True to type fruit saplings available in Spring 2014, originated from the Afghanistan National Collections

Kabul, October 2013
Message from the Deputy Minister of MAIL, Mir Amanuldin Haidari

I am very pleased to introduce the third edition of the ANNGO catalogue for the planting season 2014. The publication of this catalogue is a milestone in the development of horticulture in Afghanistan and upholds the overall vision of the Islamic Republic of Afghanistan’s Ministry of Agriculture, Irrigation and Livestock (MAIL).

During the spring on 2013, for the Second time, almost around 900000 ANNGO-certified trees have been successfully marketed in Afghanistan. This year it is estimated that the production of certified trees will increase further.

By providing to growers an increasing number of true to type trees of marketable varieties, ANNGO is setting the foundation of modern fruit culture in Afghanistan.

This initiative is part of the ongoing larger effort to revive the horticulture industry in Afghanistan as laid out in the National Agriculture Development Framework (NADF).

The 35% of Afghanistan’s total exports is constituted by fruit & nuts. This sector has a great potential for growth and income for rural households. Moreover the valuable germplasm collection of Afghan fruit varieties has been reconstituted and is being enriched with the EU support and the establishment of an extensive extention and farmers support network is in progress with the help of the WB2.

The ANNGO is now a reality and has established a brand name. With continuing PHDPII support the organization is stronger and it is providing better services to its associates.

For this purpose, MAIL and ANNGO must continue to work together and make this partnership stronger and stronger.

I congratulate ANNGO and the PHDPII friends for their achievements, and their significant contribution for the Afghanistan Horticulture.

H.E. Mir Amanuldin Haidari
Deputy Minister, Technical Agricultural Affairs, MAIL, Kabul

1 Perennial Horticulture Development Project Phase I and II, 2006-2015

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INTRODUCTION

This is the third edition of the Afghanistan National Nursery Growers’ Organization, ANNGO, catalogue, the main purpose of this document is to give to Afghan orchard growers a solid decision making tool to develop their orchards. This catalogue includes only the saplings multiplied (in 2011-12) from Mother Stock Nurseries, MSNs, who were inspected and approved based on the ANNGO regulatory system.

This catalogue contains in Part I the CATEGORY I, saplings (or ANNGO-certified), multiplied in 2012-13 from Mother Stock Nursery, MSN, who were inspected and approved based on the ANNGO regulatory system.

For each species, variety and accessions we have reported the following characteristics:

- Species name
- Variety name
- Clone/accession number;
  - This is an unique number of identification referred to the Afghan National Collection. Each clone has different characteristics and peculiarities.
- Flowering and ripening time;
  - These data were taken from two different locations in order to provide representative information. By choosing clones according to the maturity time, growers have the opportunity to extend the production season. These data are also shown in comparative charts before the varieties description tables.
- Fruit characteristics;
  - Fruit colour, dimension and shape based on UPOV (International Union for the Protection of New Varieties of Plants) descriptors.
- Pollination information;
  - This shows if a clone is self-fertile or cross-fertile, and which are the most suitable pollinizer. Growers can finally design their orchards choosing the best pollination combination in order to maximize the production.
- Overall Judgment and Recommendations;
  - This is our assessment concerning the best aptitude of the accession in terms of market utilization, fresh consumption, processing, export etc.

This third edition of the Catalogue contains also, in Part II, the CATEGORY 2 fruit saplings (uncertified), produced in the ANNGO register nurseries and in Part III ornamentals and forestry trees.

For more information or queries, please contact:

Afghan National Nursery Growers’ Organization
Head Office: Kabul, Afghanistan
Tel: +93 70 245 0123
Email: info@anngo.org
Website: www.anngo.org

A registered stone fruit mother stock nursery for certified budwood
A Certified citrus saplings ready for sale
The Afghanistan National Nursery Growers Organization is a non-profit organization whose purpose is the development of the nursery industry in Afghanistan, representing 26 Nursery Growers Associations (NGAs) in 22 provinces. The total number of nursery members of NGAs is presently more than one thousand. The organization is open for new membership of nurseries growers who accept and implement the regulatory scheme for quality control and traceability of planting material. Nurseries growers who do not implement such regulatory system cannot be part of the organization.

