ROOTS of PEACE

Final Report — GRAPE Project

1. **Job Order Number:** 29 – Grape Revitalization for Afghanistan Productivity and Empowerment (GRAPE)

2. Implementing Agency and Contact:

Agency: Roots of Peace (ROP)
Contact: John Dale "Zach" Lea
Mobile: 079-403-246
Email: zach@rootsofpeace.org

3. **Contract Line Item Number (CLIN):** 0004 — Agricultural Technology and Market Development

4. **Reporting Period:** March 2004 – June 2006

5. **Total Project Budget:** $6,138,167

6. Summary of Project Activities and Impact:

The aim of the GRAPE Project (Grape Revitalization for Afghanistan Productivity and Empowerment) and its nut sub-project was to build vertically linked production and marketing systems. The project focused on testing new export market channels for fresh grapes, raisins and almonds. New international markets were identified in collaboration with participating merchants. Then, the program helped merchants export to these new markets. Simultaneously, ROP worked with farmers to improve their production capacities and helped link participating farmers with participating merchants. In some cases, ROP trained a merchant's extension agents to provide technical assistance to farmers producing for that merchant. By helping merchants help farmers, the program sought to demonstrate to merchants the benefits of working directly with farmers and give the merchants some of the skills they will need to continue supplying technical assistance to farmers in the absence of the project. ROP combined this market-driven effort with the more traditional development approach of working directly with farmers to increase their incomes through more efficient production targeting existing market demand.

Fresh Grape Program
The program helped fresh fruit merchants' organize themselves into associations and construct 2 market centers capable of packaging chilled grapes for international markets. ROP marketing specialists then assisted the merchants send shipments of chilled grapes to test new markets in Germany, Ukraine, Russia, Saudi Arabia, Dubai, Kuwait and India. In 2006, these tests shipments totaled over 100mt. A complete report of these trial exports has been provided to RAMP.

After some hesitation typical of their conservative nature, grape farmers participating in the ROP program readily adopted techniques designed to increase their farm income. The techniques include the use of trellising to increase plant density and control disease, proper application of pesticide and fertilizer, and grafting to switch production to higher-value grape varieties. Farmers that adopt the full range of new techniques can realize up to 400 percent increased income. In 2006, about 3,500 grape farmers participated in the program. ROP agents and

participating farmers installed 1,611 demonstration plots. Of this total, 1,468 farmers installed trellising and 686 farmers installed grafting trials on demonstration plots established on their orchards. There is an overlap between grafting and trellising demonstration plots, namely, all farmers who participated in the grafting demonstration also installed a trellising demonstration. Of the total trellising demonstrations, 55 were installed near Kandahar, the remainder were installed in the Shamali Plain just north of Kabul. In establishing the trellising demonstrations, 13,463 concrete trellis posts were fabricated by local workshops and distributed to participating farmers. The concrete posts were 2.6 meters long and, with a cost of about $7 each, had a total value of approximately $94,000.

ROP assisted individual grape farmers establish commercial germplasm source vineyards and multiplication nurseries to supply other farmers with certified cuttings and saplings of more profitable grape varieties. One farmer sold 20,000 grape plants from his small (.07ha) multiplication nursery in 2006 — earning him over $4,000.

Raisin Program
ROP assisted grape farmers test new methods of producing shade-dried, green raisins which traditionally sell, at the farm level, at double the price of sun-dried red or black raisins. ROP assisted 14 farmers construct newly-designed green raisin drying-sheds for testing purposes. ROP provided 50% of the materials cost and the farmers provided the remaining materials and labor for construction. The farmers produced green raisins in these new sheds and sold them at double what they could have gotten for sun-dried raisins. Proof of the new sheds attractiveness to farmers was seen in the many requests the extension staff received from other farmers to receive assistance with construction of additional sheds.

ROP assisted three raisin processors with up-grades of their facilities designed to enhance the processors' capability to move up from traditional international markets to higher-paying markets with more stringent quality requirements. The up-grades were only partially successful due to lack of participation from the plant owners. It was concluded that most of these 30-year-old plants would have to be totally refurbished with new equipment in order to meet the current world market standards for raisins. Almost 1,400mt of raisins processed in the upgraded plants were exported to Russia and the Ukraine. Additionally, ROP marketing specialists assisted Afghan merchants identify raisin buyers and test new markets in the Netherlands, Sri Lanka and Israel.

Almond Program
1,864 male farmers and 1,418 women farmers, participated in the production demonstrations lead by this program. ROP helped established 134 nascent farmers marketing associations with a total membership of 5,653. The presidents of these marketing groups have been introduced to urban merchants via exchange of telephone numbers. It is expected that this connection will result in urban buyers buying directly from these farm groups and assisting them to purchase agricultural inputs.

The almond subproject started at the end of September 2005. The RAMP ended on June 30, 2006, before the almond harvest. To estimate the level of increased production per tree achieved via the ROP extension program, ROP extension agents (in June) sampled trees and counted the immature nuts on trees in ROP demonstration plots. On average, the treated trees held double the number of nuts per meter of main lower branch than did the untreated trees. Assuming that these data are representative of the other branches on the trees and assuming that the treated trees will be able to nurture the increased numbers of nuts until harvest, it appears that the ROP extension program more than achieved its objective of showing farmers how they can increase their per tree production by 30%-50%.

ROP also worked with nut merchants in Kandahar, Kabul and Mazar-i-Sharif, helping them organize their marketing associations and construct processing plants with modern shelling equipment. When fully operational, these processing plants will have an annual capacity to export 525mt of shelled almonds valued at approximately $3,750,000.

7. Tasks Completed During the Reporting Period:

ROP has exceeded most of the contracted deliverables for the Grape project. The deliverables and the project's accomplishments are listed below for direct comparison.

Grape Production Assistance

Production assistance to Grape farmers in the Shomali Plain and around Kandahar has been unquestionably successful. All of the deliverables for this project have been exceeded by a large margin. ROP has worked with merchants to reach the farmers they buy from and increase quality and yield. Extension workers have earned the trust of small farmers and used that trust to introduce new techniques that have proven widely successful — building trust further. The program has taught farmers about multiplication nurseries, pruning, chemical and fertilizer application, grafting and trellising. It has also supplied farmers with subsidized equipment including dusters, sprayers and harvesting shears. Initially, ROP attempted to sell the production equipment (shears, etc.); but, found very few buyers. Near the end of the project, ROP gave approximately 4,500 grape-harvesting shears to fresh fruit merchants associations (FFEAK, FFEUK and KFNC) for use in packing house processing and for distribution to farmers for harvesting grapes. Some 500 almond tree pruning shears were sold to almond farmers on a subsidized basis.

Contract deliverables and project achievements:

2,000 farm families directly involved in production assistance program.

Farmer participation in extension programs is seasonal. In May 2006 more than 3,800 farmers were participating in ROP grape production extension programs.

100 demonstration plots established and used in program

Extension agents tended to add demonstrations of cultural practices to previously established demo plots as farmers accepted to participate. For example, grafting demonstrations were installed where trellising was being demonstrated. Trellising was installed, initially, on demo plots that had been previously used to demonstrate pruning, disease control and other cultural practices. Near the end of the project, the demand for trellising from farmers was so great that most of the trellising demos were placed in vineyards with no previously existing demonstrations.

In 2006, ROP extension agents established 1,611 demo plots over Shamali and Kandahar. Of these, 1,413 were trellised demo plots established in 140 villages of Shamali. A number of these trellising demos were placed into existing demonstration plots where other grape cultural practices had been under demonstration since 2005. Overlapping the trellising demonstrations were 686 demonstrations of the use of grafting to change production from a lower to a higher valued grape type. There were 198 demonstration plots near Kandahar with trellising being demonstrated on 55 of the previously existing demo plots. Demonstrations of Musk Mellon from northern Afghanistan were placed in 27 of the Kandahari vineyards carrying grape cultural practices demos.

