

# ANNUAL REPORT 2016



## AFGHANISTAN NATIONAL HORTICULTURE DEVELOPMENT ORGANIZATION (ANHDO)



NEW VARIETY FROM APRICOT BREEDING PROGRAMME

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Visitors at ANHDO Booth - AgFair 2016



Visitors at ANHDO Booth - AgFair 2016





## ACKNOWLEDGEMENTS

It is not possible to prepare an organizational report without the assistance & encouragement of other people. This one is certainly no exception.

On the very outset of this report, I would like to extend my sincere & heartfelt obligation towards all the personages who have provided ANHDO the possibility to complete the planned activities effectively & efficiently during 2016. I extend my gratitude to our donors (EU, AFD, IAO and ILO) who financially supported our projects. I also acknowledge with deep sense of reverence, my gratitude towards (ANHDO) staff, who dedicated their time and talent in 2016 to our organization (ANHDO). Together, we will take Afghanistan National Horticulture Development Organization (ANHDO) to new heights of success in 2017.

Last but not least, many acknowledgments go to ANHDO Board Members and Senior Management, who have invested their full efforts in guiding the team to achieve our goals. I also have to appreciate the guidance given by donors, members, partners and other stakeholders whose collective contribution have significantly improved our performance.

Any omission in the brief acknowledgement does not mean lack of gratitude.

Best Regards,

**Najibullah Enayat**

General Manager

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## ACRONYMS

|        |  |
|--------|--|
| ANHDO  | Afghanistan National Horticulture Organization       |
| ANNGO  | Afghanistan National Nursery Grower's Organization   |
| AFD    | Agence Française de Développement                    |
| ARIA   | Agricultural Research Institute of Afghanistan       |
| BoD    | Board of Directors                                   |
| B2B    | Business-to- business                                |
| CPN    | Certified Production Nursery                         |
| CSO    | Central Statistics Organization                      |
| CTV    | Citrus Tristeza Virus                                |
| CPG    | Citrus Promotion Group                               |
| DAIL   | Directorate of Agriculture, Irrigation and Livestock |
| DACAAR | Danish Committee for Aid to Afghan Refugees          |
| DAP    | Di ammonium Phosphate                                |
| EU     | European Union                                       |
| FM     | Field Manager  |
| GA     | General Assembly                                     |
| GAP    | Good Agricultural Practices                          |
| GA3    | Gibberellic Acid                                     |
| GoA    | Government of Afghanistan                            |
| GRPG   | Grape and Raisin Promotion Group                     |
| HPS    | Horticulture Private Sector                          |
| HVP    | Horticulture Value Chain Project                     |
| IAO    | Istituto Agronomico per l'Oltremare                  |
| IPM    | Integrated Pest Management                           |
| MAIL   | Ministry of Agriculture, Irrigation and Livestock    |
| MoU    | Memorandum of Understanding                          |
| MSN    | Mother Stock Nursery                                 |
| MT     | Metric Ton   |
| NGO    | Non-profit Governmental Organization                 |
| NGA    | Nursery Grower Association                           |
| NHLP   | National Horticulture and Livestock Project          |
| NVDA   | Nangarhar Valley Development Authority               |
| PBTL   | Plant Biotechnology Laboratory                       |
| PHDP   | Perennial Horticulture Development Project           |
| PHDC   | Perennial Horticulture Development Center            |
| RI     | Relief International                                 |
| SPCD   | Seed and Plant Certification Directorate             |
| TA     | Technical Assistance                                 |
| ToT    | Trainer of Trainers                                  |

# ABOUT ANHDO



## Vision and Mission

ANHDO's vision is stated as followed: "A sustainable and profitable horticulture industry for a better life in Afghanistan".

The mission of the Organization is "to enable horticulture stakeholders to improve horticulture industry by providing technical services, upgrading capacities, and promoting private-public coordination".

The long-term goals of the Organization are to:

1. Improve processing, packaging, and storing systems;
2. Ensure product quality to meet international standards;
3. Build capacities of horticultural stakeholders by initiating and designing projects for the promotion of good practices and standards;
4. Increase the income of producers by introducing new and advanced technology;
5. Facilitate the coordination between private and public stakeholders for the development of the horticulture industry;
6. Help build business linkages between producers, potential investors, and buyers;
7. Support and facilitate the development of a regulatory framework for horticulture industry.

Afghanistan National Horticulture Development Organization (ANHDO) is an Afghan Non-Governmental Organization established in 2009 whose mission is to enable horticulture stakeholders to improve the Afghan horticulture industry by providing technical services, upgrading capacities and promoting private –public coordination.

In order to formalize ANHDO's efforts to strengthen the horticultural private sector and the partnership with Ministry of Agriculture, Irrigation and Livestock (MAIL), ANHDO signed a Memorandum of Understanding (MoU) with the MAIL in 2012. This MoU has been updated in early 2015.

ANHDO is headed by a General Assembly composed of ANHDO's members. ANHDO's board of directors is elected by the General Assembly Members and is composed of well-qualified and committed agribusiness traders, input suppliers, horticulturists, fruit producers and economists.

ANHDO was privileged to retain the best horticulturists trained by the PHDP from 2006 to 2014. We are proud of our excellent technical team comprising experienced national horticulturists. Having been at the center of the horticulture development in the past five years, ANHDO also assembled an outstanding roster of international and national specialists in the various field of horticulture, ready and committed to work for and support the organization. Last but not least, ANHDO has carefully built the capacity of its administrative team and has now an effective and efficient administration machine.

## CURRENT DONOR FUNDED PROJECTS

|   |   |
|---|---|
| <b>Project Title</b>                                | Support to the Development of Agriculture Private Sector – Perennial (HPS)  |
| <b>Location</b>                                     | National Project  |
| <b>Donor</b>  | EU Delegation   |
| <b>Total approved budget</b>                        | Euro 7,336,840  |
| <b>Consortium</b>                                   | ANHDO as Head of Consortium & Relief International as co - applicant  |
| <b>Total No. of staff-months of the assignment:</b> | 40 staff will work for 48 months.   |
| <b>Start date (month/year):</b>                     | Dec 2013  |
| <b>Completion date (month/year):</b>                | Dec 2017  |
| <b>Duration of assignment</b>                       | 48 months   |
| <b>Description of Project</b>                       | <p>Overall objective: Contribute to the improvement of horticulture and the capacity of the private sector by:</p> <p>1) Increasing the capacity of the Afghan private sector nursery industry to meet the demand for certified planting material of Afghan farmers. 2) Adaptive research providing the technical solutions to increase productivity and value. 3) Pilot demonstrations of enhanced post-harvest management systems and value chain development for key perennial horticulture crops. 4) Developing a strong and profitable citrus industry in Eastern Afghanistan.</p> |

|   |   |
|---|---|
| <b>Project Title</b>                                | Horticulture Value Chain Project (HVP)  |
| <b>Location</b>                                     | National Project  |
| <b>Donor</b>  | Agence Française de Développement (AFD)   |
| <b>Total approved budget</b>                        | Euro 2,267,624  |
| <b>Total No. of staff-months of the assignment:</b> | 18 staff will work for 39 months  |
| <b>Start date (month/year):</b>                     | Nov 2014  |
| <b>Completion date (month/year):</b>                | Dec 2017  |
| <b>Duration of assignment</b>                       | 39 months   |
| <b>Description of Project</b>                       | Contribute to the uplifting of horticulture (yields, quality standards, market value) and enhancement of capabilities of the private sector, through specific pilot actions in target areas |

## CURRENT DONOR FUNDED PROJECTS

|   |   |
|---|---|
| <b>Project Title</b>                                | "Training for DAIL Extension Officers in Balkh and Samangan Provinces"  |
| <b>Location</b>                                     | Balkh and Samangan Provinces  |
| <b>Donor</b>  | International Labour Organization (ILO)   |
| <b>Total approved budget</b>                        | USD 16,388  |
| <b>Total No. of staff-months of the assignment:</b> | 2 staff will work for 6 months.   |
| <b>Start date (month/year):</b>                     | May 2016  |
| <b>Completion date (month/year):</b>                | October 2016  |
| <b>Duration of assignment</b>                       | 6 months  |
| <b>Description of Project</b>                       | <p>The project conducted technical training on Grape vineyards for DAIL extension officers, progressive grape growers in 2 districts of Samangan province (namely Feroz Nakchir and Hazrat Sultan), two districts of Balkh province (namely Balkh and Dawlatabat districts) and few related Horticulture association members in Balkh &amp; Samangan provinces. The aim of the training was to introduce new local farming methods including good agricultural practices (GAP), to apply pre-harvest &amp; post-harvest techniques in order to increase the yield. In addition, the project focused on a system to strengthen the service delivery of both public and private service providers in order to improve existing extension services to grape farmers.</p> |





## NURSERY INDUSTRY DEVELOPMENT ACTIVITIES

### Overview of Nursery Support

*ANHDO, in coordination with RI, supports the development of the fruit tree nursery Industry in Afghanistan, mainly through project activities that support the development of the Afghanistan National Nursery Growers' Organization (ANNGO), and its affiliated organizations.*

The ANHDO team supports the nursery industry with a full program including the provision of some inputs, training of nursery staff and support for participation in local and national shows for the promotion of the certified fruit tree saplings to the private sector. ANHDO provided specific support to the citrus industry nurseries, both to the private sector and to the Nangarhar Valley Development Authority (NVDA) in establishing model nurseries and improving sapling production techniques.

### Organizational and Institutional Capacity Building

ANNGO was supported to develop their organizational and management skills. International consultancy services provided guidance in ANNGO's business strategy development. Regular capacity building sessions were conducted with ANNGO Board members to develop and review ANNGO's Vision, Mission and long-term Objectives and Organizational Structure. Development goals were prioritized to accelerate the inclusion of private nursery companies as ANNGO members, review membership fees and policies, and launching four specialized services to the public and private sector nursery industry.