The main decision bodies for the NGAs and ANNGO are the General Assembly and the Executive Board composed of seven members elected by the 26 NGAs associates.

As per its bylaw, ANNGO is currently providing to its associate NGAs a number of services including:

- Business improvement and marketing promotion services
- Laboratory services for sanitary control.
- Monitoring of the quality of planting material
- Improvement of nursery techniques.
- Clonal rootstocks production and multiplication.
- Certification and inspection services including labeling of certified saplings.
- Technical training and dissemination of innovations

ANNGO and the NGAs are being supported by the EU funded PHDP II. In June 2012 ANNGO was awarded an EU Grant of 0.8 million Euro for the implementation of the "Nursery Industry Development Transition Project" which will further strengthen the organization and the nursery industry in Afghanistan.

In November 2012, ANNGO signed an MoU with MAIL which endorses the ongoing ANNGO Regulatory System.
THE REGULATORY SYSTEM FOR PLANTING MATERIAL (CERTIFICATION)

All the nurseries registered with ANNGO have voluntarily accepted the ANNGO regulatory system for planting material. This set of procedures ensure that the saplings are true to type and traceable to the Mother Stock Nurseries originated from the National Collection.

The Mother Stock Nurseries (MSNs) are the key component of the system. The MSNs can be established only from certified material coming from the National Collection and the material for tree propagation (buds or scions or cuttings) can only be taken from the MSNs. A specific set of procedures for Citrus Mother Stock Nurseries has been added for the main purpose of preventing and monitoring the infection of virus diseases.

Eventually this regulatory system will be endorsed by the MAIL as a part of the Seed Law and then become a legal certification. In order to do so, MAIL need to establish a Certification Authority.

The implementation of the regulatory system is the main task of ANNGO and requires strict monitoring and continuous physical inspections. In this challenging task ANNGO is supported by PHDP II, who provides 31 Field Officers and 8 Area Facilitators, and Mercy Corps, who provide 31 Field Officers.

The laboratory is monitoring systematically all the MSNs in coordination with ANNGO and PHDP II. The laboratory, funded by the EU, is implemented by the Agha Khan Foundation and supported by the PHDP II.

This year the laboratory has further increased its capacity by establishing a tissue culture facility for multiplication of selected rootstocks, thermotherapy for treatment of viruses, molecular tests for more accurate identification of virus strains.

Biotechnology Laboratory of Badam Bagh (PBTL)

The biotechnology laboratory is another fundamental service to the horticulture industry. It is located in the MAIL- Badam bagh farm, Kabul and started its operations in 2009. The Laboratory can identify virus diseases in fruit plants (ELISA tests) and is systematically monitoring the National Collection in order to keep it virus free.

The laboratory is monitoring systematically all the MSNs in coordination with ANNGO and PHDP II. The laboratory, funded by the EU, is implemented by the Agha Khan Foundation and supported by the PHDP II.

This year the laboratory has further increased its capacity by establishing a tissue culture facility for multiplication of selected rootstocks, thermotherapy for treatment of viruses, molecular tests for more accurate identification of virus strains.

Biotechnology Lab conducts ELISA tests for MSNs

Biotechnology Lab facility for rootstock multiplication

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Biotechnology Lab conducts ELISA tests for MSNs

Biotechnology Lab facility for rootstock multiplication
The National Collection of Fruit and Nuts of Afghanistan include over 911 accessions of 14 main species and is maintained in 6 Perennial Horticulture Research Centers (PHDCs) in MAIL farms in Kabul, Mazar, Kunduz, Herat, Kandahar and Jalalabad. It was completed in four years through the EU funded MAIL-PHDP (2006-2010) and is being maintained and updated by the MAIL-PHDP II (2010-2015).

A transition plan (2013-2015) has been agreed between the EU and MAIL for gradually handing over the National Collection to MAIL management. In order to do so MAIL must set up the provincial structure of horticulture based on the existing 6 Perennial Horticulture Development Centers implemented by PHDPII. As of November 2012, ANHDO (Afghanistan Horticulture Development Organization) took over the NC and will hand it over to MAIL when MAIL will be ready.

