence of adulteration by water or added chemicals, somatic cell count, absence of antibiotic and pesticide residues, and fat content.

We must be vigilant to ensure that this payment system does not raise the price of raw milk in the short run, as that would negatively impact sales of branded products. One way around this is to establish three payment tiers, with the highest quality receiving the current market price, and those tiers that do not meet quality standards receiving lower prices. In time, the overall quality of branded products will improve, and that will increase sales and revenue in the value chain. The value of the raw commodity will increase and smallholders will receive a higher return on their investment.

Processors must also strengthen linkages with retailers, sales agents and import/export buyers to understand and meet quality requirements dictated by various markets.

### **Policy and Regulatory**

Government regulatory and policy organizations vary widely in their ability to regulate industry. Many are under-funded, have outdated standards and testing equipment, and lack technically competent personnel to apply the standards. Some have competent directors who understand the importance of compliance with global standards and have a clear vision of how to move their respective countries toward those goals. Others are present in name only, add little momentum to sector growth and often use standards as a means to create trade barriers in an effort to seek revenue or as a means of protectionism. Capacity must improve within these government bodies. They need access to global trade and compliance data. Their staff members require training to keep pace with changing global standards. Some need help with testing equipment and procedures. They also need to involve and engage the private sector more proactively in regulatory compliance.

The private sector must also be more proactive in ensuring regulatory compliance. Many see quality assurance as something they have to do, rather than as a tool for capturing market share. There have been few joint initiatives led by private-sector processors to improve milk quality and consumers' understanding of milk quality even though there is ample evidence to suggest that working together would be mutually beneficial for all involved.

*Successes:* Land O'Lakes has provided capacity building and technical assistance to dairy boards to strengthen policy development, as well as regulatory enforcement. Dairy boards are good points of entry for development organizations to assist government policy and regulatory institutions. Dairy boards set policy, regulate, and influence legislation. They assist the bureaus of standards to establish compliance standards. They can bring government resources to bear on problem areas and thereby improve industry production.

Industry associations such as dairy processor associations and dairy producer associations are other effective starting points for bringing production and processing stakeholders together. They can establish standards for their members and agree on an implementation timeline and ramp-up process. They can reach consensus among their membership on the structure and timeline for quality payment systems. They can establish traceability systems for inputs. Trade associations can advise policy and regulatory bodies, such as dairy boards and bureaus of standards, on realistic goals and regulations for the industry. However, industry associations vary widely in their effectiveness.

Land O'Lakes has assisted in the formation and/or strengthening of a number of dairy industry associations in Africa. From registration to strategic planning to policy advocacy, Land O'Lakes has helped ensure that industry associations are

representative, have a clear mandate, are financially viable and provide value-added services to their members.

*Lessons Learned:* Development organizations such as Land O'Lakes must work diligently to strengthen the capacity and effectiveness of dairy boards and trade associations. They require technical training just as much as producer groups and commercial processors. Because of their neutral position, development organizations can be catalysts in bringing public and private sector stakeholders together. However, agreement does not guarantee compliance. Governments must develop a roadmap for reform to bring their countries in compliance with regional and global standards. Land O'Lakes has also learned that strong leadership in trade associations is necessary to bring all stakeholders together.

### **A Compliance Case Study in Common Market for East and Southern Africa (COMESA)**

Recently, exports of branded Kenyan dairy products were blocked from entering Zambia because they did not meet quality compliance standards. This focused attention on regional trade and reinforced the importance and urgency of effective and fair COMESA standards. The incident prompted a complaint by the Kenya Dairy Board to COMESA, which initiated a compliance audit of the Kenyan dairy industry by Zambian authorities, in collaboration with Kenyan authorities.

The inspection included:

- Animal health and animal feeding;
- Herd certification and animal health control;
- Hygiene and the environment under which dairying is practiced;
- Certification procedures for dairy establishments;
- Sources of raw materials used by dairy plants; and
- Organizational structure of central administration in charge of standards, inspection and hygiene of dairy farms and plants.

The audit concluded that there were shortcomings in the Kenya systems of monitoring and certification, and Kenyan dairy products were not allowed to enter Zambia. This raised more important questions. Do any of the COMESA members meet the standards they have agreed to? Does each country have the same standards? The answer is a resounding no.