## New Nursery Grower Association Establishment

ANHDO supported ANNGO to develop two new nursery grower associations (NGAs) in Kapisa and Surobi with 31 and 22 members respectively. The NGAs were supported to facilitate registration with relevant ministries, development of business plan, capacity building & provision of agriculture inputs. The NGAs and Certified Production Nurseries in both locations were equipped with certified saplings and horticulture/gardening toolkits to adopt and apply ANNGO's certification system. The Field Managers (FMs) in both locations conducted 3 technical capacity building training sessions to NGA members and Mother Stock Nursery (MSN) owners. The training workshops covered topics such as Integrated Pest Management (IPM), Establishment and Management of Nursery and Orchards, Marketing, Nursery Certification Program and introduction of Pomegranate Varieties.

Seventeen (17) NGA members in Kapisa and six (6) in Surobi have been technically supported and adopted the ANNGO certification system. The Kapisa NGA managed to produce 57487 and Surobi NGA 42855 certified saplings during 2016.



## Establishment and Support of Two New Mother Stock Nurseries (MSN) In Surobi And Kapisa

In order to meet the demand for certified saplings for NGAs, 2 MSNs were established in Surobi and Kapisa. The MSN owners received continuing support in terms of technical trainings and provision of agriculture inputs (toolkits & certified saplings). In collaboration of ANNGO the MSNs are regularly inspected and on job trainings and instructions are delivered to MSN owners for better management and application of ANNGO certification system.

The original mother stock nursery site chosen for Surobi was found to be unsuitable. An alternative site is being selected.





## Establish and Support Pilot Model Nursery

A new NVDA citrus nursery (1 jerib) was completed in the summer of 2015 and equipped with net house, well with solar powered pump and manual shower irrigation system to produce citrus saplings (25,000/year) in plastic bags for establishing own NVDA citrus orchards in 2017. The model nursery is a critical component of establishing the NVDA as cornerstone of the Eastern Afghanistan Citrus Industry.



## Technical Assistance

Technical support from ANHDO to the fruit tree nursery industry included provision of staff services, laboratory equipment and consumables to the Plant Biotechnology Laboratory (PBTL).

Twenty eight (28) Field managers have all been recruited and mobilised on motorbikes to reach all NGAs and nurserymen. Twenty seven (27) field managers are supported by the HPS project, two by HVP and one is funded directly by ANNGO. Regular training and capacity building sessions are conducted.

Nine (9) capacity building training sessions have been completed by field managers. Technical Capacity Building Training was conducted with the 28 field managers in Nangarhar province at the Jalalabad PHDC in December 2016. Historical and current ornamental production and propagation, commercial fruit trees varieties, rootstock propagation and IPM practices were included in the training. Field managers' annual evaluation performances have been reviewed and completed to track their performance and identify development areas.

ANHDO & RI also recruited and seconded to ANNGO one (1) Micro-propagation Lab Technician, located in the PBTL, to ensure a commercial provision of clonal rootstock production with tissue culture technique. This initiative also assists the PBTL in virus testing and disease screening of source materials for the multiplication of fruit trees, and in the micro propagation (tissue culture) of new rootstock materials for almonds, pear and cherry trees. The new rootstock materials from the PBTL are not yet provided in large numbers, but are sufficient to allow for useful trials of these rootstocks.





## Integrated Pest Management Strategy

ANNGO was supported with technical assistance (TA) to develop an IPM strategy and work plan to introduce enhanced pests & diseases monitoring and control within its NGA members, MSNs and CPNs. In cooperation with ANNGO and PBTAL ANHDO developed and agreed an IPM Strategy and Work Plan for 2015/16. The SO1 Plant Protection Specialist provides technical support to the Field Managers and nursery growers on a day to day basis. A comprehensive pest and disease monitoring campaign was launched in Laghman, Kunar and Nangarhar NGAs.

IPM Toolkits comprising 30 Items each, were procured and distributed to twenty-six (26) NGA offices by September 2016 in support of the IPM strategy.



## Promoting the Ornamental Plant industry

The ANHDO team also supported the ANNGO initiative to broaden the activities of the members in developing the ornamentals side of the nursery business. ANHDO provided international consultants to guide ANNGO in the development of their new ornamentals business. A cornerstone activity in this regard has been the establishment of a demonstration ornamentals nursery in Babur Gardens (Bagh e Babur Foundation). As an ANNGO member, the nursery also has the capacity to produce certified fruit saplings, which will enhance Bagh e Babur Foundation's self-sustainability. The location of the nursery at a well visited and historical site in Kabul provides an excellent opportunity for future visibility events.





To date ANHDO procured & distributed 390 000 (three hundred and ninety thousand) plastic bag containers to Eastern NGAs (Laghman, Nangarhar & Kunar) for enhanced production of certified citrus saplings.



Seventeen thousand five hundred (17500) Integrated Pest Management (IPM) and ornamental plant brochures were published & distributed to NGAs and other stakeholders .



Three theoretical & practical capacity building training programs were conducted for 28 ANNGO Field Managers.

Exchange visits were conducted between Agriculture & Ornamental companies from different provinces to introduce best local ornamental species and practices and promote company staff knowledge and skills.



## Industry Promotional Activities

Nursery industry promotional activities included:

- Facilitating ANNGO and its NGA members' participation in the National Afghanistan Agfair.
- National radio broadcasts in promotion of certified sapling sales prior to the Agfair
- Publishing promotional material on Rose and Geranium in Dari and Pashtu to promote the development of the ornamental industry;
- The printing of five (5) IPM Technical Brochures
- Publishing the Annual ANNGO Catalogue for 2014/2015; 2015/2016 and 2016/2017
- Publishing the Manual of procedures for the ANNGO Regulatory system, currently under review by the Ministry of Agriculture, Irrigation and Livestock (MAIL)





## ADAPTIVE RESEARCH ACTIVITIES

ANHDO managed a comprehensive program of donor funded adaptive research in perennial horticulture in cooperation with ARIA (Agricultural Research Institute of Afghanistan) and the MAIL Transition Project. The aim of the adaptive research activities is to provide technical solutions to increase orchard and vineyard productivity and value to the consumer at household and national level. The range of adaptive research activities includes the collection, classification and commercial utilization of a range of varieties of fruits and nuts that are available initially to the Afghanistan fruit grower and eventually to the Afghanistan and International fruit markets.

The focus over the last decade was to create the Afghanistan Horticultural Baseline with the establishment and description of the National Fruit Variety Collection. The valuable contribution of the two phased PHDP projects was continued by ANHDO. The next chapter and 2017 challenge will be the successful transfer of the public sector adaptive research activities to the ARIA team.

Creating the linkages between the private sector value chain partners and the public sector in collectively devising and developing technical solutions to enhance the Afghan industries' competitive advantage, productivity and sustainability will introduce a new chapter in ANHDO's life cycle.

The 2016 activities of the ANHDO Adaptive Research Team (SO2) are categorized below:

### **National Fruit Collection Management and Maintenance**

The collection and comprehensive description of the varieties of fruits and nuts in Afghanistan has been ongoing since 2007. ANHDO supported these activities at six Perennial Horticulture Development Centres (PHDCs) centered in six agro-ecological zones around the country.

The target for the description of the varieties of fruits and nuts is the completion of a register for each of the species, in which each variety is fully described according to international standards and representative pictures of the tree, leaves, flowers and fruit are provided. In 2016, ANHDO assisted in the publication of the final registers for pomegranate varieties and the final draft of the cherry register, for which the translation into Pashto is the only section remaining. Work continues with the plum register, where a new collection of the plum varieties was established at the Badam Bagh farm in Kabul.

## **ANHDO Support to ARIA/EU-MAIL transition project included:**

### **Coaching and “on the job” training:**

Description of the National Collection and the adaptive research activities continued in the PHDCs under the MAIL Directorate of Research authority with the continuous support of the SO2 team. Regular consultant missions support the teams on a quarterly basis.

Annual Work Plan Workshops have been coordinated with ARIA / EU-MAIL transition project teams to develop annual work plans for 2014, through to 2017.

### **Review and adapt the manual of pomology laboratory protocols and procedures:**

Continued revisions and additions took place as per research activities requirements.

### **Review intrinsic fruit quality parameters of commercial and highly marketable fruit varieties:**

Pomology Laboratory work continued to consolidate 2014 to 2016 data. 2017 data will be included next year to obtain an average value regarding quality parameters. About 85% of the necessary laboratory work is completed to date for defining quality parameters for the selected 60 accessions. In total 128 accessions are under trials.

### **Perform Pomology Laboratory work on maturity index, and shelf life parameters of commercial and highly marketable fruit varieties:**

At least 3 years' data is required before an average value regarding maturity indices can be obtained. 65% of the necessary lab work is completed to date for defining maturity indices for selected 60 accessions. In total 123 accessions are under trials. The necessary fruits to conduct shelf life trials on 30 varieties of plum, apricot, peach and apple were stored in the reefer containers. The bulk of the shelf life trials work was planned during the 2016-17 seasons.

The maturity index and shelf life of five (5) highly marketable apricot and nine (9) pomegranate varieties were defined.

The quality parameter of ten (10) marketable varieties of apricots and five (5) varieties of pomegranates were analyzed and defined.

The data entry of apricot quality parameters in special database was completed for further analysis.

### **Pomology Laboratory activities:**

The ARIA/ EU MAIL transition project is continuously supported to conduct data management and analyses.

Fifty (50) Plum (out of 74), Seventy-eight (78) Pomegranate (out of 79), Twenty-eight (28) Cherry (out of 28), ninety six (96) Peach (out of 110), ninety-three (93) Apricot (out of 129) and sixty six (66) Apple (out of 81) accessions have been fully characterized to date.

The Pomology Laboratory Database is continuously updated with the relevant trial data in cooperation with ARIA / EU-MAIL transition project staff.

