

Emergence of new inputs and direct-to-SHFs distribution channels: commercial fodder supply



1. Pioneer partnership

Eldoville Dairies is a family-owned milk processing enterprise located 15 km from the Nairobi Central Business District. Eldoville was formally established in June 1985 by Mrs. Lucy Karuga as a backyard cottage industry. She started by daily processing 20 litres of milk from a single cow into 2 kg of cream using a hand cream separator. After she was introduced to Hotel Intercontinental in Nairobi by a friend, and they agreed to buy her cream. However, the hotel needed 20 kg/day of cream, but Mrs. Karuga was only able to produce 2 kg/day from her single cow, which encouraged her to add more dairy cows to her farm. The demand grew to a point she started sourcing milk from one of the Kenya's milk catchment area-Nyandarua County.

At the onset of the 2SCALE program, Eldoville Dairies was already an established modest-sized dairy processing company that focused on the development of high-quality products, including yoghurt, cream, cheese, and whey. The company produced two types of cream (whipping cream and double cream) and several types of soft and hard cheese. At this point Eldoville was processing 5,000 litres of milk per day from a total of 980 suppliers. The quality of the milk supplied to the processing factory was not to the satisfaction of Eldoville, especially regarding the total milk solid content, and as a result 18 litres of milk were needed to produce just one kg of cheese. Eldoville became interested in improving the quality of milk purchased, to increase the volume of milk processed with the support of 2SCALE. The company's target was to establish a new plant that would increase the processing capacity from 5,000 litres to 70,000 litres per day, as well as adding pasteurized and UHT milk to its product portfolio.



Building capacity: focus on data capture

2. Replicable practice

A robust feed and fodder strategy was identified as the most critical step to achieving the targeted milk volume through small holder farmers. Partnership with other key actors was equally important and thus Advanta Seeds was selected as the designated firm for the forage seed chain. Bunda Cake was identified to produce and supply animal feed (concentrates). The fodder seed and concentrate were distributed directly to farmers through Eldoville. The overall net effect of this strategy is that it improved the quality of milk whereby 12 litres would yield one kilogram of cheese as opposed to the previous production where 18 liters were needed to yield one kilogram of cheese. This strategy would ensure a sustainable supply of feed and fodder production to targeted SHFs. The practice started with a participatory process of trials for 12 fodder varieties. To summarize, this practice is addressing constraints in terms of:

Access	<ul style="list-style-type: none"> • Availability: High quality fodder seeds were not available before the interventions facilitated by 2SCALE. This changed with linkages and networking with seed companies as well as commercial dairy meal manufacturers. The availability of hybrid fodder not only motivated farmers to increase production but also to venture into commercial fodder production. Both fodder seeds and concentrates from Bunda Cake were supplied to farmers through Eldoville on a check-off system. • Affordability: The wide range of high-quality fodders seeds from seven seed companies gave farmers alternatives and price comparison based on fodder performance ensuring they get value for money. The over 1,500 milk suppliers also got best quality dairy meal at reasonable prices that were negotiated through the partnership on bulk purchasing. • Appropriateness: Farmer managed fodder trials were run concurrently with the national performance trials necessary to register varieties and obtain a trade license. Participatory selection with farmers was conducted with 12 candidate varieties, which were narrowed down to the four best performing varieties. The best performing commercial varieties of sorghum, oats and Lucerne were from Advanta, Aberystwyth University and Coopers respectively. • Acceptability: The 2SCALE intervention coordinated the participatory variety selection of forage species. This led to farmer's adoption of technologies and practices that are relevant and produced results in terms of increased milk production and as well as its quality. Farmers had freedom to choose what was acceptable to them based on factual data. Farmers were trained on basic data collection on growth of fodder, feeding, and milk production on real time basis.
	<ul style="list-style-type: none"> • Ownership: The fodder trials involved participation of seed suppliers providing seed while the farmers provided land, dairy cows and took the management role of the fodder trial plots. Eldoville's role involved processing the milk. • Voice: At the beginning of the partnership the forage seed chain started with a seed company called Advanta. However, at the time Advanta only had one candidate varieties of forage seed on offer for testing and registration, and no ready-to-use varieties, nor did they have a complete portfolio of forage species and varieties. During the 2SCALE intervention it became apparent that a wider partnership was required to tackle the limited availability of quality forage seed. The partnership broadened where other private seed companies (Kenya Seed, Simlaw Seed, Coopers and Bahrenburg) came on board, including the Kenya Agricultural and Livestock Research Organisation (KALRO), Aberystwyth University and the International Centre for Tropical Agriculture (CIAT). This allowed for a broader portfolio of forage varieties and species to be tested and promoted by the forage seed producers. Participatory selection with farmers was conducted with 12 candidate varieties, giving the farmers the freedom of choice of fodder for the best quantity and quality of milk per dairy cow. • Risks: 2SCALE, with the assistance of CIAT, assessed the seasonality of the availability of fodder in the dairy value chain and was able to identify the main gaps during the year. During the most significant feed shortage from February till May, farmers can barely manage 25 % of animal requirements. To ensure the continuous season-long supply of fodder, even during the dry season, an improvement in fodder conservation practices was required as part of the improved feeding strategy. The intervention focused on supporting dairy farmers to produce more fodder and to effectively process it into hay and silage for conservation. The improved production of fodder, and particularly its improved conservation, reduced the feeding gap significantly, from 75 % during the worst month of April to less than 50 %. This significantly reduced the risk of loss of income during the hot season as well as continuity in supply to Eldoville. • Rewards: Farmers were able to produce fodder for own consumption and excess fodder marketed in the form of hay or silage and sold locally within farmer cooperatives or through input shops. 2SCALE supported specialized fodder producers in exploring business relations with farmers in other regions that have a high demand for hay and silage. Farmers improved productivity by 30-50% resulting to improved income. In addition, due to the increase in milk production, Nyamarura cooperative, was introduced to solar operated milk cooling technology. Through brokering by 2SCALE they obtained a loan from a financial institution for a solar operated milk cooling unit with a capacity of 4,500litres. Access to a cooled collection and bulking site allowed the farmers to negotiate better prices based on their larger volumes and better quality of milk.