The management of the National Collection is a fundamental public service to the horticulture industry. It includes the description of the varieties as per international standards, pollination trials to identify pollinators and inter-fertile combinations among varieties of apricot, plum and almond, the evaluation of the varieties from the point of view of their marketability and keeping quality. Varieties/accessions that show market potentiality are released to the nursery industry by including them in the Mothers Stock Nurseries. This is done following the procedures set by the ANNGO regulatory system.
شرکت خدمات زراعی باغبان بزرگ یکی از بزرگترین تولید کننده نهال‌های درختان ایران است. کنیه‌دار آن به این داده شده است که در طرف موسسه ملی قربانیان انگلستان در تولید نهال‌های درختان، مثبیق شده است.

شرکت باغبان بزرگ یکی از بزرگترین تولید کننده نهال‌های درختان مثبیق شده است. مطابق با هدف شرکت، هدف اصلی این شرکت ارائه خدمات زراعی با کیفیت و با استاندارد های جهانی، با خاطر بند بردن محصولات زراعی کشور از لحاظ کمیت و کیفیت.

توجه و تداوک نهال‌های مثبیق شده موسسه ملی قربانیان انگلستان (NGO) درختان مثبیق و غیره.

اهداف باغبان، انواع مختلف مجوزات به استاندارد های زراعی و مطالب شرایط اقامتی در نمای انگلستان

عرض خدمات در غرب شرکت، وکالات نماینده و آمار تجاری

تهیه تأمین ابزار جات توسعه، هزینه و تجهیزات تاریک و نیازی از سوی همکاران

طرح و ویژین ابزارهای مرکزی و نیازهای از سوی همکاران و سیستم چنینی و صب سیستم قطره

می‌پذیرد خانه و بازخوانی.

شرکت باغبان بزرگ در جریان شست سال گفتگوی برای سازمانی (رشد زراعت و سرپرستی) کشور رول مهم خود را ایفا نمود.

ANNGO Executive Board Members and technical staff

اعضای بورد اجرائیوی ممقا و کارمندان مسلکی

ANNGO Executive Board Members, From left sitting Abdul Nasir, Shah Mohammad Muhaqiq, Sattar Mubariz, Haji Shafe & Esa

اعضای بورد اجرائیوی ممقا، از طرف چپ به راست عبدالناصر، شاه محمد محقق، عبدالستار مبارز، حاجی شفیع و عیسی جان
North-eastern zone NGAs

The north-eastern zone consists of following associations:
1. Badakhshan Nursery Growers Association (20 members).
2. Takhar Nursery Growers Association (22 members).
4. Imam Qutiba Nursery Growers Association (18 members).
5. Chunjhar Nursery Growers Association (21 members) and
6. Andarab Ha Nursery Growers Association (36 members).

Introduction:

The NGAs in the north-east are well organized & active. NGAs are producing quality and true to type certified saplings to orchard growers. The NGA members are producing certified saplings based on the market demand and have close relations with orchard growers, DAIL and NGOs working in the region.

Available MSNs: the above NGAs have following mother stock nurseries (MSNs);
1. Apple clonal rootstocks, Stone fruit and pome fruit MSNs in Badakhshan (746 MTs*).
2. MSNs in 3 NGAs (2393 MTs).
3. Stonefruit 3 MSNs (3874 MTs).
4. Pomegranate 1 MSN (122 MTs).
5. Apple 2 MSN (1279 MTs).
6. Apple clonal rootstocks (1 stoolbed).

Main Productions:

Main production of certified the north-eastern zone NGAs are almonds, apples, pears, apricots, cherries and apple clonal rootstocks.

Services:

- Sale of certified and quality budwoods
- Sale of certified saplings
- Sale of ornamental and forest saplings
- Supply inputs to NGOs, orchard growers, private companies, and other possible services in the field of Horticulture

Certified Saplings results in quality fruits

Certified nurseries

A stone fruit motherstock nursery

قوریه داران زون شمال-شرق

نیمرفی:

امجمن قوریه داران که در فوق ذکر شده، دارای قوریه های مادری نیست.