### **Data Verification and Screening:**

Characterization data of the accessions is continuously verifies and screened to identify any gaps. Jointly conducted verification and screening to date have successfully resulted in the compilation of Apricot, Pomegranate and Cherry Registers.

### **Publish Registers of National Collection for 4 main species (Plums, Cherry, Peach, and Apple):**

During 2016 the English, Dari and Pashto versions of the Cherry Register was completed. It is currently under final proof reading and will be ready for printing in 2017.

### **Develop a set of descriptors lists with reference varieties specifically for Afghanistan:**

Descriptor Lists for all six main species concluded. Reference varieties for Apricot were selected.

### Identification of suitable pollinizers and combinations for compatible varieties of 3 major fruit species:

Sufficient information is to be obtained on at least 10 varieties of almond, apricot and plum. One pollination leaflet for Apricot was published.

### Continuation of rootstock and variety combination trials:

Research trials that started under PHDP to potentially identify suitable rootstock and optimized variety combinations for four major fruit species (citrus, peach, apple and almond) were continued during 2016. The aim is to obtain sufficient information on at least 20 citrus, peach, apple and almond varieties. The rootstock trials are designed for collecting data over a three (3) year cycle stretching from 2015 to 2017. Almond & Peach trials could not start in Kunduz due to security constraints.

### Human Capacity Building:

Forty-three undergraduates and fresh graduates have been engaged to date as horticulture-interns in field and laboratory research activities. Four (4) new Interns were mobilized in Kabul PHDC in 2016. Seven (7) female interns comprised 18% of all intern appointments. Upon request three (3) fresh graduates were seconded as interns to the EU/MAIL transition project to support research result and data entry into the data base.



### Publishing the “Afghan Orchard Management Manual”:

Completing the work that started under PHDP to publish the “Afghan Orchard Management Manual” was shared with MAIL (ARIA, Directorate of Horticulture) and other horticultural research and education entities. An estimated number of 1,000 MAIL extension staff, orchard growers and 10 Agricultural Universities/Institutes (including 1,000 undergraduate students) will be the recipients of this publication.

The “Afghan Orchard Management Manual” in Dari is printed (1000 copies) , and the Pashtu document is in production. The manual will be distributed in 2017 after ARIA and MAIL approvals are obtained.

### Study Tour Facilitation:

Two (2) Study Tours to Italy were conducted. The first Italian tour was to Rome, Faenza and Florence and included four (4) participants and the second to Bolzano and Trento for two (2) participants. A study tour was conducted to Turkey where 3 technical staff visited Batal Gahzai research institute to engage practical research activities.



### Infrastructure Support:

The infrastructure of the ARIA Pomology Laboratory was reinforced by providing them with office furniture and equipment in January 2016. Two (2) Reefer Containers were installed in the PHDC-Jalalabad & Kabul. Consumable inputs were provided in order to upgrade the laboratory.

### Almond and Apricot Variety Breeding and Improvement:

Adaptive research also aims to find the best existing varieties and improve others to develop the best local competitive advantage by developing practices to grow them to best advantage for the orchard growers of Afghanistan.

ANHDO continued the valuable work done by the EU funded PHDP Programs and is in the process of finally handing over the variety breeding and improvement initiatives to the ARIA team.

The collection of almond and apricot varieties available to Afghanistan fruit growers were identified with best potential for developing international competitiveness. The adaptive research activities are focused to improved almond and apricot varieties to face climate change dynamics, enhance yield, optimize harvesting windows and mitigate risk against frost in particularly the almond crop.

In 2016, seven breeding lines of apricot have been selected from crosses made in 2012 to combine the superior fruit qualities of Amiri types with selected productive foreign varieties. These lines were propagated by budding onto prepared rootstocks and are classified as seven new varieties which will be distributed to fruit growers in spring 2018 for extensive field testing. These new varieties combine high fruit quality in a range of colour and fruit maturity types with high productivity. The lines are all projected to be self-fertile with a wide range of adaptability.

The almond breeding program made substantial progress in developing productive late flowering lines, and the first back crosses were made with advanced breeding material. The almond breeding program has very long-term objectives, but in 2016 the field testing continued of eight almond varieties developed from crosses made in 2008 and 2009. These new varieties will be distributed to nursery growers as mother stock trees as from spring 2018.







## VALUE CHAIN DEVELOPMENT PILOT PROJECTS

The value chain development component (SO3) identified pilot grower and value chain partner groups to demonstrate enhanced post-harvest management systems and market driven value chain development for key perennial horticulture crops with:

- Enhanced harvest and post-harvest systems for exports and home market to improve the grape & raisin value chain;
- Solutions supporting harvest and post-harvest practices to enhance the Almond Industry value chain;
- Fresh fruit (sweet cherry and apples) value chains pilots, enhancing harvest and post-harvest systems to raise standards for exports and local market;
- Enhanced quality control structures and capabilities to raise the standards of fresh, dried and processed fruit quality.

A total of eighteen (18) grower groups were established and included five Grape, three Raisin, two each for Almond, Dried Apricot and Pomegranate and one each for Sweet Cherry, Apple, fresh Apricot and Dried Prune grower groups. The grower groups comprised a total of 892 growers. Six traders, exporters and wholesalers were included in the promotion groups. The table below indicates the geographic spread and size of the respective groups.





| Group Name                               | Province       | Districts      | # of Beneficiaries |
|--|----------------|----------------|--------------------|
| Grape                                    | Kabul          | Farza          | 30                 |
|  |                | Qarabagh       | 28                 |
|  |                | Mirbacha Kot   | 68                 |
| Raisin                                   |                | Qarabagh       | 40                 |
| Grape                                    | Parwan         | Bagram         | 42                 |
| Raisin                                   |                |                | 64                 |
| Grape                                    | Kapisa         | Mahmmod Raqi   | 55                 |
| Raisin                                   |                |                | 46                 |
| Grape and Raisin Producer Groups         |                |                | 373                |
| Almond                                   | Kunduz         | Kunduz         | 106                |
|  | Samangan       | Aybak          | 102                |
| Almond Producer Groups                   |                |                | 208                |
| Sweet Cherry                             | Kabul          | Paghman        | 36                 |
| Apple                                    |                |                | 84                 |
| Sweet Cherry and Apple Producer Groups   |                |                | 120                |
| Dry Apricot                              | Kabul          | Paghman        | 13                 |
| Dry Apricot                              |                | Kabul city     | 18                 |
| Prune                                    |                | Farza          | 60                 |
| Fresh Apricot                            |                | Paghman        | 33                 |
| Pomegranate                              | Kandahar       | Arghandab      | 50                 |
| Pomegranate                              | Kabul          | Surobi         | 25                 |
| Dried Apricot and Prune Producer Groups  |                |                | 199                |
| Sweet Cherry Exporter                    | Kabul          | Kabul          | 1                  |
| Grape exporters                          | Kabul & Parwan | Kabul & Parwan | 2                  |
| Raisin Exporter                          | Kabul          | Kabul          | 1                  |
| Dry Apricots exporters                   | Kabul          | Kabul          | 2                  |
| Exporter, Traders and Wholesalers’ Group |                |                | 6                  |
| Grand total                              |                |                | 906                |

This component's results are very promising. The requests for support from the private sector is encouraging, proving the producers and traders' recognition of ANHDO as a solid Technical Assistance provider, and a real bridge between public and private sector.

The Value Chain Development Teams' key future role in being the translator and initiator of industry research and development initiatives is being developed. Their proximity to and custody of commodity promotion groups secretariats place this team in a particularly good position to be ANHDO's future "front line sales team" despite their perceived limited role in the harvest and post-harvest practices pilot projects.

ANHDO staff gained expertise in value chain analysis with surveys and value chain analysis and annual updates in the pomegranate, grape and raisin, almond, apricot and sweet cherry value chains. Late frosts reducing apricot crop set in the initial target areas compromised the 2016 surveys.

On-going cost-benefit analyses and commercial feasibility studies on the most important horticultural value chains are considered as valuable decision support tools and have begun serving as a reference for the relevant public-private stakeholders.

Various quality and cold chain support measures such as the provision of refrigerated containers, underground cold stores and enhanced packaging and harvesting equipment were provided.

Growing insecurity in target provinces necessitated some minor changes to the action.

Detailed Activities during 2016 included:

## **Enhancing Growers' Harvest and Post Harvest Capacities:**

### **Introducing harvest & post-harvest best practices to the beneficiaries**

Three annual training rounds for Grape and raisin beneficiaries were conducted. Six (6) trainers were trained in 2016 adding to the sixteen (16) trainers trained in prior years.

A complete training round for Almond producers based on the FFS model to introduce harvest & post-harvest best practices were concluded.

Four (4) best practice brochures were distributed to all beneficiaries and DAIL departments as training aid.

During 2016 a full annual training round for thirty six (36) Cherry and eighty four (84) Apple beneficiaries were conducted.

The team conducted a two (2) days' training workshop on pomegranates pre- and post - harvest management to forty one (41) newly targeted beneficiaries in Kandahar.

### **Enhanced Producers Harvesting and Processing Capacities**

Harvesting tool kits to reduce post-harvest losses were successfully delivered to the Raisin and Grape, Almond and Pomegranate growers' groups.

The toolkits package contained one ladder, one wheelbarrow and 10 harvesting baskets.

### **Design and Establish Kishmish Khanas and Apple Cold Storage Structures**

One (1) Kishmish Khana was constructed during September 2016 in Dasht-e-Rubat, Bagram, Parwan with an annual capacity of five metric tons (5MT) of Green Raisin. A Cost Benefit Model was developed and will be updated in 2017 to test initial assumptions.

Two (2) Apple Cold Storage structures were constructed in Paghman District, Kabul Province with a 16.8 MT annual capacity, aiming to prolong fresh fruit shelf life. Two (2) more underground cold storage with 15 MT capacity were constructed in Surobi district of Kabul for two (2) local pomegranate producers and traders.