3. Preconditions for replication

Ownership by the lead firm - The lead firm needs to embrace inclusive business and clearly understand and takes ownership of the network of actors. The lead firm needs to invest resources to its development. The roles of each actor were defined to deliver expected output and own the process. Reviews were conducted at different levels to keep track of the progress. Eldoville contributed land where demo plots were established for various fodder seeds. Farmer groups too selected lead farms where demo plots for the 12 varieties was hosted.

Eldoville contracts with service providers: Eldoville signed contracts with fodder seed providers and commercial dairy meals manufacturers to show commitment in provision of this essential inputs to the farmers. The company also provided a store where inputs were distributed to the farmers on credit and payment deducted at the end of the month when milk supply for 30 days is paid. This is key for the service providers to engage SHFs.

An inclusive lead partner – The lead firm must be willing to invest in relationships with the farmers that are inclusive and mutually beneficial. This is mainly through farming contracts. This helped to build trust and confidence resulting to improved milk collection from 5,000lts to 18,000lts/day.

Organized farmers – This model can only work if there is a form of organization of the farmers, for example farmer groups, farmer cooperatives. This structure helped to leverage on economies of scale while sourcing farm inputs that include fodder seeds and dairy meal. The groups/cooperative platform was perfect avenue for capacity building and bargaining for better milk prices.

Robust data collection system - The choice of best performing fodder in this case is based on real time data, its therefore paramount that a robust data collection system is adopted. In this case research scientists from International Center for Tropical Agriculture (CIAT) were engaged to collect, analyze, and share data among all the ABC actors to enable them to make informed decisions. Farmers were trained on basic data collection on growth of fodder, feeding, and milk production on real time basis.

Management of the actor's network - Its essential to manage the network of ABC actors for coordinated approach and deliver results. These actors include the agricultural research organizations (e.g., KALRO, CIAT), private seed companies and seed producers, feed companies, dairy processors, individual milk producers, milk producer groups and dairy farmer cooperatives. Eldoville identified key actors in hybrid fodder seeds and linked them to farmers for training and demonstration of various technologies. Farmers played a key role to identify the best varieties through participatory evaluation of the fodder during growth, harvest and feeding of the fodder.

Sustainability of the input supply and capacity building – Eldoville negotiated with input suppliers on credit and better prices. Bulk purchase of the inputs on behalf of the cooperatives and groups were a catalyst to input providers to offer reduced prices. Eldoville being the buyer of milk guaranteed payment of the input after suppliers getting seeds and dairy meal on credit. The symbiotic relationship where farmers improved production with better feeding, Eldoville collected higher milk volumes and input providers got a ready market for the goods. The coaches/ToTs were input dealers, selected farmers, milk graders, private service providers such as artificial insemination providers, animal health technicians, cooperative staff who deal with farmers daily and government extension agents. Embedding the training in the daily routines of actors in the dairy chain minimized the cost of extension services.

4. Results Achieved

- Productivity and quality improvements as drivers for development. The high-quality milk delivered by producers due to improved feeding has allowed Eldoville to reduce the amount of milk used to make 1 kg of cheese from 18 kg to 10 kg, which has resulted in a major reduction in the production costs of cheese.
- Milk collection improved from 5,000 lts to 15,000 lts/day within Eldoville factory milk catchment area at Ol-Jororok sub-county.
- Eldoville was linked to Kenya Dairy Farmers Federation, an umbrella body with over 25 dairy cooperatives and membership of above 50,000 farmers. This would ensure the target volume of 70,000 litres/day of milk is reached.
- A total of 460 demonstration sites were established in 10 different counties and over 15,000 farmers were practically trained in the field.
- Promotion efforts by seed companies have increased the proportion of farmers in the participating dairy cooperatives using high quality forage seeds from 10 % (at the time of the baseline) to over 60%.
- Farmer's capacity building improved fodder production of participating smallholder farmers by 45%, thus contributing to the reduction of the feeding gap.
- Strong interdependence among actors allowed for smart finance innovations and embedded services. Because of the strong interdependence between market actors, and the traceability of the product, innovative ways of offering credit against low transaction costs were piloted and showed great promise of success at scale.

Want to know more?

If you want to know more about this practice, please reach out to Patrick Boro, pboro@2scale.org Country Team Leader, Kenya.

Furthermore, you can also read more on the case through the following resources:

- Mwendia S.W., Njenga D.G. and Maass B.L. 2015. From grazing to stall-feeding: Livestock feeds assessment in Nyandarua highlands in Central Kenya. Presented at: 'Management of land use systems for enhanced food security: conflicts, controversies and resolutions,' Tropentag conference, 16-18 September 2015. Humboldt-Universität zu Berlin, Berlin, Germany.
- Mwendia S.W., Njenga D.G. and Maass B.L. 2017. Evaluating oat cultivars for dairy forage production in the central Kenyan highlands. African Journal of Range & Forage Science.
- 2SCALE Annual reports, 2017 and 2018.

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