



INNOVATIONS IN AGRIBUSINESS ENGAGEMENT:NEW MODELS FROM EGYPTTechnical Brief Series No. 3

The Feed the Future Egypt Rural Agribusiness Strengthening Project, a USAID-funded activity, is piloting and scaling up innovative agribusiness models to benefit smallholder farmers of horticultural products. In this series of Technical Briefs, we highlight the strategies and approaches the Project is taking to encourage farmers, producer organizations (groups of farmers such as farmer associations or cooperatives), and private sector actors to do business differently, ultimately increasing smallholder farmer incomes and integrating them into more advanced supply chains.

Challenges in accessing agricultural technologies

Agricultural technologies have the potential to increase on-farm productivity and extend the shelf-life of products, increasing potential sales and farmer incomes. However, many technologies—including cold storage—are not affordable or readily accessible for smallholder farmers. Other agricultural technologies are not marketed to smallholder farmers, so farmers are not aware of the benefits of purchasing them. Increasing the availability and awareness of these technologies—especially through market channels—holds great potential for improving outcomes for smallholder farmers.

Engaging new private sector partners to expand technology access

To increase availability and adoption of improved technologies, the Feed the Future Egypt Rural Agribusiness Strengthening Project is working with private sector companies in Egypt to encourage them to offer and commercialize technologies suited to the needs of small-scale producers. By working through established companies, the Project is strengthening the market for such technologies and encouraging these companies to increasingly see smallholder farmers as a viable customer base. The Project facilitates linkages between these value chain actors and helps the private sector demonstrate and promote innovations that can help smallholder farmers improve the quality of their produce and generate more income. The Project also provides technical assistance to these companies so that they can test and roll-out the new technologies.

The Project implemented this new approach with the CoolBot technology and AlexForm, a leading refrigeration and steel manufacturer in Egypt. The CoolBot is a low-cost electronic device that overrides the temperature gauge of air conditioning units, tricking them into working harder while preventing components from freezing. With a low horsepower off-the-shelf air conditioner and a CoolBot, an insulated room can be converted into a cold room to store fresh produce before sale, maintain quality, and extend shelf life. This low-cost cooling technology provides many benefits for smallholder farmers. It facilitates access to the most critical post-harvest





management tool, cold storage, which dramatically decreases post-harvest losses. It also enables smallholder farmers to capitalize on price fluctuations in the market by selling when prices are higher and/or in more remote markets. Finally, it is environmentally friendly and reduces electrical consumption compared with alternative cooling options.

To further illustrate the benefits of this technology to smallholder farmers, the Project ran a cost-benefit analysis of CoolBot adoption for two value chains: mangos in Luxor and Aswan and dates in Bahariya Oasis, Giza governorate. For mangos, the analysis found that farmers can reduce losses by an average of 30% and make an extra EGP 4/kg. The annual net profit is EGP 100,000, payback period is less than three years, internal



CoolBot demonstration at Orient Group, Borg Al-Arab District, Alexandria, December 6, 2020

rate of return is 33%, and break-even point is 15 tons. For dates, the analysis found that farmers can reduce losses by 30% and make an extra EGP 2/kg. The annual net profit is EGP 51,000, payback period is less than three years, internal rate of return is 33%, and break-even point is 15 tons.

Though the CoolBot has been tested and adopted widely in other countries, it had not been brought to or commercialized in Egypt. The Project pitched the idea of developing a low-cost cold storage solution with the CoolBot to AlexForm, a company well-known for producing insulated panels and other refrigeration components in Egypt. AlexForm saw the value in developing this product. To pilot the idea, AlexForm purchased and imported 10 CoolBots and tested the technology at its factory in Alexandria. The Project facilitated this linkage and agreed to provide technical assistance in establishing demonstrations.

Demonstrating the effectiveness of new technologies

After AlexForm successfully tested the technology, the Project facilitated a CoolBot demonstration with the Orient Group, a manufacturing and trading company that purchases and exports fresh produce across several value chains. AlexForm contributed the CoolBots, AC units, and a cold store (an insulated shipping container), while Orient Group supplied the fresh produce used in the demonstration and the Project provided them with the technical assistance to set up the demo. In November 2020, the Orient Group launched a successful trial of the technology—lowering the temperature of a 36 square meter room filled with 25 pallets of dates (totaling

"This new technology will allow the farmers to have a small cold storage space in their area. It is a small investment that makes everyone happy and maintains the quality of the produce."

Ahmed Seada, Operations Manager at Orient Group

20,000 tons) from 28° celsius to 6° C celsius in just six hours. Since its trial in November 2020, the CoolBot-cooled room has been operating efficiently—maintaining the desired temperature with low electricity consumption. Orient Group is planning to expand its factory in Borg Al Arab and adopt the CoolBot technology for its new cold stores.

Partnerships to increase distribution and access

Moving forward, AlexForm and the Project have an agreement in place to identify more food processing companies, packhouses, and producer organizations that would be interested in adopting the technology. In addition, AlexForm and the Project are partnering with Tamweely Microfinance to finance AlexForm's sale of CoolBots to smallholder farmers and food industry companies. The Project has conducted online training with packhouse owners and produce traders to encourage use of the technology for the Project's target value chains, and will continue to provide technical assistance, including design, installation, and training.

These Project-facilitated partnerships are shifting companies' mindsets about opportunities to sell technologies appropriate for smallholder farmers. Successful partnerships with businesses like AlexForm serve as models for other companies, and the Project will amplify these successes to encourage others to adopt similar models.