Three (3) fresh fruit traders received continuous support from ANHDO-HVP team to improved packaging and precooling equipment while two reefer containers were distributed to two (2) fresh fruit traders

### **Reduce Drying Cycle and Production of Golden Type Raisins**

The use of chemical treatments to test the benefits of a reduced drying cycle and techniques to produce Golden and Green Raisin were demonstrated during an annual training round, based on the FFS model, for two hundred and forty (240) beneficiaries. A Cost Benefit Model was developed to guide the decision making of growers and processors to choose between selling grapes fresh and or processing the grapes into different raisin types.

### **Promote the Establishment of Protected and Fenced Drying Areas**

Six (6) protected and fenced Drying Areas were constructed to reduce contamination and improving red raisin hygiene. The drying areas have a combined annual Red Raisin production capacity of thirty-seven comma eight metric tons (37.8MT).

### Marketing Initiatives in Regional and International High Value Markets

One hundred and four metric tons (104 MT) grape and raisins (88.78MT fresh grapes and 14.82MT red raisin) were exported to regional markets in Pakistan & India and international high value markets in Portugal.

Seven comma six four metric tons (7.64 MT) of Sweet Cherries were marketed in regional markets (7MT to India and 0.64MT to Dubai) with improved packaging.

Ten comma eight four metric tons (10.84 MT) Sweet Cherries with improved packaging were marketed in the Kabul domestic market.

ANHDO supported two (2) fresh fruit traders with standard packaging and shipment to export twenty metric tons (20 MT) of Pomegranates to Russia, while twenty metric tons (20 MT) of fresh apricots were marketed in the Gulf States.



### Promote the Establishment of The Grape & Raisin Promotion Group (GRPG)

The GRPG was established and is operating since July 2015. During 2016 the GRPG operational manual was developed and is under final review by all stakeholders. Six (6) GRPG meetings have been conducted to date.

### Partner with Established and Reputable Almond Associations

During 2016 two (2) Partnership Agreements were signed with respectively the Samangan Dry Fruits & Nuts Association comprising 102 members with 91ha almond orchards and the Kunduz Almond Producers Cooperative with 106 members and a combined production area of 140 ha almond orchards.

### Almond Value Chain Analysed and Described

With the renewed impetus provided by the Almond partnerships the Almond Value Chain baseline analysis conducted in early 2015 by the National Horticulture Value Chain Consultant can be updated. The updated study will be published in 2017.

### Nationwide Awareness Campaigns to Promote Recommended Almond Varieties

Four (4) awareness campaigns were conducted on best practices in Almond Orchard Management, Almond Varieties' selection and Late Frost Mitigation, Harvesting & Post Harvest practices, and Almond Integrated Pest Management. Four thousand (4,000) leaflets were distributed with the cooperation of DAIL and value chain partners in the Northern provinces.

### **Development of Quality Standards**

The Value Chain component concentrated on setting minimum quality standards or parameters to meet domestic market requirements and allow for potential exports as well as scientific techniques to measure and manage these standards.

The Minimum Quality Standards for Fresh and Dried Fruits for Afghanistan draft document was developed and includes minimum quality standards for fresh fruit (apple, grape, sweet cherry, plum, citrus) and dried fruits & nuts (raisin, dried apricot and almond).

The Value Chain Team supported the Adaptive Research Team and the PHDCs Pomology Laboratories to conduct maturity and shelf life index trials for highly marketable varieties.

Required instruments and consumable were procured as required. Laboratory technicians received trainings and necessary updates by the Post Harvest & Quality Control Specialist during his regular missions.

### **Survey of existing public and private quality control laboratories**

The preliminary survey of the existing public and private QC laboratories were updated during 2016. The surveys have also identified existing laboratory capacity in other much required agricultural disciplines such as soil analysis as well as plans for the establishment of quality control laboratories in the private sector with expanding raisin processors. The survey is re-examined on at least a semester basis to monitor sector developments.

### **Develop QC laboratory protocols to monitor food safety levels of fresh & dried fruits, and nuts produce**

A Quality Control Laboratory Manual for Dried Fruit and an ELISA Quality Control Laboratory Manual were developed in collaboration with the International Quality Control Specialist, Federico Valori.

### **Capacity Building Actions for Private Quality Control Laboratory Technicians**

A follow up training was conducted in May 2016 in Tabasom Laboratory to reinforce the international training of the processing factory's laboratory technician trained in Italy in spring 2014. During the 2015/2016 season seven (7) more technicians were trained on ELISA testing kits.



## CITRUS INDUSTRY DEVELOPMENT



During 2016 an overwhelming positive response was received to the development of technical, operational and orchard best management practices training material in citrus specific and general horticultural awareness and training, knowledge transfer and skills development programs initiated by the ANHDO Citrus Development Team in Jalalabad.

The Citrus Promotion Group (CPG) effectively matured from “talk shop to workshop” and from nursery-centric organization to commercial citrus grower and trade investment promotion structure.

The CPG successfully initiated a multi-stakeholder assessment of citrus nurseries in October 2016. The assessment confirmed the inadequate quantity and quality of saplings produced and identified sub-optimal and damaging operating and management practices. Official recommendations were made, technical support defined and a stakeholder plan agreed to ensure corrective action.

The lagging performance in establishing commercial orchards was the result of a conscious decision to not proceed with implementation, rather than populating the industry with diseased and substandard trees. Institutional capacity development efforts to establish and develop Citrus Grower Groups and potential Citrus Growers’ associations are lagging against original plans due to need to develop ownership of the process by the target beneficiaries.

The ANHDO team strengthened cooperation and coordination with Nangarhar DAIL, NVDA and private sector growers to establish citrus commercial orchards. A total of 79 jeribs (15.8Ha) citrus commercial orchards were established. ANHDO also supported a citrus fruit processing company called Gift to Zest for improving packaging, labelling and helped link them with the markets by sponsoring their participation in exhibitions and Ag-Fairs.

ANHDO signed a MoU with University of Bologna & Florence of Italy to carry out CTV research on the local Afghan sour orange. The research team carried out three sample collection campaigns and the samples were sent to Italy for further tests. Based on the research agreement with University of Florence, the university shared the preliminary research results on the Afghan sour orange, showing that the Afghan sour orange belongs to the Citrus aurantium species.





Citrus orchard establishment

## Detailed activities included

### Annual field surveys of growers, nurseries and traders

The field baseline survey of 1,036 interviewed in 2014 and 7 workshops including 301 sampled interviews in November 2015 were integrated into the database during 2016. Efforts to include the NHLP Database pending upon receipt from MAIL.

### Review annually the collected data and provide stakeholders with updated industry information through the CPG meetings

The findings of the annual citrus survey reviews and updated international and local citrus market information surveys were presented to the CPG meetings held in May and August 2016.

### Final value chain analysis to be published by 2017

Value chain draft is completed with continuous update of Gap analysis and development results. The potential of the NVDA in the Citrus Value Chain was studied in detail and presented to the Minister of Agriculture, Irrigation and Livestock.

### Conduct calls of interest to select commercially oriented citrus growers

A second Call of Interest was made on 15 MAY 16 as follow up to the 2015 call. Land tenure policy limiting access to NVDA land to only 5 years and inadequate availability of high quality saplings drove the decision to not go ahead with the orchard establishment.

### Establishment of commercial size (min. 1 ha each) citrus

This activity was planned as a new activity after the erection of a pack house and post-harvest facility was deemed to be premature for the volume produced by the Eastern Region. Inadequate saplings, land tenure policy inhibitions and availability of suitable applicants to migrate from small and subsistence farming to commercial citrus production and sustain the post establishment investment renders this

activity as mission impossible. Recommendations by the CPG to change this activity to enhance nursery capacity and the establishment of trial orchards with high efficiency water and irrigation technology enhancements are being considered.

ANHDO continued to support the orchard owners (logistic and technical) to establish commercial citrus orchards as a result 14.8 ha citrus orchard are established. Necessary agriculture inputs have been provided

## **Compile a shortlist highly recommended marketable citrus varieties**

A shortlist including 11 highly recommended marketable citrus varieties were presented to ANNGO and the citrus NGAs for further propagation to meet market demand.

## **Technical assistance to support citrus operation of the NVDA**

Design and support by SO4 team and skilled Labor assigned to the NVDA pilot model nursery from 01 APR 15 until 29 FEB 16 (11months) contributed to the successful establishment of the model nursery.

The Citrus team continued to monitor and support the orchard establishment process, the technical staff organized two sessions of technical training to twenty-one (21) extension workers of Nangarhar DAIL and the NVDA. The training covered the following topics:

- Common problems of the citrus industry in Eastern Afghanistan
- Commercial citrus variety and its importance
- Orchard design and layout
- Sapling selection and trainings
- Irrigation practices
- Integrated Pest Management (IPM)

## **Distribution of brochures to promote awareness campaigns the highly recommended marketable citrus varieties among citrus producers**

Awareness Campaigns promoting the highly recommended marketable citrus varieties among citrus producers during the prior two years were followed up with a brochure on container grown saplings in 2016 and used in support of the nursery grower capacity building activities.

The cost, reach and accessibility of the information by particularly illiterate growers however were addressed by focusing on audio visual aids. The Citrus Team in conjunction with the PHDC produced thirteen (13) training videos, providing technical advice on best practices. The videos addressed the requirement for pro-active technical assistance on wide ranging citrus and other agricultural requests for information.

Social media (Facebook) campaigns were very successfully used to promote the awareness of best operating practices, recommended varieties, integrated pest management and a range of specific citrus and general horticultural topics. The video clips are also available on YouTube and are being used as training aids by DAIL and NHLP extension officers.

The video on citrus Phytophthora Gummosis Disease was published in the reporting period and a video on Citrus Leaf Miner pest was produced and will be ready for publication and broadcast early January 2017. An audience in excess of 93 000 were reached with 25 000 confirmed readers and 926 reactions, shares and or comments. The documented reach is further augmented through videos often being used as training aids by extension officers and the farmer field schools.

