



Findings

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Mali: Exporting Mangoes to Europe

Linking farmers to markets

European consumers were more likely, until recently, to eat Indian, Israeli or Brazilian mangoes rather than Malian ones. However, since 2001, sea-freighted Malian mangoes produced in the south of the country by small-scale farmers have been successfully exported and retailed in Northern Europe. This achievement was quite significant given the prior failure of similar projects and the overall difficulty in finding investors for the export of perishables from landlocked countries with poor transport connections, like Mali. The export of Malian products is controlled by Ivorian exporters with few returns to the producers on the other side of the border. Despite the high quality of its fresh fruit and vegetables, the high cost of air-freight was impeding the expansion of production and export. By establishing a multi-modal shipment system and improving every step of the supply chain, the mango export pilot project proved the feasibility and profitability of such innovation.

The context of mango production and exportation in Mali

For the past ten years, Malian mangoes had been exported through Ivorian middlemen. Little or no technical assistance was given to the farmers, and full payment was often a haphazard event. This arrangement resulted in little investment in the horticultural sector¹ and, more specifically, in the plantations (no replanting). As a consequence, field productivity, exports (estimated at 4,000t per year of mangoes exported from Mali) and grower revenues diminished significantly, with current yields estimated at only 20 percent of the export potential. Transportation was also a major impediment since Mali did not take advantage of the logistical capacity of neighbouring Cote d'Ivoire,² and opted to remain in the market niche of air-freighted mangoes,³ This situation is explained in the context of previous failed attempts to establish a sea shipment transportation system for mangoes from Mali,⁴ as well as the numerous constraints to such development,

such as geographic distances,⁵ poor communication infrastructure, restrictive administrative regulations for export (customs documentation), and, generally speaking, the lack of experience in organizing sophisticated cross-border trade logistics, which imply major changes in commercial practices.⁶

Objectives of the project

Taking stock of the potential of horticultural exports, and Mali's comparative advantage in the mango sector (total mango exports represent a 700 million CFA, US\$ 1.3 million business), the objectives of the pilot operation were to increase the volume of fruit exported to Europe and to capture more value-added and returns in Mali. These would impact dramatically on the revenues of smallholder mango producers by (i) improving the supply chain for the export market at the local level, involving the farmers in the export process (focus on local-level private entrepreneurship); (ii) developing new communication channels for trade exchanges with cross-border partnerships (sea-freight logistics); (iii) promoting private investment in rural areas, and (iv) encouraging crop diversification⁷.

The mango export pilot operation

At the origin of the operation was the Agro-Processing Trading Project (*Projet d'Appui à la Valorisation et Commercialisation des Produits Agricoles*—PAVCOPA), assisted by the World Bank. The objective of the project was to provide technical support to the Agricultural Trading and Processing Promotion Agency (*Agence pour la Promotion des Filières Agricoles*—

APROFA), a non-profit, government-funded agency responsible for providing marketing opportunities for smallholders' agricultural products for local, regional and international markets. After a previous unsuccessful attempt at launching a mango export campaign, a new operation plan was designed for the 2000–2001 crop season. The operation was set up at two levels:

- Upstream, APROFA assisted small growers in developing an efficient supply chain by improving the product quality to be adapted to the markets requirements (production and processing);
- Downstream, the agency assisted in establishing a joint venture with an Ivorian private operator (with no existing operations in the mango sector or in Mali) to resume the activities of the Sikasso pack-house (that had been closed, having gone bankrupt at the end of the previous campaign), and overcome the transportation bottlenecks by developing sea shipment logistics to connect Sikasso to the importing markets of Northern Europe, through Abidjan (the trading port to Europe).

Partnerships

The pilot operation of exporting sea-freighted mangoes from Sikasso is the result of a successful partnership between all stakeholders, with APROFA acting as the catalyst and coordinator.

APROFA: acted as the main broker between the different partners, Malian and Ivorian. It facilitated, through its status, access to the transportation partners, negotiations, and formalization of contracts.

Village-level organizations and intermediaries: worked closely with APROFA at every step of the supply chain, pooling production, negotiating contracts, and also providing training and technical assistance activities, such as organizing production programming, conducting field-level diversification experiments and supplying quick alert information on crop performance.

The private sector: has been involved from the incipient phases of the project providing resources for investment, managing pack-houses, organizing the exportation, but also supplying technical assistance and technology transfer (quality, traceability, supply base management, integration, as well as streamlining logistics and monitoring markets), ensuring proper pesticide use, and introducing innovations at all levels of the supply chain.

International consulting firm: provided assistance in setting up the contractual framework, defining the multi-modal logistics parameters and costs, establishing the commercial and financial feasibility as well as cash-flow projections, brokering the contract scheme between APROFA and the Ivorian exporter, and establishing a pack-house management system adapted to the specific Malian product sourcing system⁸.

The World Bank: intervened, in particular, after the failure of the first campaigns, holding up the implementation of the *Projet d'Appui à la Valorisation et Commercialisation des Projets Agricole*, the Agro-processing Trading Project (PAVCOPA) program until the restructuring of APROFA (renewal of the management team), and advising regarding the contracting of the consulting firm.

The Bank was also an impartial partner to the operation.