*Lessons Learned:* Standards are not always applied in a fair and consistent manner; in the past, they have been used as non-tariff trade barriers. Their interpretation varies by country and regulatory agency. The capacity to test for compliance varies by country and agency. Their use may be for political reasons, rather than for trade and safety reasons.

*The Opportunity:* Land O'Lakes, in collaboration with the Regional Agriculture Trade Expansion Support (RATES) Program, is working with COMESA and EAC members to audit and upgrade their dairy regulations to comply with one common set of standards. In addition, Land O'Lakes' technical staff is conducting compliance workshops with bureaus of standards and ministries of trade and agriculture throughout the COMESA region.

From Algeria to Zambia, Congo to Mauritius, COMESA has the opportunity to create

one harmonized trading block.

### **Contrasting Experiences and Approaches**

Land O'Lakes has applied the approaches to dairy development and smallholder quality assurance outlined earlier across most of our programs in ESA. There has not been much variation across the region in what has been tried, so the contrasts in terms of differing practises which have been promoted is minimal. However, there has been some variation in how and when these approaches have been applied based largely on the stage of dairy sector development in which Land O'Lakes began its program and the preferences of the donor agency providing the assistance. These variances have had some impact on the adoption and effectiveness of Land O'Lakes' efforts to assist in quality assurance.

#### **Selected experiences by country:**

**Uganda.** Land O'Lakes began working in Uganda in the early 1990s. At that time Uganda was still recovering from civil turmoil and the dairy sector was in great disarray. There were very few improved breed dairy cattle available, productivity was low, farmers were not well organized and there was very little formal sector processing. Land O'Lakes' work initially focused on increasing productivity and production and organizing farmers into groups to enable them to access inputs and markets. As the formal processing sector began to recover and the number of collection centers grew, quality measures became increasingly important and more of a focal point of development support. Currently, quality at the farm level, collection center and with formal sector processors is an important component of the program. There is also a lot of emphasis on improving milk quality in the informal sector. The uptake on quality enhancing measures has probably been less effective because it was introduced at a later stage. Also, farmers had a hard time accessing markets for their milk, so the incentives for adoption were initially weak as the market was not emphasizing the importance of quality. Now that is beginning to change. The regulatory environment is strengthening and pushing for change.

**Kenya.** By contrast, the dairy sector in Kenya was much more developed when Land O'Lakes began its program and quality enhancing measures at all levels of the value chain were emphasized early on. The Land O'Lakes program really emphasized a balanced approach that included equal support for demand and supply side activities. Because of this, and the fact that quality enhancing measures were not new concepts, application and adoption of quality enhancing measures moved more quickly and have become more advanced than in other countries in ESA (with perhaps the exception of South Africa). The services industry around quality enhancement is also more developed. The regulatory environment at the national level is not strong, so more of the push is coming from the private sector.

**Zambia.** Similar to Kenya, the formal dairy sector in Zambia was much further along and quality was already an important issue when Land O'Lakes began its work there. Measures to improve quality at the collection center level were adopted quickly because the processors were looking for quality milk and smallholders needed to improve in order to gain market access. In Zambia there are more commercial-scale dairy farms that help to set quality standards for raw milk at a little higher level than most of the ESA countries. So Zambia is probably moving more quickly in adopting quality measures and there are sector support services to assist. As is the case in Kenya, the push for improvement is coming more from the private sector than from the government.

**Tanzania.** The formal sector dairy industry in Tanzania is grossly under-developed, as they are processing around 50,000 liters per day, compared to over 1 million liters per day in Kenya. The Land O'Lakes program there has been small and has focused mainly on working with smaller dairy cooperatives that were in existence when Land O'Lakes began work there. Land O'Lakes activities have focused on market expansion and quality improvement has been a main feature. The coops have understood that quality is a big factor in accessing markets, so quality enhancement measures at the farm and collection center levels have been easy to sell.