## Annual Citrus Tristeza Virus (CTV) Sampling Campaigns

A second sampling campaign was conducted and 136 samples collected and delivered to Italy for further studies and analysis. Under new study on CTV strain and rootstock, 10 citrus orchards have been identified and selected (Sour orange, Sweet orange, and lemon) for CTV sample collection in Nangarhar, Laghman and Kunar provinces to identify the CTV contamination and strains in the region. In order to prevent errors in the future to find exact trees, lay-out of selected orchards has been mapped and shared with Plant Biotechnology Laboratory. The result of the samples showed six (6) positive in the first sample collection and twenty four (24) samples indicated positive results during second campaign. Further sample collection will be conducted upon request of the PBTL and or the University of Florence.

## CTV Strain and Rootstock Tolerance and or Resistance Study Conducted with the Cooperation of Italian Universities and the PBTL

Preliminary results of the CTV study were completed and shared by Florence University in Italy. Barcoding assessment completed of the Afghan Citrus population which confirmed that the Afghan Sour Orange belongs to *Citrus aurantium* species. Further sample collection will be conducted upon request of the PBTL and or the University of Florence.



## Small Scale Processing Units Established for Value Addition of Sour Orange

Small Scale Processing Units Established for Value Addition of Sour Orange.

The Citrus Team supported Gift to Zest processing company to improve its capacity and production. The company was assisted through organization of B2B meetings, provision of laboratory testing facilities and standard packaging materials.

The company was also sponsored to attend the 2016 Agfair for marketing and visibility purposes.





## ORGANIZATION DEVELOPMENT

The senior management team is currently implementing consultant recommendations on the accounting for the different ANHDO donor funded projects to enhance individual project and donor accountability and reporting capabilities.

ANHDO is also working towards compliance with the IFRS (International Financial Reporting System).

Since ANHDO's inception governance issues such as conflict and overlap of authority between the management and the Board of Directors (BoD), conflict of personal interests of BoD with that of the Organization and inactivity of the General Assembly (GA) adversely affected internal and external stakeholder relationships. These ANHDO institutional challenges presented the only major external relationship inhibitor. Urgent requests by the Afghanistan Horticultural Sector Steering Committee and (EU & AFD) donors for enhanced governance and compliance measures to be instituted led to an intensive capacity building initiative, funded by the AFD.

Program staff are well equipped with technical expertise and the ability to interact with target beneficiary groups and is sufficiently experienced to implement the programmed activities with the required level of efficiency and effectiveness.

Regular ANHDO led linkage and liaison initiatives between private and public stakeholders are reaping some valuable benefits. The ANHDO network is continuously expanding to the extent of receiving unsolicited requests particularly for technical assistance. The high volume and frequency of such requests are clear indications of the need for reliable technical horticultural advice and the urgent requirement to develop a robust balanced and appropriate portfolio of ANHDO Technical Assistance Services.

The Horticultural Sector Steering Committee which is a multi-stakeholder platform including ANHDO donors and critical stakeholders met twice in 2016.

The HPS and HVP 2nd Semester 2016 progress/main achievements received overall positive feedback with minor comments.

- The meeting's proceedings were dominated by the preparatory guidelines for the "ANHDO Roadmap to appropriate governance and compliance"
- The HPS and HVP Annual (2016) Work Plans and Expenditure Projections received the unanimous SC voting members' endorsement.
- HPS requested to submit the draft Citrus Industry Value Chain study by December 2016.
- EU-MAIL transition project should seek high level coordination with EUD and MAIL in order to address the transition of the PHDCs to ARIA.
- ANNGO needs to coordinate with the MAIL aiming to address constraints regarding the availability of saplings of the highly marketable (recommended) varieties with the MAIL. The MAIL Horticulture Department will take the lead on this.
- Future SC invitations should include a short report including the actual progress of the Future Steps, circulated with agenda notification.

Key Horticultural Sector Steering Committee recommendations included:

Compliance reminder for ANHDO Administrative and financial control measures to be attended to meet Grant Contract terms and conditions.

Urgent attention to ANHDO institutional development to be accelerated by an institutional audit and capacity assessment, followed by corrective recommendations and action by ANHDO team, BoD, and consultants deployed by both HPS and HVP;

Request for a concept paper presenting the required GoA's steps in support to the private sector to enhance horticultural exports to Russia.

Two consultants were recruited to finalize ANHDO membership policy, revise the ANHDO by-law and conduct gender assessment. A desk study on role of women in horticulture in Afghanistan was conducted and the anti-harassment policy was developed. Two days training workshop organized for ANHDO staff on anti-harassment policy which was conducted by international consultant. The membership policy developed and finalized as well the revision of by law completed and presented to General Assembly for final approval.

During 2016 ANHDO invested in staff capacity building. Three staff members attended Advanced Human Resource Management short courses organized by ASRA consulting firms, while one staff member was assisted to join university to obtain a Master's degree in Management (The project is covering 40% of the university costs). A total of twenty three (23) fresh university graduates were hired as interns during 2016 and had the opportunity to conduct practical field works, receive on the job training and share knowledge, skills and experiences.





## TRAINING FOR EXTENSION WORKERS (DAIL AND PRIVATE SECTOR) IN BALKH AND SAMANGAN PROVINCES

The project conducted technical trainings on Grape vineyards for DAIL extension officers and extension workers of private sector, Agricultural input dealers and progressive grape growers in two districts of Samangan province (namely Feroz Nakchir and Hazrat Sultan), two district of Balkh province (namely Balkh and Dawlatbat districts) and few related Horticulture association members in Balkh / Samangan provinces.

The aim of the training was to introduce new and local farming methods including good agricultural practices (GAP), to apply pre-harvest & post-harvest techniques in order to increase the yield. In addition, the project focused on a system to strengthen the service delivery of existing services providers both public and private in order to provide better extension services to grape farmers.

Prior to starting the training, ANHDO conducted an initial survey to include all potential beneficiaries' for modifying the themes and areas of training topics in order to ensure the ownership by the trainees and that they will continue reaching out to farmers to improve productivity in a sustainable manner. All trainees and the DAIL extension workers will continuously be in touch with farmers to deliver the knowledge through follow up training to farmers.

The first three day round of post-harvest training was conducted in October 2016 in Dehdadi PHDC training hall. Forty-two (42) trainees participated. The training evaluation indicated that the participants were very satisfied with the training. They requested the continuation of such specialized grape trainings in the future.

The second four day round of pre-harvest training was conducted in November 2016 in Dehdadi PHDC training hall. Thirty (30) trainees participated. The training evaluation showed similar satisfaction ratio of first training as well as requests for more training.

After each round of training a monitoring visit conducted by technical staff to check to outcome of the training. The monitoring has been done by filling of questionnaires' format by randomly selected trainers (who trained directory by project) and trainees (who trained by project trainees) and a field visit.

The outcome of the monitoring visit responded by final beneficiaries shows in the below in the below table.

Table 1. ToT trainers monitoring result

|  |                                |          |          |
|--|--------------------------------|----------|----------|
| Number of farmers trained in the field   | 101 farmers                    |          |          |
| Understanding Technical knowledge  | 41% Excellent                  | 42% Good | 17% Poor |
| The importance of technical information delivered during post-harvest training.          | 100% very important and useful |          |          |
| Application of technical information received during post-harvest training in the field. | 23% Excellent                  | 33% Good | 44% Poor |
| Possibility of production increase by application of post-harvest training               | For sure will increase         |          |          |

Table 2. Field farmers monitoring result

|  |                                |          |          |
|--|--------------------------------|----------|----------|
| Number of farmers trained in the field   | 162 farmers                    |          |          |
| Understanding Technical knowledge  | 28% Excellent                  | 40% Good | 32% Poor |
| The importance of technical information delivered during post-harvest training.          | 100% very important and useful |          |          |
| Application of technical information received during post-harvest training in the field. | 13% Excellent                  | 33% Good | 54% Poor |
| Possibility of production increase by application of post-harvest training               | For sure will increase         |          |          |



## PISTACHIO PROMOTION PROJECT

The Istituto Agronomico per l'Oltremare (IAO), entrusted ANHDO for the implementation of support to the pistachio value chain, training of farmers, support to the establishment of the Pistachio Promotion Group in synergy with other project and organizations, scheduled on the first year and second year of the Project "Technical Assistance and Support to Line Ministries in the Agricultural Sector with Emphasis on Olive Production".

The following Project objectives of the project were included in the brief:

**OBJECTIVE 2.** Training of technicians and farmers

**OBJECTIVE 3.** Technical support for the setting-up of production lines on farms and promotion of pistachio grower associations

**OBJECTIVE 4.** Setting up and consolidating growers' associations

**OBJECTIVE 5.** Quality test

**OBJECTIVE 6.** Creating Added Value for Local Germplasm

**OBJECTIVE 7.** Support to Production through Promotional Activities

**OBJECTIVE 9.** On site management

### **Pistachio Demo Orchards:**

Eleven (11) demo orchards were established and technical advice was provided to farmers. All pistachio demo orchards were monitored regularly. The overall conditions and growth of all demos are normal. Technical advices were provided to all farmers for the purpose of better maintenance of weed control, tightening the seedlings with wooden sticks, and cleaning the water system.

Forty Eight (48) seedlings of Khanjak seedling in Urdo Khan research farm were transplanted. The condition of seedlings is good, and will be grafted next year.

### **Pistachio Nursery:**

In coordination with DAIL and University small nursery of Khanjak in Urdo Khan Farm was established for study. The produced pistachio saplings will be use to replace missing sapling in demo orchards and extension of existing demo orchards.

### Training & Field days:

One field day was conducted with 51 participants ranging from Farmers to Nursery growers, PHDC staff, Agriculture faculty lecturer, Students, ANHDO, DAIL & NGOs attended. Pistachio demo plots in Guzara district and Urdo Khan Research Station were visited.