500 trellising demonstration plots

The program created 1,413 trellising demo plots. ROP produced a handbook in English, Dari, and Pashto on how to make concrete posts for trellising and assisted small-scale entrepreneurs manufacture more than 13,463 concrete posts (valued at $94,000) for use in trellising demonstration plots. The concrete posts and trellising wire were distributed free of charge to participating farmers. Additionally, to demonstrate that the population of plants can be doubled when trellising is installed, ROP distributed free of charge 12,000 grape plants, valued at $2,400. These plants went into vineyards where the existing vines had been grafted: the new plants were the same varieties as the grafts. These demo plots occupy only a small portion of the participating farmer's orchard. Their purpose was to demonstrate the trellising system. On average, each plot contained 9 concrete posts. At the close of the project, RAMP officials requested that ROP use an addition $14,000 to support additional trellising demonstrations. This money was used to install approximately 222 trellising demonstrations. This number is included in the total of 1,413 demos installed.

Demo plots for control of powdery mildew

105 demo plots for powdery mildew were installed. ROP measured the effects of sulfur spraying on crop yield with varying times and amounts of application. Farmers were taught the techniques for sulfur application at field days and through messages from extension workers.

6 grape germplasm sourcing gardens

12 germplasm source gardens for Taifee and Shondo Khani grape varieties were installed.

10 plant nurseries for vineyard re-planting established and used in the program.

17 nurseries were established in 2005 and 43 in 2006. The 43 nurseries established in 2006 are expected to yield over 300,000 rooted cuttings (valued at over $60,000) ready for out-planting in vineyards in 2007. It is expected that the production of rooted cuttings, using ROP methodology, will expand as neighboring farmers observe the sales from existing nurseries and establish additional ones.

Complete installation of trellising on individual orchards – depending on availability of micro-credit

ROP could not arrange credit for farmers; thus, most farmers have not been able to spread installation of trellising on their vineyards beyond those established in the demo plots. After receiving posts from ROP, many farmers went back to the original manufacturers to buy more posts for their land. Many more would have done so if a credit program had been available to help them.

300 top-grafting demonstration plots

686 grape grafting demo plots were installed and 15,136 grape vines were grafted.

4 market centers selling agricultural inputs to farmers

Arranged for private sector to supply agricultural inputs to participating grape producers through 3 ROP Market Centers. The input supplier erected signs at the Market Centers, advertising the opening of the sales points. Inputs offered included hand-cranked dusters for application of sulfur dust, sulfur powder, fertilizer and pruning shears.

Extension system established in Shomali Plain and near Kandahar with 20 agents functioning

36 extension agents functioned full-time in the project: in the Shamali Plain and around Kandahar.

Fresh Fruit Export Trials

Helping Afghan grapes reach competitive international markets will increase farm-gate prices and build the country's economy. This long term goal has seen initial success, though that has been limited and hard won. The effort has faced two primary challenges: the security situation in Kandahar and the lack of exportable grapes available on the Shomali Plain.

The security problem in Kandahar prevented ROP from reaching the field to make sure farmers were harvesting at the right time and to make sure that merchants were properly sorting, trimming and packing. The program was cut short in Kandahar when RAMP asked that ROP staff be withdrawn from the area due to security concerns. The export trials in Kandahar were also held up by problems with equipment and the lack of experience of air shipping handlers. This trial has given invaluable experience for Afghan merchants, however, and given them experience that could only be gained through practice. Over 100mt tons of chilled grapes were sent to Germany, Ukraine, Russia, Saudi Arabia, Dubai, Kuwait and India last year. International buyers and domestic merchants have expressed great confidence in ROP's technical assistance and both have requested that the program continue to stay involved until shipments are operating smoothly.

The lack of quantities of exportable varieties of grapes in the Shomali Plain meant that it was uneconomical to export these grapes as they already commanded high prices on the local market. ROP is working with farmers to change their vines to more desirable varieties with larger berries, but, unless the program is greatly expanded, exportable quantities/prices will not likely exist in Shamali for several years to come.

Contract deliverables and project achievements:

Two cold-chain-equipped packing houses within Marketing Centers established and operating: one in the Shamali Plain and one near Kandahar.

Both packing houses were constructed. Due to security concerns, the packing house, located approximately 30km to the west of Kandahar, was not placed into operation. Instead, ROP set up a temporary packing operation in a Kandahar warehouse and was used during the 2005 season. The packing house (Market Center) in the Shamali Plain was used during the 2005 grape packing season.

Trial exports of chilled table grapes undertaken by 6 Afghan exporters.

Trials of chilled table grapes were undertaken by more than 10 Afghan exporters during 2005.

Quantity of chilled table grapes exported in 2005: 400mt.

Quantity of chilled table grapes exported in 2005 was 103mt. The shipping season in Kandahar was cut short because RAMP asked ROP to pull its staff from the areas due to security concerns. Shipments from Shamali were less than expected when the project was planned in the Spring of 2004. At that time, ROP personnel, supported by the University of California at Davis, could not see the quality/variety of the grapes grown and were told that there were exportable quantities of Thompson Seedless-like grapes. However, the reality is that the vast majority of vines in the Shomali Plain produce grapes that are suitable for raisin production and not for export as fresh table grapes. The vines that produce large, table grapes with firm skins command high prices on the local market, making export uneconomical. ROP worked with farmers to help them switch from raisin grapes to more profitable table grapes. As production increases, prices will come down. At some point, export of these grapes in chilled form will become profitable.

Quantity of un-chilled table grapes exported in 2005: 400mt.

Quantity of un-chilled table grapes exported in 2005: 8mt. Afghan merchants have traditionally exported un-chilled grapes to Pakistan and many years ago transported un-chilled grapes to India. ROP wanted to test shipment of un-chilled grapes to India. Unfortunately, the Indian buyer who promised to buy the grapes from the Kandahar region and who was to go to Kandahar to supervise the packaging and transport operations, decided to withdraw after coming to Afghanistan. At that point, during the shipping season, it was no longer possible to make arrangements with another buyer. The Indian buyer withdrew when he was told he should wear a bullet-proof vest in Kandahar.

Export transportation modes under trial include air, sea and land.

Export trials were made using air and land transportation modes. Export via sea transportation was scheduled to depart from Kandahar but was aborted due to security problems and the inability of the exporter and importer to finalize the details of the deal.

Training provided to 15 pack house management & tech staff in both Shomali and Kandahar.

35 women and 10 men were trained in Mirbachakot and about 80 men were trained in Kandahar. Workers were given a one to three hour course based on a portion of the grape production and marketing manual that ROP published.

Arrange for 23,000 packaging cartons to be pre-positioned for use this marketing season

30,000 packaging cartons were imported from India for the 2005 season.

Assist farmers/merchants associations assume responsibility for ownership and operation of Market Centers

The Market Center near Kandahar was transferred to the Fresh Fruit Exporters Union of Kandahar (FFEUK). The Market Center at Mirbachkot was transferred to the Kabul Nut and Fruit Consortium. The Market Centers at Lagmani and Bagram (in the Shamali Plain) were transferred to the Kabul Agricultural Input Association.

Support to Raisin Industry

ROP marketing support to the raisin industry has also been largely successful. Initial sun-dried raisin exports to Russia and the Ukraine have led to continued shipments totaling 1,380mt. ROP support to raisin processors to up-grade their processing facilities was less than successful. Farmers have eagerly participated in efforts to rehabilitate and up-grade their green raisin production techniques and infrastructure. This initiative has the potential to double a farmer's income from raisin production.