میانش:

1. پایه های مادری کلون سیب، میوه جات خسته سنگی و میوه جات سبی سری (درخت مادری) (370 حیوان)
2. 2 قوریه های مادری در 3 انجمن قوریه داران (درازی 169 درخت مادری)
3. قوریه های مادری میوه جات سنگی (درازی 3847 درخت مادری)
4. 4 قوریه های مادری انار (درازی 122 درخت مادری)
5. 2 قوریه های مادری بیسب (درازی 1729 درخت مادری)
6. پایه های مادری کلون سیب (بک سپیم تکلیر لیرنج)

تولیدات عمده:

- تولید حیوانات نهال های پیوندی تشیق شده انجمن های قوریه داران زون شمال - شرقی عجفت از بادام، سیب، نکاس، زردالو، گلاس، ایلیو و پایه های مادری کلون سپیم باشد.

خدمات:

- فروش پنکه های تصیقی شده و با کیفیت
- فروش نهال های پیوندی تصیقی شده
- فروش نهال از نیبات زینی و جگلی
- تهیه مواد به انوی ها، با گاجی، کمپی های خصوصی و دیگر خدمات

میانش در بازار با گاجی.
Addresses of the 6 NGAs:

1- Badakhshan NGA
Add: Baharak Bazar, Badakhshan
Cell: +93(0) 775386708
Email: badakhshan.ngas@gmail.com

2- Takhar NGA
Add: Agriculture Directorate, Taloqan
Cell: +93(0) 700700380
Email: takhar.nga@gmail.com

3- Kunduz NGA
Add: Beside Agriculture Directorate, Kunduz
Cell: +93(0) 786166625
Email: kunduz.nga@gmail.com

4- Andarab Ha NGA
Add: Anarab Bazar e deh salah, Baghlan
Cell: +93(0) 707923932
Email: andarab.nga@gmail.com

5- Chunghar NGA
Add: Black ha e Cement puli khumri
Cell: +93(0) 77751909
Email: chonghar.nga@gmail.com

6- Imam Qutiba NGA
Add: Shar e Jadid Ariana market
Cell: +93(0) 778812435
Email: imam.qutaiba.nga@gmail.com
Eastern zone NGAs;
The eastern zone consists of the following Associations:
1. Laghman Nursery Growers Association
2. Nangarhar Nursery Growers Association
3. Kunar Ha Nursery Growers Association
4. Paktia Nursery Growers Association

Introduction;
The NGAs are established during the early phase of PHDP 1. The members are actively exporting saplings to Pakistan.

Available MSNs;
- Citrus MSNs in 3 NGAs (600 MTs*)
- Citrus Seed mother trees in 3 NGAs (105 MTs)
- Stone fruit 3MSNs (1000 MTs)
- Pomegranate 1 MSN (150 MTs)
- Apple 2 MSN (2063MTs)
- Apple clonal rootstocks (1 stool bed)

Main Productions;
Main production of the eastern zone NGAs are citrus, almonds, apples, pears, apricots, plums, Persimmons, Citrus and seed of citrus

Services;
- Sale of certified and quality bud woods
- Sale of certified saplings
- Sale of ornamental and forest saplings
- Supply inputs to NGOs, orchard growers, private companies, etc

Laghman Stone fruit MSN
قوریه مادری میوه جات خسته سنگی لغمان

A certified nursery of a NGA in Gardez
قوریه تصمیق شده انجمن قوریه داران در گردوز

Citrus saplings available in all NGAs
نهال های پیوندی ستروس در تمام انجمن های قوریه داران موجود است
Addresses of the 4 NGAs;

1- Nangarhar NGA
Add: Agriculture Directorate, Jalalabad, Nangarhar
Cell: +93(0)77 545 0552
Email: nasih_nnga@yahoo.com

2- Laghman NGA
Add: Chardhe, Mehtarlam, Laghman Province
Cell: +93(0)799 670 660
Email: inga.laghman@yahoo.com

3- Kunar and Nuristan NGA
Add: Agriculture Directorate, Asad abad Kunar
Cell: +93(0)700 994 374
Email: info.knnga@gmail.com

4- Paktia NGA
Add: Agriculture Directorate, Gardiz, Paktia
Cell: +93(0)799 053 446
Email: paktya.nga@gmail.com