The second phase, third round of farmer training was conducted. Two hundred (200) farmers in eight groups, with each group comprising 25 farmers, were trained by 16 trainers in 6 districts (Enjil, Guzara, Rabati Sangi, Kohsan, Karukh and Zendah Jan districts).

### Pistachio Promotion Group meeting (PPG):

Pistachio Promotion Group meetings were held on the 7th January and 4th May 2016. Twenty-eight (28) delegates participated including ANHDO, Herat DAIL, Herat University, DACAAR, NHLP, World Vision, pistachio nursery growers, pistachio growers, pistachio traders and pistachio exporters.

### Publications:

The Pistachio manual is completed 1000 copies published and distributed.



### Pistachio Value Chain Study:

The Pistachio Value Chain Study presents the findings of the value chain analysis conducted from 25th December 2015 to 18th February 2016.

This value chain study is the result of the study of all the available existing documents on pistachios in Afghanistan. Based on the current state of the pistachio value chain, a specific methodology was developed with the necessary operational tools (work plan, questionnaires, etc.). This is a primary research via a field survey of pistachio growers, nursery, traders, processors, associations and relevant stakeholder in Kabul, Herat, Badghis, Samangan, Balkh and Kandahar provinces.





ANHDO aims to be the Horticultural Technical Assistance and Project Management service provider of choice in Afghanistan. The legacy of the last three years as Implementing Agent of major international horticultural projects, linked to our professional staff's PHDP legacy positions ANHDO uniquely to act as the bridge between the private and public sector, fulfilling the role of an indigenous Afghanistan horticultural Trade and Promotion Agency and source of technical assistance to enhance the local and international competitiveness and sustainability of the Afghanistan Horticultural Sector.

The evolving recognition by external stakeholders of ANHDO's technical and programme management competencies and value that it brings to the fruit, ornamental plant and perishable product value chains, and the internal confidence of professional, technical and management staff will positively contribute to ANHDO's sustainability and constructive contribution to the Afghanistan's agricultural sector beyond HPS and HVP project life cycle.



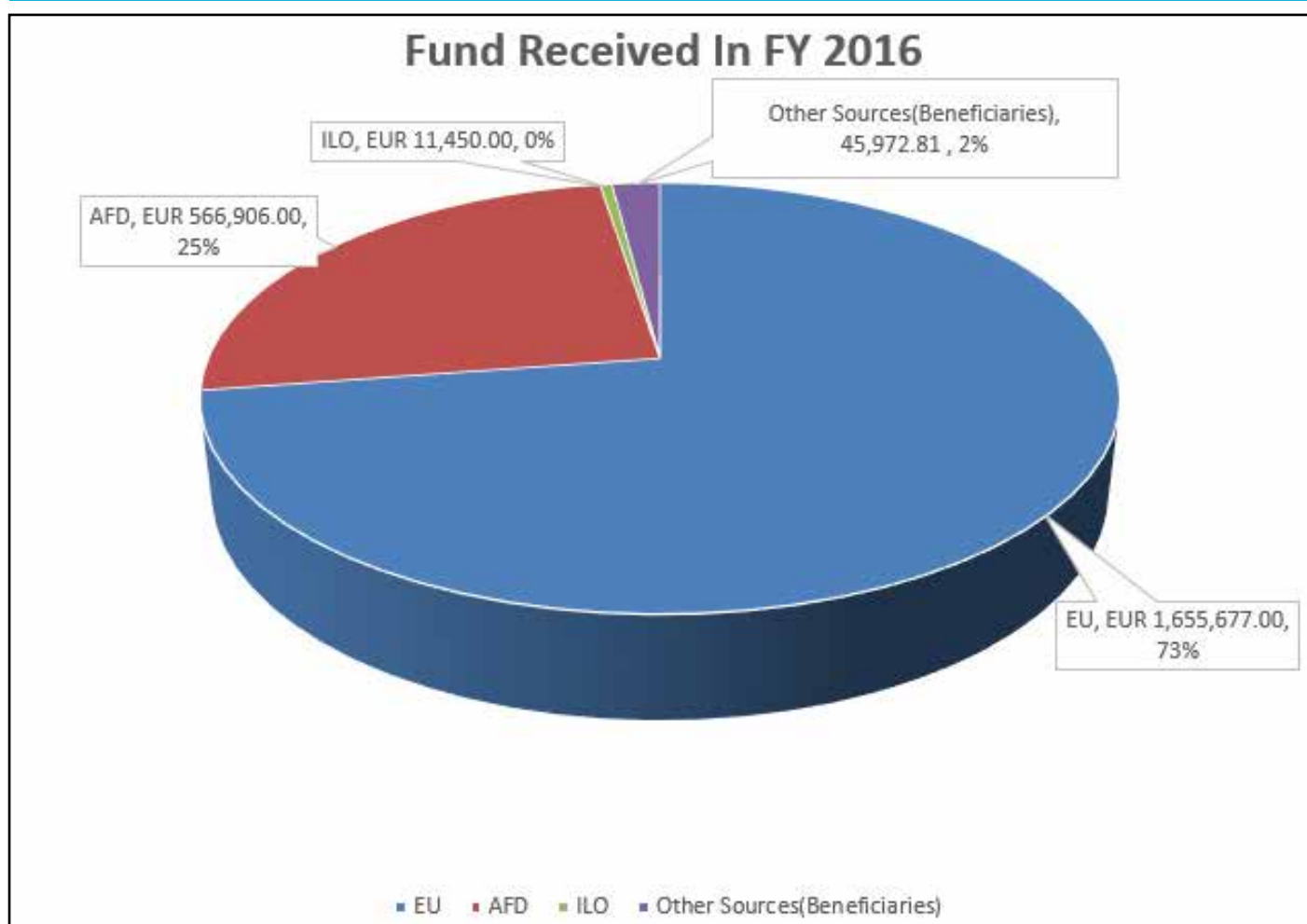
ANHDO can with confidence present a portfolio of marketable services to current donor funded development projects, government departments and the private sector. This portfolio is currently under development within the "Service Development Laboratories" of the four programmes and include inter alia:

| Service   | Target Market  | Service Development “Laboratory”  |
|---|--|---|
| Institutional Capacity Building                                 | Private sector grower associations                         | SO1: ANNDO<br>SO3: GRPR et al<br>SO4: CPG & CGG   |
|   | Public & Private Sector Multi Stakeholder Fora Development | Horticultural Sector Steering Committee<br>Commodity Promotion Groups (e.g. Citrus Promotion Group)   |
|   | Public Sector Enterprises                                  | SO2: ARIA: MAIL<br>SO4: NVDA, SPCD  |
| Business and Sustainability Plan Development                    | Private sector grower associations                         | SO1: ANNDO Sustainability Plan  |
|   | Public Sector Enterprises                                  | SO4: NVDA as cornerstone of citrus industry   |
| Laboratory design and best operating management practices       | Public Sector  | SO2: ARIA Adaptive research skills development<br>SO2: Soil Analysis Laboratory Support<br>SO2&3: Tabasom Raisin Lab  |
|   |  |   |
|   | Private Sector   | SO3: Design, development of fruit processing quality laboratories and technician training   |
| Proposal Development  | Private Sector   | World Bank Proposal Support Request   |
|   | Public Sector  | SO4: NVDA Sustainable Water Fund  |
| Training material development                                   | Public Sector  | SO1, 2, 3, 4: Technical literature to researchers and extension department  |
|   | Private sector   | Training and skills development of lead farmers and “Train the Trainers”  |
|   |  | Awareness and training video production   |
| Marketing, Packaging design and Logistics Advice                | Private Sector   | SO3: Sanitary and phytosanitary standard guidance and advice to exporters and Growers<br>SO4: Export QA training to exporters and growers                                 |
|   | Public Sector  | SO3: Inspection criteria to enforce standards   |
| Quality Systems Design Development & Implementation             | Public Sector  | SO2: Development of minimum standards<br>Laboratory Protocol Development<br>Laboratory Training Programmes  |
|   | Private Sector   | SO3 & 4: Minimum quality compliance training<br>Best Practices Training: Harvesting and Post Harvesting Techniques  |
| IPM Advice and Technical Assistance                             | Public Sector  | SO1 & SO4: Training, Awareness, procurement guidelines to Extension Officers<br>SO4: Chemical Registration Compliance Standards training of law enforcement and retailers |
|   | Private Sector   | SO1 & SO4: Training, Awareness, procurement guidelines to current beneficiaries<br>SO4: Chemical Registration Compliance Standards training of growers.                   |
| Orchard design, variety selection and Best Management Practices | Public Sector  | SO4: NVDA Model Orchard<br>SO2: Appropriate Variety selection and Best Practices Framework  |
|   | Private Sector   | SO4: Commercial Orchard Establishment   |
| Ornamental Garden Design  | Public Sector  | SO1: Embassy and Public venue beautification and greening project   |
|   | Private Sector   | SO1: Support ANNGO to set up Nursery Equipment and Input “Franchise”  |