Contract deliverables and project achievements:

Support the Raisin & Other Dried Fruit Export Promotion Institute of the Ministry of Commerce (MOC). The Institute will provide quality certification for nuts, raisins and other dried products and assist with communications with international buyers.

RAMP asked ROP to provide funding to the Raisin and Other Dried Fruit Export Promotion Institute (the Raisin Institute) to help it establish a quality control laboratory. RAMP decided what the funds would be used for and ROP administered the funds. Funding was used to purchase laboratory equipment and supplies, to assist with operating expenses and to train Institute staff in the English language and computer operation. The original budget of $29,801 was spent as planned. At the request of the Institute and with approval from RAMP, an additional $6,637 was spent on additional laboratory supplies and equipment. For example, two dried-fruit moisture meters were purchased at a cost of $1,400 each. With these additional expenditures, the total spent in support of the Institute was $36,438.

75mt of red or black raisins processed to international quality standards.

ROP assisted an Afghan raisin exporter obtain orders and ship 1,380mt of sun-dried raisins. Approximately 100mt of those orders were double processed to produce exceptional quality raisins.

50 samples of certified quality raisins sent to international buyers.

34 Samples have been sent to: USA(2), Russia(9), Ukraine(6), Israel(6), Netherlands(6), Germany(5). Additionally, 36 samples were taken on trade missions: USA(5), Russia(14), Ukraine(25), Kuwait(4), India(2).

Produce how-to manual to disseminate the technology of the Indian kishmish khana.

Fully accomplished.

20 Indian-style grape drying sheds (kishmish khanas) established.

14 grape drying sheds have been built (11 in Shamali and 3 near Kandahar). These were built under a ROP program which paid 50 percent of the cost of building supplies while the farmer paid the other 50 percent and provided the construction labor. ROP assisted 46 farmers to renovate and operate their existing traditional raisin drying houses (mud construction) which had been idle for many years due to disruption by war.

One raisin marketing trade mission to Russia and Ukraine accomplished and reported.

Fully accomplished. This mission resulted in sun-dried raisin purchase orders from Russian and Ukrainian importers totaling over 1,300mt.

One raisin processing plant upgraded to international quality standards

Assisted three raisin processing plants upgrade their facilities, including new tiles, separation walls, deep water wells, spraying equipment and improved sorting tables. Most Afghan raisin processing plants were constructed 25 to 30 years ago. The equipment has not been up-graded since then. Initial plans were to do major refurbishing of one to three plants. However, the budget to support this level of up-grading was not provided. As a result, ROP decided to use the money to do partial up-grades. Consultants from the USA suggested that more powerful water sprayers replace existing sprayers on the existing processing lines. The plan was to have these sprayers be supplied with water taken from the line and filtered before reuse through the spray nozzles. Unfortunately, the recommended water filters, imported from the USA, could not handle the water withdrawn from the processing line and quickly became clogged. In the end, ROP recommended that processors double and triple wash raisins destined for testing with newly identified buyers in Russia, Ukraine, the Netherlands and Sri Lanka. Results were adequate and it appears that continuing commercial relations with these new buyers has been established. It was concluded, however, that for Afghanistan to continue to expand into raisin markets with higher standards, new raisin processing plants will have to be constructed.

Support to Nut Industry

ROP has accomplished most of the deliverables for the nut subproject in the 9 months available for operation. RAMP gave ROP authority to begin implementing the nut production and marketing extension work on September 24, 2005. By that time, most of the almond crop of 2005 had been harvested and ROP was not able to find quantities of nuts remaining in the hands of farmers for use in marketing trials designed to link farmers to large urban buyers as planned. Plans to install modern shelling equipment in new processing plants built by three associations of merchants were frustrated by late delivery of the equipment from the USA. The equipment was scheduled to arrive before January 2006. However, only one out of a total of three 40'shipping containers containing the equipment arrived before the project ended on June 30. ROP will stay in-country (without funding support from RAMP) during July and part of August to oversee the installation of the nut shelling equipment. The second container arrived on July 3. The final container of equipment is scheduled to arrive in August.

Other parts of the nut project have been very successful. Demonstrations for farmers show that a substantial increase in per tree yield is possible. Over one hundred farmer's marketing associations have been registered and put in touch with the three nut merchants associations formed with ROP assistance. Some 500 almond tree pruning shears were sold to almond farmers on a subsidized basis.

Contract deliverables and project achievements:

Three newly constructed nut packaging facilities, one each at Mazar-i-Sharif, Kandahar and Kabul.

The three nut processing buildings have been completed. They await the arrival of the nut shelling equipment to be complete. See photos in Annex.

300mt of almonds will be exported through the three nut merchants associations.

It was expected that 300mt of almonds processed with the new equipment from the USA would be exported before the end of the project. Unfortunately, the new equipment did not arrive before the end of the project.

Almonds will be exported to the following markets: India, Dubai, and Europe.

10mt were exported to India. Samples were sent to Dubai, Germany, China, Korea, Taiwan.

600mt of in-shell almonds will be shelled using the newly installed almond processing lines designed by RAMP consulting engineers.

The shelling equipment did not arrive in time for use in the project.

Produce packaging selection guide.

Fully accomplished. ROP has published a manual in English, Dari and Pashto entitled *Packaging Systems for Almonds and Dry Fruits: Afghanistan* to assist nut processors select appropriate packaging systems.

ROP will show farmers how they can achieve a 50 percent increase in per tree yield of almonds.

86 demonstration plots were established to teach farmers simple cultural practices that can be used to increase the per tree yield of almonds. Harvest occurred after the end of the project; so, actual harvest figures are not available. To estimate the increase in production, ROP extension agents randomly selected main lower branches from an equal number of treated and non-treated trees on ROP demonstration plots and counted the number of immature nuts on measured lengths of the branches. The average number of nuts per meter on the treated trees was double that on the non-treated trees. Significantly, the number of sub-branches was nearly double on the treated trees. Assuming that these data are representative of the other branches on the trees and assuming that the treated trees will be able to nurture the increased numbers of nuts until harvest, it appears that the ROP extension program more than achieved its objective of showing farmers how they can increase their per tree production by 30%-50%.

The survey of nut-set was conducted in June 2006. ROP extension agents selected 29 Demonstration Plots (out of a total of 86 plots) for study. From each selected demo plot, ROP agents selected five treated and five untreated trees. In the case of Samangan, they selected pairs of three trees from each demo plot. Then, the agents measured one meter lengths of selected main lower branches from the trees and counted the number of sub-branches and number of almonds. Two meters of lower main branch from each of ten trees (5 treated, 5 untreated) were measured and counted in the case of demo plots in Balkh and Tashqurghan. Three meters from six trees (3 treated, 3 untreated) were measured in the case of demo plots in Samangan. The following table provides the data and simple averages. Note that the number of sub-branches as well as numbers of nuts are significantly different between treated and untreated trees. See Photo of nut-set in Photo Annex, page 40.

Comparing Nut-Set and Numbers of Sub-Branches on Treated vrs Untreated Almond Trees in 29 ROP Demo Plots June 2006

Region	Treated Trees				Untreated Trees			
	Trees	Meters of Main Branches	Sub-Branches	Almonds	Trees	Meters of Main Branches	Sub-Branches	Almonds
Balkh	20	40	600	5,006	20	40	360	1,924
Tashqurghan	55	110	1,244	10,437	55	110	847	4,668
Samangan	42	126	1,223	11,426	42	126	821	6,239
Totals	117	276	3,067	26,869	117	276	2,028	12,831
Averages per Meter			11	97			7	46

Farmers participating in the project's marketing program will experience a 20 percent increase in the average value of the nuts they sell through the program in comparison to the price they could receive at pre-harvest or harvest-time sale.

