

CHAMP FACTS

IMPROVED APRICOT DRYING TECHNIQUES INCREASE FARMER INCOME

Afghan farmers traditionally sell their fresh apricots locally, and then dry the remaining crop using a traditional method of placing the apricots on their roof and drying them to a leathery complexion and texture. CHAMP has introduced an improved method using drying trays and a sulfur treatment to preserve the fruit appearance and reduce the molds. This method utilizes our locally adapted design for village level processing. The result is significant values add for a product that is now marketable outside of their village.

FAST FACTS

Value added over fresh fruit: 187%

Net Income Improvement over
Traditional Drying: 261%

Structure & Trays Cost: \$963

Payback Period: 1 season

According to a survey by FAO in the year 2000 the total area under the apricot production in Afghanistan is 10,164 hectares with a total production exceeding 60,000 tons per year. Apricots are one of the major fruit production crops for the country and are one of the five strategic perennial crops for MAIL.

As of the writing of this document (2013), this design has been piloted and accepted in Ghorband and Wardak. CHAMP is spreading this technology to other apricot producing regions in the central, south and eastern regions.

Technical Package

The technical package contains the following items and support:

- Subsidized cost of materials (50%)
- Design specifications
- Preparation for use before harvest
- Training on use and cleaning afterwards
- Market linkages, if needed

Construction

The drying hut is simplistic in design and can be modified to specific situations. The structure is a simple 2m x 2m x 2m wood frame, covered by clear plastic. The construction process can be completed in less that a day.

Materials List

- Wood for frame, 20 meters
- Plastic to cover frame



- 4-6 bags of sand to cover plastic on ground to create seal
- Nails
- Sulfur sticks
- Natural gas & burner to burn sulfur
- Straw mats



In light of this marketing constraint, CHAMP has introduced the process of sulfur drying of apricots in 2010. This process adds value to the final product with an increase both in farm-gate price and shelf life. A sulfur-drying hut can be constructed to produce top grade dried apricots. The construction is very simple. A cubic wooden frame is made that is 2m x 2.5m x 2.5m. It is then covered with a plastic sheet. Inside this structure wooden trays that have holes for proper ventilation are filled with apricots and are placed over a sulfur burner.

When the sulfur has fumigated the apricots for six hours the apricots are then washed placed in the sun for drying. The pits are squeezed out after a day or two and are processed to be sold as well. The final dried apricots are completed within five to six days. The product is bright orange in color and acceptable for the international market.

Traditional method versus improved method



Profit Comparison

This comparison highlights the net profits of the three options, fresh apricots, and dried apricots in the traditional methods and dried apricots with the improved method. All three options start with one metric ton of fresh fruit.

Item		Improved	Traditional	Fresh
Income				
Fresh Apricots				
Farm gate price fresh fruit	(Afs/kg)			15
Value	(Afs/mt)			15,000
Post-harvest Loss	(Afs/mt)			-2,500
Dried Apricots				
Farm gate price dried fruit	(Afs/kg)	120	40	
Volume	(kg)	200	200	
Farm gate fruit	(Afs/mt of fresh)	24,000	8,000	
Apricot Pits				
Farm gate price kernels	(kg)	100	100	
Volume shelled nuts	(kg)	30	30	
Value of in-shell nuts	(Afs)	3,000	3,000	
Total Income		27,000	11,000	12,500
Costs				
Cost of drying				
Gas	(Afs/mt)	70	0	
Sulfur	(Afs/mt)	0.08	0	
Labor	(Afs/mt)	3,500	2,100	
Depreciation of structure ¹	(Afs/mt)	125	0	
Total Costs	(Afs/mt)	3,695	2,100	0
Net Income	(Afs/mt)	23,305	8,900	12,500
Net Income	(\$/mt)	\$457	\$175	\$245

The analysis shows that the improved method to dry apricots substantial earn more money than the traditional dried apricot and even over the fresh apricot sales.

STRUCTURE & MATERIALS COST

The structure can be made from locally procured materials and built by the farmer or carpenter. Sulfur is available in Afghanistan as it is used widely with grape production. Variations and improvements to the design will surely happen. This design is rather basic. The drying trays are replicas of the standard in California.

¹ See the chart below for detail breakout of structure costs. Useful life is estimated at five years.

Item	Units	Unit Cost (Afs)	Total Cost (Afs)	Total Cost (\$)
Wooden Frame	20m wood	10,000	10,000	\$196.00
Plastic	8m	30	240	4.70
Wooden Trays	50	750	37,500	735.29
Natural Gas	1 tank	500	500	9.80
Burner	1	200	200	3.92
Metal Tray	1	100	100	1.96
Straw mats	5	100	500	9.80
Total			49,040	961.57

For more information, please contact CHAMP@rootsofpeace.org or see the program website at www.champ.af.