## FINANCIAL SUMMARY

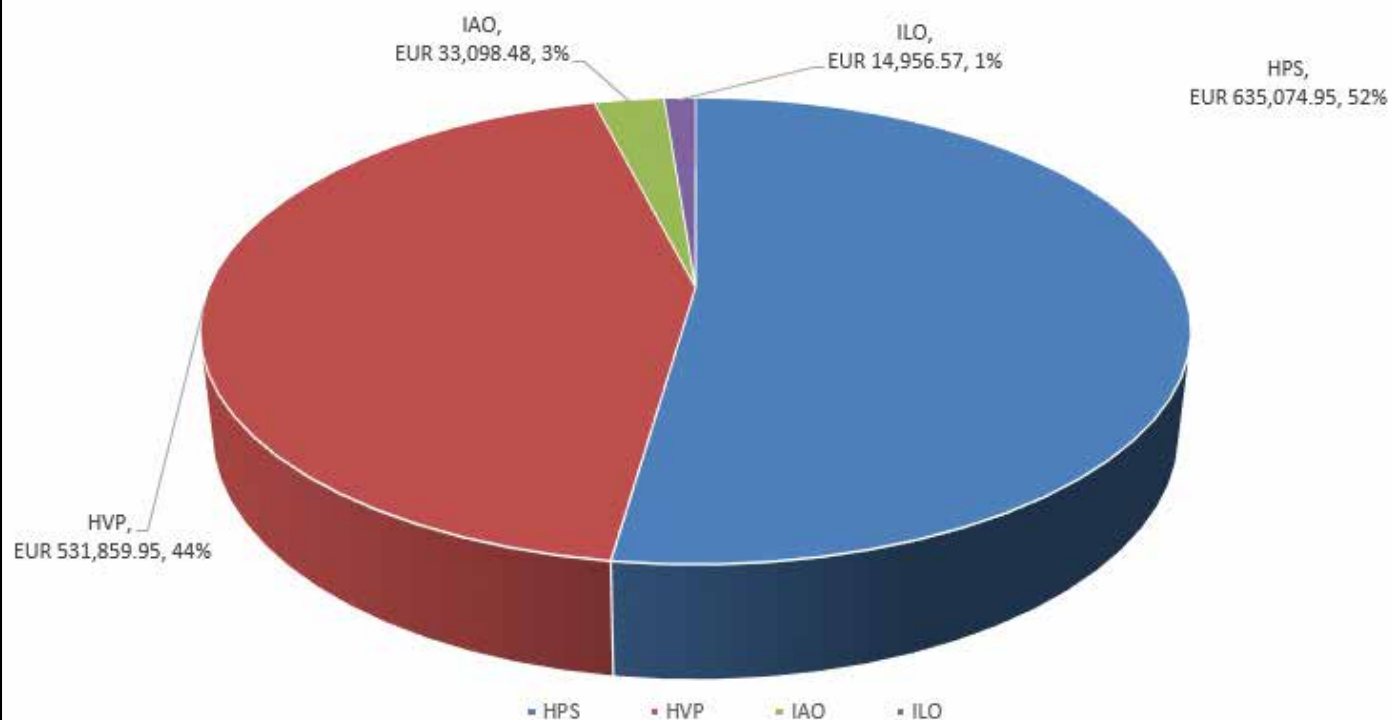
In the financial year 2016 ANHDO received the total amount of EUR 2,234,024. Compared to EUR 1,085,080 received in 2015 there was a 48.5% increase in funds received. The dominant donor for this year was the EU Delegation.



In the financial year 2016 the most expenses of ANHDO is covered by EU which pays for the HPS project and it makes 52% of the total expenses which are made by ANHDO in 2016 and the second potential donor is AFD which covered 44% of the total expenses of ANHDO and the rest 4% is covered by IAO and ILO donors.

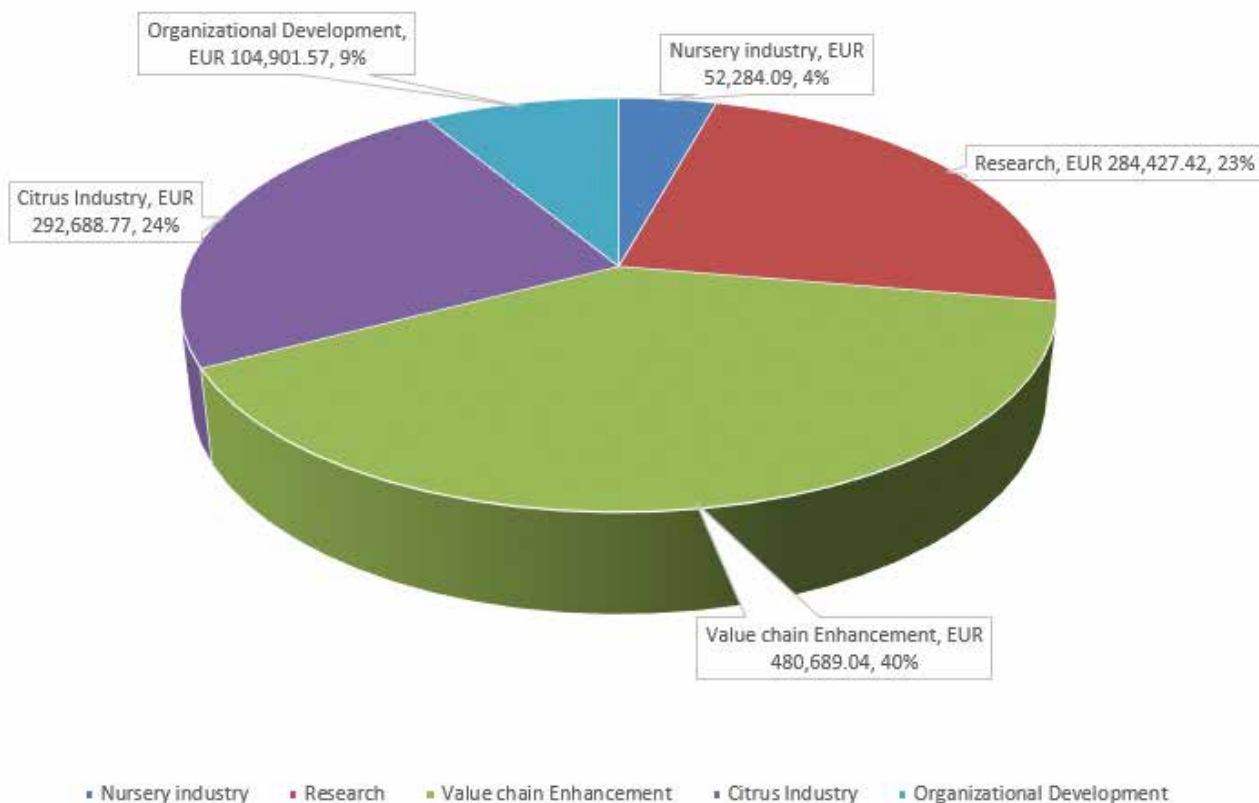


### ANHDO Expenses by Donor for FY 2016



In the financial year 2016 ANHDO spent the majority of its budget on activities related to Value Chain Enhancement which represent 40% of the total expenses; the Citrus Industry 24%, Adaptive Research 23%, Organizational Development 9% and the remaining 4% is related to Nursery Development.

### ANHDO Expenses by Function for FY 2016



## SUCCESS STORIES



Haji Faqir Mohammad

In the financial year 2016 the most expenses of ANHDO is covered by EU which pays for the HPS project and it makes 52% of the total expenses which are made by ANHDO in 2016 and the second potential donor is AFD which covered 44% of the total expenses of ANHDO and the rest 4% is covered by IAO and ILO donors.

### Graphic:

ANHDO/HPS with the financial supports from the EU, supports farmers and producers in post-harvest best practices, marketing, and producing healthy and quality products through its SO3 project. To achieve these goals, SO3 is supporting 86 apple growers in Paghman district of Kabul province in provisioning harvesting tools and apple harvesting and packaging inputs and providing training on post-harvest best practices and constructing the apple underground cold storage aimed to prolong the fruits shelf life.

Mr. Haji Faqir Mohammad, who is the head of his family and supporting 8 family member, is member of the apple growers' group in Paghman district in Kabul province. According to him, "In the past, [he] was selling most of [the] products during the season as bulk product to the middle men and Kabul local markets at lower price because of lack of proper storage facilities; about 20-25 AFN for one Kg.

"When the ANHDO team conducted meetings in our village and explained that they wanted to help us through conduct training on post-harvest best practices and constructing underground apple storages aimed to prolong the shelf life of the products, I expressed interest to have a storage, as I met the selection criteria and an apple underground storage has been constructed for me, beside construction they taught me the techniques how to use the storage and it's tools and equipment and I applied the techniques on my products.

By using good post-harvest and proper storage practices learned from the ANHDO technical team, I have sold 3,200 kilograms of my apples to the Kabul market in off season at 57 AFN per Kg – this is more than 2 times higher than in the past. Now I am glad that I learned and applied new techniques and earned more money; and I appreciate the support I received from the ANHDO-HPS-SO3 team".

## Encourages a Farmer Give His People “Food Instead of Poison”

The Afghan private sector nursery industry and its associated organization and institution meet the demand, nation-wide of Afghan farmers for certified perennial plant material for increased planting of modern orchards and vineyards.

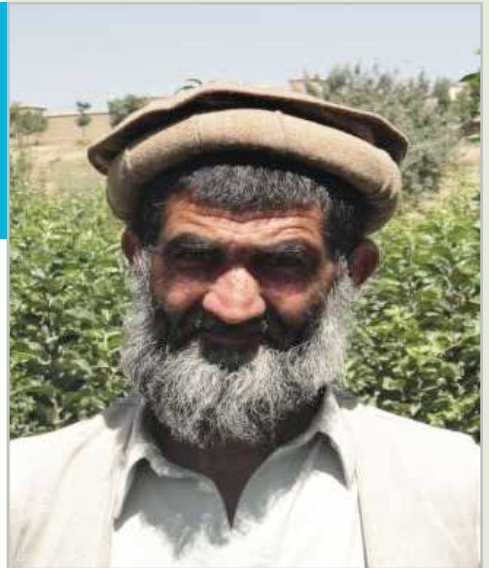
### Issue:

“Starting in 1990, unknown armed groups were unprecedentedly promoted all over Afghanistan by Armed Mujahedin. Afghanistan for several years has held first position civil and home war in the world. The study found that about 1 million Afghans between the ages 18 and 45-- or roughly 80 percent of the population suffer from war. A UN report shows that Afghans have become the leading suffered people of their own country.