Because of the late start of the nut project, ROP found only 10mt of almonds still in the hands of farmers and available for sale. It facilitated the sale of these nuts to an urban-based nut trader for a price 10 percent higher than that experienced at harvest time. These were low-quality nuts that had not been sold earlier.

Ninety percent of all farmers participating in the project marketing program will be linked to merchants participating in the program. Farmers will sell directly to these linked merchants rather than through intermediaries. Fifty percent or more of the

participating farmers will combine their sales lots (sell their crop jointly or cooperatively) before sale to a single buyer.

ROP Marketing Specialists formed 134 nascent farmer's marketing associations. The combined membership of these associations was 5,653. We term these "nascent" organizations because they were not able, due to the late start of the project, to practice marketing their products to the merchants introduced to them by ROP marketing specialists. ROP marketing specialists gave lists (with contact numbers) of the presidents of these 134 organizations to urban merchants, including the three nut merchants associations aided by the project. The presidents of the farmers associations also received lists (with contact numbers) of the urban merchants. The merchants will directly contact the presidents of these associations to arrange purchase of nuts in the coming harvest season.

Women's Empowerment: ROP will employ a Women's Program Specialist to extend the ROP Nut Program activities to female farmers.

ROP Women's Program Specialist has delivered production and marketing advice, provided by ROP Nut Extension Specialists, to some 1,400 women farmers of almond trees in Balkh and Samangand provinces.

Up to 5 percent of the project budget will be devoted to cost sharing activities in which participants will contribute 50 percent and the project will contribute 50 percent toward some use of funds that promotes the objectives of the project.

The budget for this activity was substantially reduced prior to ROP being awarded the program. Almond farmers purchased pruning tools from ROP with a small subsidy.

Report on trade missions to India, China, Korea and Taiwan.

The trade mission to India, China, Korea and Taiwan were completed in March 2006 and reported in May and June.

10 additional marketing associations created.

ROP has formed 134 farmers' marketing associations with a total membership of 5,653 farmers owning approximately 594,000 almond trees.

Three nut marketers' associations formed.

RAMP identified three pre-association groups of merchant/farmers in Marzar-i-Sharif, Kabul\Ghorband and Kandahar as the participants for this project. ROP guided these groups to register themselves with the Government of Afghanistan as officially recognized associations. These groups built offices and processing buildings to house their nut processing and marketing enterprises. Each group received construction assistance from ROP in the form of engineering plans and guidance and $50,000. All three of the groups spent more than the $50,000 received in constructing their processing buildings and offices. One group estimated its expenditures on buildings and walls at $300,000. In addition to assistance with buildings, the three groups also received a 50% subsidy on the value of the nut shelling equipment they will receive shortly after the project ends. Each merchants group paid $60,000 toward the cost of the nut shelling equipment.

Publications

Title	Pub. Date	Description and Key Findings
Baseline Report and Survey	July 2004	The authors surveyed over 1300 households in eight provinces north of Kabul on the success of their farms in the 2003 harvest season. The study found that while farmers in some areas of the Shomali Plain are doing well, farmers in other areas were losing money. Farmers surveyed said their biggest problems were irrigation and marketing (meaning the price they got for grapes and the willingness of merchants to visit their villages).
India Trade	April	Excerpt from the report:

Mission Report	2005	Six important results from the trip are: • Afghans now know how the Indian fresh grape market works and have confidence they can enter it. They have made verbal agreements with several Indian merchants to test the market this year. • Afghans now understand how far behind the competition they are in both production and marketing techniques. They have vowed to catch up. This will facilitate learning on their part. • An Indian merchant hosts a webpage where grape wholesale prices are posted daily. This will provide a good indication of Indian fresh grape prices. • An Indian merchant will come to Afghanistan this year and begin exporting grapes to India on his own account. He will test a modification of the traditional system of wooden box and non-refrigerated truck transport to New Delhi. If he is successful, a large number of traditional Afghan traders will copy the system and grape exports to India will increase substantially. • RoP personnel visited customs clearance agents in New Delhi and Mumbai to inform them of the Preferential Trade Agreement Between India and Afghanistan which provides for a 50% reduction in import duties for Afghan grapes and other fresh fruit. This action was important because the customs clearing agents in India are generally not aware that the Indian Government has lifted a recent ban on importing Afghan grapes into India. This will facilitate the importation process. • Indian technology for producing high-quality green raisins can easily be transferred to Afghanistan and provide the basis for transforming the Afghan raisin industry from its focus on low-value, commodity raisins to high-value, niche-market green raisins.
Ned Ryan, ROP Nut Marketing Specialist, first trip to Afghanistan Report	October 2005	The following are excerpts from his report: **Nut Processing**: Land owners and gardeners remove the hulls from their crop by hand and we believe they are used for livestock feed. Almonds are then sold in the shell to traders. Traders will sell premium varieties in the shell. Lower value hard-shell varieties are mostly cracked by hand by families who take bags home, crack the almonds, keep the shells for fuel, then return the kernels. The trader employes women at his facility to sort the kernels by size and remove defects such as broken kernels. Sorted kernels are packed in 500 gm bags or in bulk 25 or 50kg bags. There is very little equipment used, but we did see one small shelling machine from Iran and some hand held screens for separating by size. Some hardshell almonds are water dipped or soaked for 12 hours to increase moisture for the purpose of minimizing kernel breakage during cracking. Disadvantages to this practice are darkening of the skin and possibly increasing fungus growth producing aflatoxins. **Nut Marketing**: From the estimates of two or three exporters, 60 - 70% is exported to India (half packaged, half bulk); 20% to Pakistan (all bulk); and 10 - 20% sold in the domestic market. Prices appear to be in line with the world market for almonds. The premium soft and hard shell varieties

		sold in the shell (about 30% of the crop) seem to have prices better than equivalent world market prices for California varieties. Kernels (70% of exports) of the common varieties are sold close to world market prices for California varieties (source of about 80% of the world supply).
Ryan Trip to the India International Trade Fair, New Delhi, India Nov 2005	Nov 2005	Excerpts from the Trip Report The purpose of this trip was to develop buying opportunities for Afghan almonds in India through the Afghanistan booth at the India International Trade Fair (IITF), a seminar and reception at the Afghan Embassy with Indian importers, and visits to individual traders in the central dried fruit and nut market in the Khari Baoli section of old Delhi. India is the largest export market for Afghan tree nuts and dried fruits. Afghanistan is the traditional supplier of these items to the India market, however trade has suffered over the past 25 years of war and suppression in Afghanistan. As the Indian market has grown for tree nuts and dried fruits, other regions have supplied the growth, especially California almonds since 1988. All of the importers we visited had a history of importing Afghan products over multiple generations but only half of them continue to do so. The Indian public recognizes Afghan products as a high quality (taste and nutrition) and a traditional source of nuts and dried fruits. This and the size and proximity of the market, make it the number one target for Afghan almond exports. Currently Afghan almonds are sold inshell and as kernels in a wide variety of qualities, sometimes by variety. When sold by variety, kernels are labeled by origin—Khagzi (Mazar-e-Sharif), Gorbandi and Kandahari. In most cases, these represent a mix of varieties from each region. Some are not sold by variety but by quality, which is determined by the importer then packed and priced accordingly. The Afghan almonds we saw in the market were sold at a discount to Iranian and California almonds. The physical reasons related to color and size; the other factor was occurrence of bitter kernels—greatest in Kandahari, which was always the lowest price. Some importers preferred to have almonds packed in half or 1kg bags in Afghanistan under their supervision, while others preferred to import in bulk, sort by quality then pack in India in up to 10 different qualities for supermarket distributions.
ROP Grape Export Promotion Activities: 2005 Report	April 2006	In essence, these activities represent an on-the-job training experience for the participating merchants. Through this experience, ROP assisted the participating merchants test the physical and financial feasibility of exporting fresh, chilled grapes to previously untried international markets. Previously, Afghan merchants had exported un-refrigerated grapes to India; but, this was the first time refrigerated grapes had been exported to India and the first time fresh, chilled grapes in commercial quantities had been exported to Dubai, Saudi Arabia, Kuwait and elsewhere.
ROP Almond Market Report	monthly since January 2006	This monthly report provided news from the Almond Board of California relative to the California crop (60% of the world supply) and its impact on world prices. Prices from India were also reported. The report was translated into Dari and Pashto and distributed to nut merchants via email.
Packaging Systems for Almonds and	January 2006	The purpose of this document is to provide Afghan dried fruit and nut traders with an introduction to packaging science and technology. Additionally, three progressively more expensive and more technically