**Malawi.** When Land O'Lakes began its work in Malawi the main constraints were production and linking farmers to markets. Because of a large deficit in production, finding market opportunities was not difficult. Land O'Lakes' support has focused on increasing the number of quality dairy animals, increasing production and strengthening milk collection centers that are able to supply existing dairy processors which are operating under capacity and seeking acceptable local milk. Land O'Lakes was able to introduce quality enhancement measures at the farm and collection center levels from the beginning which has led to good adoption rates.

**Ethiopia.** Land O'Lakes' program in Ethiopia started in late 2006. Since there is a strong demand side emphasis in this program and we work with a number of established groups, quality has been a major focal point from the beginning. Even though the formal sector is under-developed, there is a need to improve the quality of products being marketed both formally and informally. It is still too early to estimate the impact this approach will have.

#### **Lesson learned from varying approaches:**

Some of the lesson learned form Land O'Lakes' experiences include:

- Taking a demand-oriented approach and emphasizing quality from the beginning are important factors to success.
- The stage of development of the dairy sector is also an important factor and plays a role in creating incentives and rate of adoption.
- Currently, government regulatory capabilities are weak and they could play a much more influential role in helping to create incentives for quality improvement.
- There is a need to create the appropriate incentives for key players in the value chain, link quality to market access and reward those who comply:
  - The supply and demand for milk plays a role in creating incentives and disincentives.
  - Farmers will adopt changes if they can prevent milk rejection at the collection center and/or they receive a financial reward through better quality.
  - Milk collection centers will improve quality if doing so ensures market access and/or financial rewards.
  - Processors can expand their market opportunities for both domestic sales and regional exports if quality improves.

Two approaches that Land O'Lakes feels merit further exploration and application are in the areas of Traceability and Seal of Quality. These are highlighted in the next two sections.

#### **Traceability**

Traceability is an essential element of food quality and safety compliance. This involves managing and monitoring two separate systems: inputs and outputs.

Traceability of dairy inputs includes establishing certified sources, such as:

- Veterinary medications;

- Qualified veterinarians;
- Agro chemicals that are free of banned substances, such as DDT; and
- Quality feeds and seeds.

Traceability of dairy outputs requires monitoring all who come in contact with the milk, including:

- Smallholders, their cattle boys and milk maids;
- Raw milk collectors and transporters;
- Collection centers and their food safety protocols;
- Processors; and
- Distributors.

This is a very challenging endeavor, because many people are involved over a large geographic area. There are well-documented incidents of uninformed smallholders buying counterfeit veterinary medicines or inferior-quality feeds and seeds from unlicensed sources. The result is, at a minimum, poor productivity or, at worst, the loss of cows.

*Success:* Land O'Lakes' work with cooperatives and collection centers to establish reliable sources of inputs and services to support smallholder producers has been successful. It is one way to provide some assurance that producers are using proper inputs in the correct amounts. It is unrealistic to expect smallholders to do the research necessary to identify reliable sources. By establishing the collection center as the source, we can ensure that only qualified veterinarians and AI services are contracted. Well-managed cooperatives can buy inputs in bulk at a lower price. In turn, they supply these quality certified inputs and services to their members and the cost is deducted from their milk sales.

At the same time, collection centers are training producers and transporters on safe milk handling procedures. They test all milk received at the collection center and record the results by individual producer. This system is creating traceability back to the source. Problems can be identified and corrective action can be taken.

*Lesson Learned:* The ability to establish traceability of reliable and certified sources of inputs and services varies by country. For example, countries such as Kenya have many qualified suppliers to choose from, while countries such as Ethiopia have underdeveloped service and input providers, making the establishment of traceability systems impractical. Land O'Lakes has learned that this is a process that takes many years. It requires all stakeholders to embrace the concept and establish the mental discipline to implement compliance and traceability systems.

### **Seal of Quality**

A Seal of Quality program is an industry-led initiative that rewards producers and processors for their investment in quality. Generally, it is a voluntary program for processors who believe they can increase their sales by assuring the quality of their products. It is based on established standards which ensure consumer safety and are agreed upon by the industry. Those processors who want to participate have their products tested, and, if they meet the standards, they are given a Seal of Quality used to label their products. This Seal is then promoted to consumers as a certification that labeled products are safe and meet approved quality standards. Used properly, it can be a very effective marketing tool for expanding domestic and export markets.