Implementing innovation at every step of the supply-chain

- Services to the production level (extension and training): Training and technical assistance (field services, agricultural inputs, quality management, conservation techniques, harvesting techniques, improvement of seedling sourcing system), data collection on the plantation and the growers (plantations, varieties, surfaces, zones of production), incentives for the establishment of producers' organizations, adaptation of the production to demand requirements (varieties, orchard restructuring), quality control and certification (more than 400ha certified organic), and national regulations (labor laws and other regulatory frameworks).
- On the marketing side: (i) organization of the marketing actors⁹ and active participation in the marketing steps of the chain (through training and trials at the local market level with cooperatives); (ii) training in export standards application (selection and conditioning of the mangoes, quality control); (iii) logistics improvement (identification of transportation subcontractors, packing to reduce the losses, container shipment, dialogue with local customs and regulatory authorities); (iv) financial arrangements to finance the operations (involvement of a local bank); and (v) creation of partnerships with specialized export companies.
- Quality control : The producers, middle-men, pack-house staff received training on quality standards, timing for harvesting (ripeness levels), market information (sizes, varieties, presentation), transportation requirements (time lapse, storage), and maximization of shelf-life (phyto-sanitary, quality, aspect of the product, fruit maturity stages, pre-cooling protocols).
- Multi-modal shipping system to directly connect Sikasso, the largest centre of mango production in Mali, to Rotterdam, through a continuous chain linking origin to destination through multiple transportation means (rail, road, air, sea).
- Joint venture with an Ivorian export company: because of well-known past failed experiences, the risks involved in the operation (perishables, export shipment, long transportation logistics), and the significant seed capital required, it was impossible to find a Malian company willing to invest in the project. The Ivorian export company decided to buy into the project and thus formed the new company *Société Nouvelle Tropical Expressions*TM.
- A financial innovation: All the capital, 60 million FCFA (US\$ 102,916), was raised by the private operator, without any commercial credit or subsidy from APROFA, through its internal resources and "trust-equity" network with its supply-chain partners.
- Grower unit prices increased by 25 percent, and employment in the pack-houses reached 150 persons (of which more than 60 percent are women with adequate working conditions and pay above national labour benchmarks).
- The project made 26 million FCFA (US\$ 44,598) of net profit, securing an internal rate of return of 70 percent.
- Because of a joint agreement between APROFA and the *Société Nouvelle Tropical Expressions*TM that provides a "royalty" per kilo exported from the pack-house to APROFA (an unprecedented case in Mali), the benefits contributed to securing APROFA's own financial sustainability through net revenues from its services.
- The Malian mangoes exported are exported with the brand *Société Nouvelle Tropical Expressions*TM, marketed in the Netherlands, Germany, and Scandinavia.
- Quality levels were high, with no loss in terms of repacking or discarded produce (none of the 56,000 boxes that arrived in Rotterdam were rejected by the importer).
- Excellent customer response to the Malian produce (taste, general aspect).
- Good performance of the Malian pack-house personnel and field-men: improved quality levels with an average of 80 percent export yield on incoming produce (starting levels were 60 percent).
- Efficient fund flow between importer and exporter resulting in the reliable and timely payment of growers and field-men, and consequent decrease in working capital requirements.

Results

- Shipping delays between Sikasso and Northern Europe were more than halved (from 25 to 12 days).
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Lessons learned

- *Working at every segment of the supply chain:* The effective linkage between farmers and markets was made possible by planned intervention at every step of the production and marketing stages, analysing and untangling the supply processes. This led to full market acceptance because the supply chain addressed market requirements.
- *Overcoming the constraints and finding innovative solutions:* For example, some of the principal actors of the project identify management as the key to success. Through the restructuring of PAVCOPA and the establishment of APROFA, and hands-on technical assistance, the new team drove the success of the operation by promoting local know-how which resulted in more effective management and operational practices.

Conclusion

This case is a successful example of agro-business development, and rural private sector promotion. The actions carried out under the operation and entailing improved practices in production, quality, and commercialization, have benefited the mango growers significantly. Rural smallholders have been able to again exploit their abandoned orchards, and raise their income through this new form of revenue. They will also see longer-term results, such as their ability to respond to market demands, to maintain a regular production (volumes and product quality) adapted to the requirements of the market. The impact of the operation also went beyond the ini-

tial stakeholders, inspiring the establishment of other partnerships between exporters expecting to increase their sourcing capacity and Malian producers. After successfully completing the pilot phase, the mango project is going to be upgraded to a regular operation. Over time, the objective is to develop a 5000t operation with a range of different products with a revenue target of US \$3 million, and to develop another multi-modal shipment system through Senegal, between Bamako and Dakar, which would cut to less than 10 days the transport time of the mangoes to Northern Europe, thus contributing to the development of the Bougouni region.

- 1 As opposed to Côte d'Ivoire and Senegal, both countries have invested in extensions that are currently underway, financed by higher margins generated by a more integrated supply-chain.
- 2 Côte d'Ivoire and South Africa have the most efficient sea logistics of Africa.
- 3 Low volumes and returns to the producers.
- 4 Most pack-houses went bankrupt.
- 5 From Sikasso to Abidjan.
- 6 Trust, transparency, accountability and predictability required by the modern fresh produce sector.
- 7 Mali's economy relies largely on export commodities and, in this sector, is highly dependent on two commodities—cotton and gold—representing 85 percent of its exports.
- 8 Inventory management, cold chain protocol, hygiene practices, payroll management, and financial summaries.
- 9 *Association des pisteurs de Sikasso*, Mango Collectors' Group from Sikasso.

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