Dry Fruits: Afghanistan Manual		advanced packaging systems are described to aid Afghan traders select the packaging system that best fits their circumstances. The document was translated into Dari and Pashto and distributed to nut processors via email and via a seminar.
Nut trade mission to India, China, Korea, Taiwan	March 2006	This report discusses product types, packaging, and potentials for Afghan exports in each country visited. Pictures of products in retail settings and lists of existing and potential importers are given. The author's comment on the Indian market is quite important: "India's high duty for imported nuts and dried fruits coupled with a discounted duty for Afghan products result in a premium price paid to Afghan exporters for these products. This premium price makes the same products more difficult to sell in other export markets where the advantage of a duty differential does not exist. With India being the premium price market, it effectively captures the entire Afghan market until there is a surplus crop beyond what India can import."
Grape Post-Harvest Manual	June 2006	This manual discusses grape harvest, processing, packaging and transport procedures.
GMP and HACCP for Tree Nuts and Dried Fruit Processing Plants in Afghanistan Manual	May 2006	This manual details good manufacturing practices (GMP) and how to setup a hazard analysis and critical control point (HACCP) system using the example of an almond processing plant. It has been translated into Dari and Pashtu languages and distributed to nut processors and others attending a ROP seminar on the subject in May 2006.
Findings of the 2005 Shamali Plain Grape Farmer Survey	June 2006	This survey collected data from 882 farmers from 159 villages of the Shamali Plain just north of Kabul. It focused on grape cultivation and marketing practices, problems and financial returns. This report provides an analysis of the survey results and makes recommendations for improving farm income.

8. Lessons Learned and Recommendations for Future Activities:

Grape Production Assistance

The Afghan grape producers we worked with in the Shamali Plain were hesitant at first to follow our advice. We found that they doubted that we would continue to work with them over an extended period of time. They indicated their experience with foreign assistance agency personnel was that the personnel visited once, promised a great deal and never returned. To counter this experience, we made a great effort to always deliver on our promises, even the promise of being on time for all meetings. To counter the farmers hesitancy to trust our advice, we installed demonstration plots and actively involved the farmers in following the cultural practices we were demonstrating. We found that after we demonstrated our ability to keep our promises, whether for attending a meeting or proving the advantages of our recommended cultural practices, the farmers demonstrated their confidence in us by actively seeking and following our advice. Our experience with trellising is a good example of this process. We were in the field for two years. The first year we were able to install less than 20 demonstrations of trellising. The second year, we installed 1,413 and could have installed more if we had more funding.

Future grape production programs should have a substantial credit component to provide financing for farmers' investments in trellising, irrigation, grape-drying sheds/infrastructure and production inputs. We feel certain that we could have assisted farmers install several times the number of trellising actually installed if we could have offered them a means to finance the trellising investment.

Grape Marketing

The first efforts at grape marketing and exporting encountered significant problems due to poor incentives and disorganization. ROP has learned the following lessons.

- Grape merchants are unwilling to risk their products on new markets. While merchants agree about the value of exports, they are not ready to make the necessary investments to successfully sell in these markets.
- Merchants also don't appreciate the quality demands of international buyers. Merchants don't pay farmers enough for high quality grapes and end up receiving grapes that are both high quality and low quality.
- Ariana Airlines proved to be an unreliable shipping agent. The company could not provide exact dates and times for loading the grapes onto their planes, and could not announce space available until the day before a flight.
- Buyers in other countries are skeptical of the quality of Afghan shipments and are unwilling to pay for goods even after receiving samples. They were only willing to receive shipments if Afghan merchants were willing to sell on consignment.
- Packaging imported from India was acceptable to international buyers but proved to be too expensive to make the exports economical.

ROP marketers suggest the following recommendations for future projects:

- A person representing the foreign buyers should be in Afghanistan to communicate what quality they demand.
- Afghan traders should go to perspective markets to understand the quality demanded and see their products being sold.
- Shelf-life needs be improved by gentler handing and more attention to breaks in the cold-storage chain. Grapes should not be shipped without pre-cooling.
- ROP will work with traders more closely to gain their full cooperation with test shipments. Further training on quality demands is also necessary.
- Further efforts should be made to find a source of packing material in Afghanistan.
- Pack house workers should be given more training and not hired on a daily basis.

There are also a several problems outside the scope of the program.

- The security situation prevented extension workers from supervising harvests and even prevented the use of the ROP Marketing Center in Kandahar. The industry would welcome any steps taken to improve security.
- The Afghan government could also help by working with a private shipping company to provide reliable and affordable refrigerated shipping services for Afghan fresh produce.
- Indian and especially Pakistani trade policies and regulations prevent direct movement of trucks from Afghanistan into India. This means that direct, refrigerated shipments of grapes from Afghanistan to the major market in India are currently not efficient/practical. To move grapes from Pakistan into India via land, the grapes must be unloaded from Pakistani trucks at the Pakistan/Indian border and hand-carried into India (see photograph on page 41). This exposes the chilled grapes to the hot humid air at the border and causes significant damage to the grapes. Pakistan does not allow Afghan trucks to completely transit Pakistan space from Afghanistan to the Pakistan/Indian border. Thus, either the grapes must be loaded on Pakistan trucks in Afghanistan or the grapes must be unloaded from Afghan trucks onto Pakistani trucks at Pakistani control points.

Nut Production Assistance

ROP's almond extension agents have been quite successful working with farmers to improve the health and output of their almond trees. Extension personnel made the following general observations about the best ways to serve farmers.

- Farmers are more comfortable with foreigners if they try to dress in Afghan clothes. Extension workers have found that rural farmers are visual people and tend to trust those that look similar to them.

- Similarly, Afghan society is very traditional, and aid workers should consult with village elders to gain their confidence before attempting to reform traditional practices.
- The importance of wheat to a farmer's livelihood cannot be underestimated, but this reliance on subsistence plots causes problems for cash crops. For instance, tree borers (insects) attack almond trees close to the ground, but wheat grown close to the trunk protects them from birds, their natural predators. The borers also prefer weak trees, such as those having to share soil and water with other crops.
- Many farmers have learned to use NGO programs to their advantage and aid groups need to be careful not to duplicate services or serve the same farmers.
- Contacting farmers to study their conditions often builds expectations and makes it harder to gain their trust when aid workers are actually ready to provide services. Studies should be minimized and more control and autonomy given to groups ready to assist farmers.

Nut Marketing

Nut marketing efforts have concentrated on helping farmers reach processors directly, without going through middlemen who collect the crop and mark up its price. The program also attempted to help exporters reach new markets but found that there is little chance of those exports being profitable. India's high duty for imported nuts and dried fruits coupled with a discounted duty for Afghan products result in a premium price paid to Afghan exporters for these products. This premium price makes the same products more difficult to sell in other export markets where the advantage of a duty differential does not exist. With India being the premium price market, it will effectively capture all Afghan nut exports until there is a surplus Afghan crop beyond what India can import and Afghan exporters accept prices low enough to compete in other markets.