To succeed, producers and processors must be willing to invest in quality compliance, and consumers must be willing to pay for quality products. This is a

collaborative effort involving producers, processors and regulatory agencies. Not all dairy markets are ready for a Seal of Quality program. However, countries that have an emerging middle class or have a well-developed hotel and tourism industry should have enough quality-conscious consumers to support such a program. Kenya, with the second largest dairy industry in Africa, a strong professional sector, a growing middle class and a well-developed tourism industry, is a likely candidate for a Seal of Quality program.

*Successes:* Land O'Lakes has successfully facilitated Seal of Quality programs for dairy and meat products in Albania and Macedonia. They are voluntary, industry-led programs that do not rely on local governments for regulatory or testing support. However, local governments can play a role in supporting such programs by overseeing independent lab results and ensuring that Seal of Quality standards meet government requirements and provide adequate protection for consumers.

### **Exit Strategy**

Generally, to ensure sustainability beyond donor-supported interventions, Land O'Lakes promotes active participation of the private sector in all project activities. Within the dairy value chain, Land O'Lakes works to build the economic viability of private players including; farmers, collectors, traders, processors, retailers and service providers. As economically viable private sector producers and businesses are linked together throughout the value chain, gain access to new markets and further utilize technical and business knowledge, skills and market information, their enterprises will continue to grow and expand. It is this business growth that enables the private sector to afford services, currently being offered by Land O'Lakes and other development partners on a subsidized basis, on a commercial basis.

Land O'Lakes strives to focus its technical assistance on building economies of scale in production, bulking, processing and marketing to the point where there are sufficient volumes and margins to enable businesses to operate profitably. These economies of scale also ensure that input and service providers can offer their products and services at commercial rates and with sustainable profit margins. Where necessary, Land O'Lakes builds the technical and/or business capacity of both private sector and institutional service providers as a form of "training the trainers."

On the demand side, Land O'Lakes supports initiatives to develop, expand and/or access markets (both domestic and export). This is done through market linkages (domestic and export), as well as through the creation and/or expansion of consumer demand utilizing marketing, promotions and advertising. This requires market linkages throughout the value chain, investments in infrastructure, heightened consumer demand, and, in most cases, innovations to increase productivity, efficiency and quality.

Specifically relating to quality assurance, sustainability is linked to an enabling policy and regulatory environment and the establishment of quality controls at three primary focal points for improving milk quality: milk collecting centers, processing plants and in the market itself.

At the regulatory level, industry associations will need to play an influential role as a voice for the private sector in making sure the right regulatory and policy environment is in place, as well as playing a role in self-regulation. Strengthened government regulatory bodies such as the dairy boards and bureaus of standards will play their role in establishing and enforcing a regulatory environment which ensures consumer safety without stifling the industry.

#### Exit Strategy at the Regulatory Level

- Get standards in place. Transition standards harmonization process to EAC and COMESA.
- Build capacity of regulators (e.g. Dairy Boards) as/where needed.
- Support formation and strengthening of industry associations to play an important role in self-regulation and enforcement of standards with members.

At the enterprise level milk collection centers and processing plants will be critical control points to ensure compliance by smallholder farmers. As mentioned earlier the collection center is the best point to establish rigorous testing and traceability systems and should be more than just a milk bulking point. It should be developed into a resource center for its members and linked to input and service providers. It is the most effective mechanism to link technical training, services and quality inputs to smallholder producers.

Also dairy processors will play a key role in ensuring smallholder compliance by sending appropriate market signals to smallholders via the value chain. Smallholder farmers will need to respond to pressure to adopt quality enhancement measures in order to ensure market access as consumer preferences and retailer demand for high and consistent quality increase and influence decisions of dairy processors.

#### Exit Strategy at the Enterprise Level

- Cost-share on quality certification programs (e.g., GMP, HACCP).
- Build capacity of local quality assurance service providers.
- Develop and promote standard operating procedures and best practices at milk collection center and farm levels.
- Promote embedded service provision by processors and milk collection centers.
- Cross-train various extension service providers on quality practices.