Mohammad Gul is a farmer living in Tolat village of Paghman district, Kabul province. He financially supports his family (15 people) through working on a Jerib of land owned by him. Pretending that he'll earn more, he was involved part of Paghman armed group and cultivated hashish for several years. This way, He'll earn 8000 Afs (from 2.5 Kg hashish) which barely was equal to cultivation expenses. Hashish cultivation had ruined his reputation among his villagers and they didn't like him for the religiously-illegal cultivation he had as more people were starting to use drugs in the village.

### Intervention:

Through SO1 project, he was advised that Certified Saplings is a better alternative for production. Since Certified Saplings production was an unprecedented experience in the whole district, it was difficult for him to agree to replace hashish with Saplings soon. After making a lot of efforts, he was finally convinced to try Certified Saplings for once. He was provided with 4 Kg apple seeds, 40 kg urea fertilizer & 30 kg DAP (Di Ammonium Phosphate). Mohammad Gul was not sure of what he was doing! Mohammad Gul adds “I was worried about the result! I didn't know what to say to my family if things wouldn't work well for me! But, the Perennial Horticulture Program, SO1 kept encouraging me not to give up”. Besides, he encouraged registering him in the NGA and then nursery establishment training provided to him, he was continuously trained on different steps of certification scheme to build his capacity on required skills. His farm was regularly monitored and he was advised when needed by technical staff of SO1 project. After sometime the Saplings were ready to be sold! And he sold them all at his farm gate.



Mohammad Gul



### Impact:

After saplings were sold, he was amazed to see BIG DIFFERENCES appearing in his life! Everything changed for his goodness. Religiously, he was no more a sinner as he was no more cultivating Haram (religiously illegal) bushes. He's known all over the district for growing a new bush (Saplings). His people love him now and granted him a nickname of which he's proud, "The Saplings Engineer". Now, he earns 350,000 Afs winch's much more than what he could earn from hashish (8,000 Afs) cultivation. He said "Compared to past, I'm a millionaire now! I not only can better support my family, but I also have some extra money". More than 100 other farmers in the district have decided to leave hashish and other things cultivation and are highly interested to learn the cultivation methods from Mohammad Gul and start growing certified saplings under NGA regulations. Farmers in the district credit (**Support to the Development of Agriculture Private Sector" - Perennial Horticulture Program**) for showing them a much better alternative for cultivation. Through implementing this project, has built farmers' capacity, given them economic and technical support, saved people's lives and assisted in bringing about a healthy society.



Happy Mohammad Gull Standing on his nursery and showing high quality fruit came up by the tree he produced.

## The Successful Continuation of PHDP Legacy

The Perennial Horticulture Development Project (PHDP) began its program in May 2006. It was followed by PHDP II, which handed over the work on the adaptive research to the Afghanistan National Horticulture Development Organization (ANHDO)/(HPS) Horticulture private sector, Sub objective 2 (SO2) adaptive research team of ANHDO/HPS is continuing research activities in 6 perennial horticulture centers.

### Context

The adaptive research program is designed to benefit the fruit growers of Afghanistan either through developing better planting materials in the form of improved varieties or variety/rootstock combinations, or through developing and demonstrating improved techniques of cultivation related to the best utilization of specific varieties in their geographical areas. Improved marketing opportunities can be opened up developing early season or storage type varieties and techniques.

### Objective

The sub objective two (SO2) adaptive research team, is working to enhance the on-going adaptive research (activities and programs) in the 6 Perennial Horticulture Development Centers (PHDC's) / MAIL research farms. The almond and apricot breeding, pollination trials and rootstock trials is continued and enhanced. The outcomes will be: 1) advice concerning the right pollinators given to the growers which mean increase of productivity per unit area; 2) establishment of high density orchards and enhanced income; 3) improved capacity of MAIL and strengthened partnership; 4) improvement of pomology laboratories and working synergies on value chain activities. SO2 is also working on the description of national collections, characterization of tree, leaf, flower and fruit of each accession from national collections in 6 perennial horticultural centers.

### Impact

This is an historical event in Afghanistan Horticulture that carries scientific and economic significance. The traditional varieties of almond, grapes, pomegranates, apricot, etc. are well known in the world but until recently they were never described systematically according to the international standards.

As a result, the Afghan fruit grower could never be sure of the almond or apricot varieties in his orchard and could not market a uniform product because the harvest was always a mixture of different types. As the market requires uniformity and consistent quality of the product, the production from traditional orchards is being depreciated in the domestic and export market with loss of income for the growers.

But a change is on going in Afghanistan horticulture that will reverse the process and put again the Afghan fruits and nuts at the top in the world market.

Since 2006, the EU has funded the PHDP project that collected and preserved the best traditional varieties of almond, apricot, grapes, pomegranate, plum, etc. in the six MAIL research farms of Kabul, Mazar-e-Sharif, Kunduz, Herat, Kandahar and Jalalabad. These are called the National Collection of fruit and nuts of Afghanistan and include 14 main species and 900 accessions.

The work is still going on and will continue for a few years by adaptive research team of Sub objective 2 adaptive research team of HPS/ ANHDO (Afghanistan National Horticulture Development Organization), but now the first results have been published in the 1st and 2nd Volumes of the Register of the National Collection dedicated to Almond and Apricot varieties. After the first and second volumes dedicate to

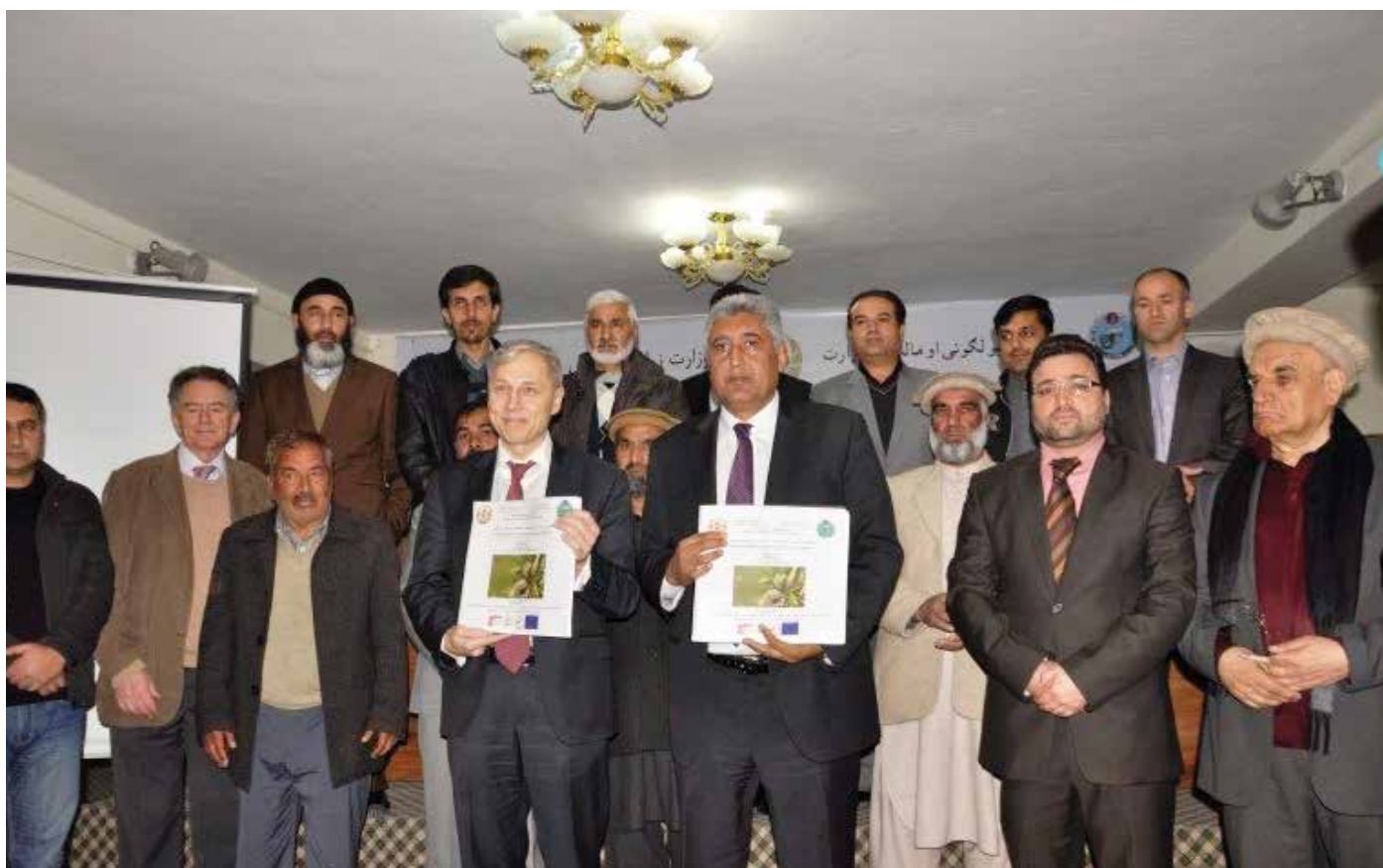
almond and Apricot others will follow for cherry, plum, pomegranate, grapes, etc. until all the traditional Afghan varieties of fruit will be described as per international standards.

It takes three of four years after planting for a young tree to flower and fruit. Therefore the team had worked hard to describe all the characters of the species e.g. tree, leaf, flower and fruit.

For Sub objective 2 adaptive research team of HPS/ANHDO, it was necessary to hire many students and fresh graduates from local universities to handle the enormous amount of data to be collected and elaborated. This created a good linkage with the local universities and built the capacity of many young horticulturists.

The Register will be a reference for the Horticulture and Research Directorate of MAIL, Universities, Research Centers, horticulture associations etc. in Afghanistan. The Register will also offer MAIL the opportunity to protect and value the Afghan traditional varieties within the International Treaty for Plant Genetic Resources (Afghanistan joined in 2006).

In Almond register 58 types (or accessions or varieties) of Almond and in Apricot Register 72 types (or accessions or varieties) are described (shape or trees, leafs, flower, fruit) based on international standards.





## CONTACT US!

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