The marketing team offered the following advice.

- Prior to investing in a new market, make sure the price relationships are suitable for making sales. ROP found that India was the only suitable market for Afghan almonds for two reasons: 1) India's differential import duties favoring Afghan almonds meant exporters had no incentive to export anywhere else where they would have to pay much higher tariffs, and 2) India has a historic preference for Afghan products that other countries don't – meaning even higher profits in India. Importers in other countries did express interest if the costs could be made competitive in the future.
- Make as thorough as possible market research on the commodity prior to any travel—volume and sources of production, market prices, current markets and other issues.
- Maintain regular contact with exporters and importers — personal visits and communications by phone and email in order to develop trust and confidence. This is important for any marketing relationship because the risks are so high.
- Bring potential importers to Afghanistan to meet exporters, see products and become familiar with infrastructure such as banking and transportation. Although the program is just now ready to take this step with Indian importers, we could have planned on it from the beginning.

9. Summary of Project's Relationship and Coordination with the Islamic Government of Afghanistan and Appropriate Ministries during the Course of this Project:

ROP has developed good working relations with the Ministry of Agriculture, Animal Husbandry and Food (MAAHF) and the Ministry of Commerce (MOC) that have facilitated much of our work and allowed these ministries to appreciate and learn from us. Our work with the MAAHF includes:

- ROP has trained MAAHF extension agents on topics including drip irrigation, nursery establishment, Gibberillic Acid (Gib) application, and portable soil laboratories.
- ROP has responded to MAAHF requests for assistance with agricultural development program analysis or development.
- Coordinated with MAAHF on plans for the marketing center near Kandahar. Obtained approval and letters of support from Director, Agriculture Department, MAAHF, Kandahar. Approval to build the Market Center was given by Engineer Sharif, First Deputy Minister, MAAHF on March 26.

- On December 6, 2005, Roots of Peace held a seminar "Proposal for Improving Shamali Grape Farmers' Livelihood" in a RAMP conference room to illustrate the goal and objective of ROP's GRAPE project. The Minister of Agriculture, Deputy Ministers, Minister Advisors, and representatives of other related governmental agencies were present.
- Two technical meetings were held with the president of Plant Protection Department of the MAAHF on ROP strategies for the control of grape diseases and pests.
- Assistance with the cicada problem in Shamali.
    - Held information meetings with Mr. Abdul Ghafoor (adviser to the MAAHF) and Minister Ramin of the MAAHF on Cicadas.
    - ROP and Plant Protection Department of the MAAHF prepared an information brochure to the farmers on controlling of "Chercherak" (Cicada) problem in the long term.
    - Conducted survey of Cicada in Bagram and Qarabagh districts in coordination with the Plant Protection Department at the MAAHF.
    - Held meetings with entomologists (Prof. Hossein) of the Faculty of Agriculture and Plant Protection Department at MAAHF to develop a joint program and preparing proposal for control of cicada.
    - Responded to RAMP request to meet with MAAHF and explain the extent of Cicada infestation on grapes in Shomali and ROP technical response to combat the infestation. ROP successfully argued against a hasty response to the problem and cautioned against the use of chemicals without due consideration of the ecological consequences. As a result of our consultation, the Minister ordered a response to the situation that reflected all of our recommendations. Per request from RAMP, we provided a draft extension information leaflet discussing the extent of the problem, the mechanical measures farmers could take immediately, the Ministry's concern over unstudied use of chemicals and notice that ROP and the Ministry had organized and were implementing a scientific study to determine a practical and safe method of controlling the problem.
    - ROP field observations showed that the female cicadas were laying eggs on new-growth grape branches. Literature research indicated that the eggs would hatch within 3 weeks and the hatched larvae would fall to the ground, burrow in and attack the roots. An obvious method of control would be to remove the eggs before they hatched. ROP joined with the MAAHF to conduct a field campaign on mechanical control of cicada. Almost 200 farmers attended the first field days of this campaign which continued into August. Coverage of the first field days was broadcast over national TV. Nightly radio bulletins were broadcast to affected areas in Shomali.

Our relations with the MOC include the following.

- Officials of the MOC have accompanied ROP on trade missions to Kuwait, Russia, Ukraine and India.
- 2 Afghan officials from the MOC accompanied ROP on a trip to the Indian International Trade Fair IITF, November 13 to 19, 2005. ROP held a seminar and reception for Indian importers at the Afghan Embassy in New Delhi. The group discussed trade issues including tariffs, transportation, market acceptance, banking, crop production and packaging issues.
- MOC officials in Kandahar and Mazar-i-Sharif have assisted ROP in organizing merchants' organizations.
- Incorporated comments from MOC on the "Grown in Afghanistan" logo to be used on packaging and in brochures to identify dried fruit and nut products.
- Provided numerous verbal and written responses to MOC requests for assistance in describing trade policy constraints to Afghan export development.
- Urged the Afghan Government Commercial Attaché in New Delhi to form a plan of action to change Indian policy regarding movement of Afghan trucks into India.
- Responded to MOC request for an agenda and concept paper/outline for a national conference on fresh and dried fruit export promotion and facilitation. Attended meetings to plan the conference.
- Worked with Mr. Baheer, President of International Transit and Ports, MOC to collect trade data to support their request (prompted by ROP) to the Ministry of Foreign Affairs for solving transit issues for Afghan fresh and dry fruits exports to India through Pakistan.
- ROP supported and assisted the Ministry of Commerce in arranging the "Fresh and Dry Fruits Export Promotion Conference" to initiate an effort to remove constraints on Afghan fresh and dry fruits.

- ROP provided computers, printers, scanners and other computer related equipment to the Raisins and Dry Fruits Export Promotion Board of the MOC and arranged a computer course and English language training courses for Institute staff.

10. Photographs, Human Interest and Beneficiary Stories:

ROP Deputy Extension Leader, Nazruddin Sherzai, left, holding a vine from the nursery of Abdul Majeed, center, who stands with his son, right.

Abdul Majeed was able to earn $4,000 by selling the 20,000 young grape vines grown in a multiplication nursery with the help of ROP extension workers — allowing him to pay off the old debt he owed to neighbors.

The program also shared the cost of materials so that he could build a new wooden Kishmish Khana or raisin drying shed. The shed will allow him to produce green raisins, which are dried in the shade and sell for twice the price of the sun-dried ones he had been making – for AFG 200-250 per kg instead of AFG 120. He can now also do two drying runs in one season using the chemical solution recommended by ROP.

Majeed has also begun grafting cuttings of the Taifee and Shondol Khani table grapes onto his existing rootstock. By adding trellises and using fertilizer to support new plants between the existing ones, he expects to quadruple his yield – while growing a grape that sells for much more.

Abdul Zaher, who lives across the road from Majeed in the village of Kale Bayazid near Bagram, is also using ROP's techniques and has made enough extra income to travel to other cities and invest in a carpet trading business. He was so impressed with the techniques ROP taught him that he spent $800 of his money (matched by project funds) in materials to build his own Kismish Khana in November, nine months before he could even use it. This kind of long term investment by small farmers is exceedingly rare.

Grape farmers have also immediately seen the advantages of the concrete trellis posts that ROP designed and manufactured for them. Each farmer was given 9-10 posts to try, and those with money to invest in their farms have gone back to the manufacturers to purchase their own.

Zaher said that the posts not only increase his yield, but also make it easier to work in the field. When the grapes are sitting on the soil, he needs another person to lift the fruit off the ground before he can till the earth to remove weeds. The trellis allows one person to do the job of two.

Mohammad Daud planted a multiplication nursery with 8,000 cuttings of the Taifee and Shondo Khani varieties of grape vines after ROP taught him the techniques needed to successfully turn a cutting into a new plant, including the use of longer vine cuttings so that the infant roots would be able to reach more water. He has sold 2,500 rooted cuttings so far this season to farmers, who have heard about the availability of these plants from ROP extension workers. They typically buy anywhere from 20-500 small plants at a time – trying to patch the holes in their vineyards created by a generation of war and several years of draught. Daud sells cuttings for AFG 20, which is about 40 American cents — meaning a profit of $1,000 so far this year.


Mohammad Hashim working in his uncle's field.

Mohammad Hashim, Daud's nephew, stood in his uncle's field in the village of Bala Aab surrounded by rolling hills with green pastures and single-story mud buildings bathed in the morning haze. Alexander the Great is said to have camped his army on the hill adjacent to their farm over. Hashim, busy preparing for next year's nursery, said his family will spend the extra money they earn from this year's sales on basic household needs.

Masjidi, Daud's brother who goes by only one name, said that ROP's techniques and assistance have helped him raise better grapes. He used to fill a cotton bag with chemicals and shake them over his plants to keep the pests off. Last year he was able to purchase a sprayer subsidized with project funds. ROP also taught him how to use the new tool, which allows him to reach the underside of his vines and their fruit.


Farmer Abdul Raqib, 26, stands next to his son, Danesh, 5, in the multiplication nursery created with assistance from ROP.

During Afghanistan's civil war and under the rule of the Taliban, Abdul Raqib was forced to flee the land in the village of Laghmani Sufyan that his family has farmed for over 100 years. He went to live in the mountains and was only able to return in the last few years. He will plant 300 new grape cuttings this year to replace those he lost to war and drought. And he has grown these new vines in his own multiplication nursery, established with assistance from ROP.

Raqib grew 24,000 plants in the nursery and has already sold 7,000 of them at AFG 15-20 each — netting him around $2,500. One farmer even came from Tajikistan to buy 2,000 rooted cuttings of the Shondol Khani variety, and has asked Raqib to save him 5,000 rooted cuttings for next year.

Raqib said he knew the money from the nursery would be twice that he could get from growing the vegetables and smaller Kishmish grapes, which currently sit next to it. He is using the money to build extra rooms onto his house so that his brothers can move to the family plot from a neighboring village.

Muhammad Saleem, 35, standing on top of the concrete trellis posts he built for ROP.

Before ROP began distributing concrete trellis posts to grape farmers, they would sometimes hide from extension workers because of their busy schedules. Now, it's the extension workers who — just to get their work done — sometimes need to hide from farmers asking about the availability of more posts. ROP gave Muhammad Saleem, 35, a manual on how to build the posts and paid him to produce the posts for other farmers. Each farmer was given 9 posts to try in a small demonstration plot in their own vineyard. They all want more. Farmers tie grape vine shoots to metal wire strung through holes in the 2.6m (8.5 ft) posts, keeping their grapes out of the soil, preventing disease, increasing yield and easing work.

Saleem, who lives in the hilltop village of Buston in the Farza district of the Shomali Plain, said he knew about the value of trellising by seeing the success of vines that climbed trees near the end of his fields. Farmers in the area had tried to use wooden posts but they were often broken or stolen over the winter. Using a metal mold and instructions provided by ROP, Saleem made 700 posts for the program, using sand and gravel available near his village and cement and iron bar purchased in Kabul. He hired five men and was able to produce 50 posts each day in the center of his village. Many farmers saw the construction and are eager to try the process themselves, but they lack the money needed for materials (less than six dollars per pole). Saleem invested the money he made (about $500) into his farm, buying fertilizer, pesticide and covering the cost of 50 posts for himself.

Saleem and other farmers in Farza, a small village tucked into the foothills of the Hindu Kush, are repairing their vineyards after the years of war. Saleem, standing in the vineyard he made with the new concrete posts, said that his production suffered during the civil war, when he was often unable to work his land because of the fighting. A cemetery stood at the base of the hill full of green flags denoting the graves of martyrs, killed fighting the Russian army. As water flooded into the small canals between his vines, Saleem proudly displayed the Mujahideen ID card that pictured him as a handsome 17 year old who had just joined the fight. After a generation of war, the farmers in Afghanistan have a new reason to be proud — the land that is rapidly developing with their effort.


The new office of the Kabul/Ghorband nut merchants' association.

The 11 members of the Kabul/Ghorband nut merchants association are very excited and the reason is clear: the contrast between their current facilities and the new building they have built with ROP assistance couldn't be more striking. Their former factories are made almost exclusively out of mud and wood, with an occasional brick wall. Cramped between the narrow streets of Kabul's old city as they have been for 30 years, the owners must send nuts home with their female workers, who can crack 70kg in two days with their families. The new facility, in an east Kabul industrial neighborhood, has white walls and blue steel roof trusses suspended 20 feet off a concrete floor. It will house a new nut processing line designed and built in the United States that can crack, wash and grade up to 1,000kg of nuts in one hour. Nuts are now graded on a dirt floor by women shaking whicker trays.

The 11 member association committed $60,000 to the processing line (matched by $50,000 in project funds). RAMP/Roots of Peace also gave $50,000 for the cost of the building and the group covered the rest. They group now collectively sells about 2,000mt in one year to traders from India and Pakistan. The new machine will not only allow the association to fill bigger orders, it will allow them to sell to new markets with more stringent quality demands. Their nuts will not only be cleaner but also graded with greater accuracy.

After the association members made a trip to India on a trade mission with ROP, they decided to invest more of their own money into an Indian packaging machine. It will allow them to continue their efficient operation all the way down the line.

The traders used to buy nuts from other local merchants who would collect the product from farmers. Now, with assistance from ROP, they are in direct contact with the presidents of the over 100 farmers marketing associations organized by ROP for marketing purposes. By eliminating the middlemen, the farmers will get a higher price and the traders a lower one.

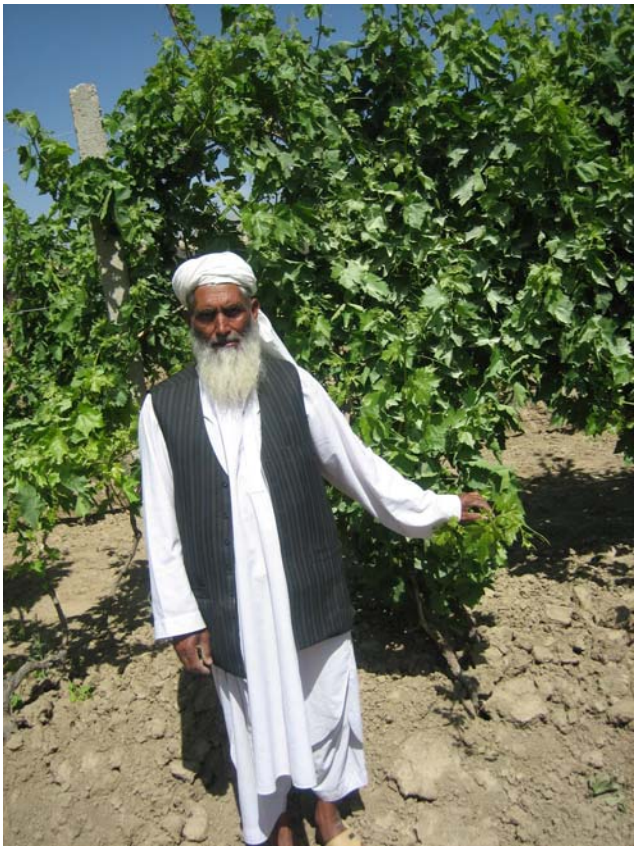
Abdul Hashim, 11, foreground, stands in his father's vineyard with his brother, nephew and cousins. The row of trellised vines runs along the top of the picture.

Abdul Quam, a farmer in the village of Telanchi near Charikar, installed a trellising demonstration plot in 2005 and saw a 50 percent increase in yield the same year. Based on the number of clusters growing now, he expects over 100 percent more grapes from this row than any of the others.

The trellis keeps grape clusters off of the ground where they can be crushed underfoot or soaked in irrigation water. Quam would gladly invest in more posts given the chance.

"We are too poor," Qaum said. "If we had money, we would do the whole garden."

Other farmers have come to see the success he has had with this row of 24 vines, and ROP extension agents have since helped establish 50 trellising demonstration plots in the immediate area.



Haji Kalan, 65, standing next to one of his trellised grape vines.

Haji Kalan installed a trellising demonstration plot on his Kishmish garden last year in the district of Qarabagh. Kalan accepted the demo plot because he saw the benefit of trellising during a similar project 30 years ago. But when ROP workers started to prune back his vines, he lost control. The workers cut off a lot of the thick vine cane that he had grown in the previous two years since retuning home from Pakistan. Cutting back the cane allows the vine to concentrate on new shoots and berry growth. Seeing the piles of cane next to his vines, Kalan stormed out of his garden with tears in his eyes.

"The Taliban cut all my vines," Kalan said, "and it felt just like that."

ROP gave him more posts to use on another garden but he hid them under a pile of brush — afraid to cut any more vines. It was only two to four weeks later that he began to see the benefits, however. His vines had tremendous growth and many clusters were forming. Neighboring farmers, who laughed at him when they saw his pruned vines, were all angry that they didn't have their own trellises. The trellised vines had double the yield of his other vines that year, and Kalan expects them to produce even more this year if the climate is favorable. Other farmers are now willing to accept the new techniques and there are 120 trellising demonstration plots in Qarabagh this year.

The trellis also helped Kalan's vines avoid the effects of the late frost that hit Afghanistan this year. His vines were protected from the freezing weather by their elevation off the ground.

Kalan also followed ROP's advice on applying Gibberillic Acid (a grape growth hormone extracted from grape seed) to increase berry size. Vines that got the Gib treatment yielded about 20kg each, almost 50 percent more than the other trellised vines, which produced about 14kg each.

Qand Agha, 40, standing next to a vine suspended on a trellis made with posts designed by ROP but produced by a farmer in the same village.

Qand Agha, 40, was so impressed with the success of trellising demonstration plots installed in 2005, that he bought 140 trellis posts for his vineyard. Agha, a sometimes trader and exporter, will spend $1200 to install trellising on the field of Taifee table grapes — and expects to make all his money back in one year.

Agha, who has been farming in the hilltop village of Buston in Farza district since he was 7 years old, cited many reasons why he decided to invest in the trellis. It improves working conditions, making it easier to prune vines and apply fertilizer or sulfur. The trellis will keep his grapes off of the soil, preventing powdery mildew, which took 30 percent of his crop last year. Most importantly, the trellis — by raising vines vertically and leaving more room on the ground — allows him to double the number of plants in the field, doubling yield and income in the process.

PHOTO ANNEX

ROP CEO Heidi Kuhn meeting with RAMP COP Lou Faoro Aug 2005
Others: Susan DeCamp, Ken Neils, Kyleigh Kuhn, Mike Clark, Cheryl Jennings

ROP Executive Director Gary Kuhn and ROP Viticulturalist Jean-Pierre Detry

ROP Marketing & Business Development Specialist Guy Ewald dressed for work in Kandahar, standing in front of the ROP Pre-Cooler used for chilling grapes prior to export


ROP COP Zach Lea and several of the ROP staff June 29, 2006

ROP marketing specialists meeting with Indian fresh fruit buyers in the New Delhi wholesale fresh fruit market, April 2005.

Training on vine pruning and trellis installation, Shomali Plain, March 2005.

Trellising being installed near Charikar May 2006

Extension Leader Nasruddin Sherzai with close-up of trellising on a participating farmer's vineyard

Installed trellis in Bala Aab, Shamali Plain, March 2006.

Trellising under construction in Demorasi, Kandahar, February 2006

Mirbachakot Market Center, September 2005.

Habib City (Kandahar) Market Center, August 2005

Bagram Market Center April 2006 showing newly planted Grape Plant Nursery
Note: the Market Center at Lagmani is just like this one: a simple 20X10 meter warehouse

DFEAK Nut Processing Building Kandahar June 2006

Inside view of Ghorband/Kabul Nut Processing Building, January 2006.

Inside Mazar-i-Sharif Nut Processing Building July 2006

Sulfur dusting demonstration in Kandahar, May 2005.

A wooden kishmish khana (raisin drying house) subsidized with project funds, June 2005.

Workers preparing grape export shipments in a temporary Market Center in Kandahar, July 2005.

Grapes processing in ROP Temporary Market Center in Kandahar, August 2005.

Female workers at ROP Mirbachakot Market Center, packing grapes for export, October 2005.

ROP Marketing Specialist Peer Mohammad with samples of Afghan fresh table grapes ready for air shipping to Ukraine, October 2005.

Training on Grape Maturity Monitoring. Sultan Hamid, August 2005.

Construction of curtain wall inside Rahmat Raisin Plant to seal-off dusty area from clean area of the plant, August 2005.

Refurbishing the “clean room” at the Rahmat raisin processing facility with marble and sealing it off from dusty main plant, August 2005.

Kandahar Farmers at Bagram grape nursery, September 2005.

Melon field day in Sang Gar, Kandahar, September 2005.

Farmers attending one of the first almond tree pruning demonstrations, October 2005.

Lal Mohammad, ROP Nut Program Extension Leader, instructing farmers on how to prepare a chemical liquid to be sprayed on almond trees, Dec 2005.

An ROP trained farmer spraying on almond tree, December 2005

Lal Mohammad, ROP Nut Program Extension Leader, demonstrating almond pruning to a women's group, January 2005.

Comparing almond nut-set on treated vrs. untreated almond trees on ROP demonstration plots. Number of nuts on treated branch is 67. Number on untreated branch is 17. This example is exceptional: average per meter number on treated vrs. untreated was 97 vrs. 46. See page 8 above.

Guy Ewald (ROP Marketing) and Afghan Ambassador Tayeb Jawad at Afghan Embassy in Washington November 7, 2005.

Afghan grapes entering India at Pakistan-Indian border by head-load after being unloaded from the test shipment refrigerated container as required by Indian customs, November 2005.

Water pump and water filter for raisin processing line installed at Charikar plant in participation with ROP, November 2005.

Spray nozzles on raisin processing line installed at Charikar plant in participation with ROP, November 2005.

Kismishi grapes being dried under traditional conditions (on soil) in the Shomali Plain, November 2005.

Concrete trellis posts under construction near Bagram, February 2006.

Detail of iron used inside concrete trellis posts, February 2006.

Sorting and processing nuts in a merchant's warehouse in Kabul, February 2006.

Micro credit workshop at Mirbachakot Market Center, February 2006.

ROP-Pruned almond tree with impressive nut set in Ghorband Valley, March 2006.

Preparing a vine for top grafting by cutting existing vine below ground level, Bagram, Shamali Plain, March 2006.

Two scions of a new variety of grape inserted into the sawed-off stem of the existing vine, Bagram, Shamali Plain, March 2006.

Grafting Success: new growth from grafted grape vines June 2006.

Close-up of new growth from grafted scion. Somewhat usual since the sprout is coming from beneath the soil surface.

The Taifee and the Shindol Khani (above) were the types of grapes demanded by farmers for grafting to replace the Kishmish variety. The sizes of the Taifee and Shindol Khani help explain why they are desired by farmers and consumers.

Grapes on wooden ROP trellising at Logari Bolo July 2005—one of the first ROP trellising demonstrations.