Citrus saplings available in all 3 Eastern Zone NGAs

 Nehal میان میانی در تمام انجمن های فعال در منطقه شرقی موجود است
**Northern zone NGAs**
The northern zone consists of following associations;
1. Aybak Nursery Growers Association (27 members)
2. Khulm Nursery Growers Association (17 members)
3. Umulbelad Nursery Growers Association (18 members)

**Introduction:**
The above NGAs are established and supported by EU funded project “Perennial Horticulture Development Project” during early phase (2006-2010). The NGAs are actively involved in the production of certified saplings. Each NGA has MSNs and certified nurseries producing true to type and healthy saplings to orchard growers.

**Available MSNs:**
the above NGAs having following mother stock nurseries (MSNs);
1. Stonefruit MSN Aybak (197 MTs)
2. Stonefruit MSN Khulm NGAs (49 MTs)
3. Pomegranate MSNs Khulm (122 MTs)
4. Stonefruit 2 MSN Dehdadi district (534 MTs)
5. Apple clonal rootstocks Dehdadi district (2 stoolbed)

**Main Productions:**
Main production of certified the northern zone NGAs are almonds, apricots, peach, apples, cherries, Pomegranate, and apple clonal rootstocks.

**Services:**
- Sale of certified and quality budwoods
- Sale of certified saplings
- Sale of ornamental and forest saplings
- Supply inputs to NGOs, orchard growers, private companies, etc

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انجمن های قوریه داران زون شمال

زون شمال منشکل از انجمن های قوریه داران زون شمال است:
1. انجمن قوریه داران ایب (27 عضو)
2. انجمن قوریه داران خل (20 عضو)
3. انجمن قوریه داران الیه (18 عضو)

**معرفی:**
انجمن های قوریه داران فوق توسط برگزاری انتخابات با مشارکت عمومی از طرف اتحادیه اروپا تولید شده بود. در مرحله اولیه (2006-2010) این مشارکت به منظور تولید مهال های قوریه داران بطور فعال در گسترش شیعه به منظور تولید و توزیع مهال های قوریه داران به منظور تولید و توزیع مهال های قوریه داران انجمن های قوریه داران ایب در زون شمال عضو گردیدند. هر انجمن از مهال های قوریه داران مدل جهت تولید نهال قوریه داران و تولید نهال قوریه داران با به منظور تولید و توزیع مهال های قوریه داران. مهال های قوریه داران مدل 1. قوریه مادری میوه جات خسته سنگی ایبک (دارای 179 درخت مادری)
2. قوریه مادری میوه جات خسته سنگی خل (دارای 44 درخت مادری)
3. قوریه مادری تاردلان خل (دارای 32 درخت مادری)
4. قوریه مادری میوه جات خسته سنگی وسیلی دهیت (دارای 634 درخت مادری)
5. پایه های کلیل سیب و سیب دلی دهیت (دارای 2 سیستم تکثیر باربی)

**توپیلدهای عده:**
تولید عده نهال های قوریه داران تولید کننده شده از انجمن های قوریه داران زون شمال عبیرت از بادام، زردآلو، شتغل، سیب، گیلاس، الو بالا، انار و پایه های مادری کلیل سیب.

**خدمات:**
- فروش پنکه تولیدی شده با کیفیت
- فروش نهال های پنکه تولیدی شده
- فروش نهال های باغداران زینتی و جنگلی
- تهیه مواد اینه ها با اخذ اجازه اکاردینگ و کمکه های خصوصی و غیره

**Available MSNs:**
the above NGAs having following mother stock nurseries (MSNs);
1. Stonefruit MSN Aybak (197 MTs)
2. Stonefruit MSN Khulm NGAs (49 MTs)
3. Pomegranate MSNs Khulm (122 MTs)
4. Stonefruit 2 MSN Dehdadi district (534 MTs)
5. Apple clonal rootstocks Dehdadi district (2 stoolbed)

**Main Productions:**
Main production of certified the northern zone NGAs are almonds, apricots, peach, apples, cherries, Pomegranate, and apple clonal rootstocks.

**Services:**
- Sale of certified and quality budwoods
- Sale of certified saplings
- Sale of ornamental and forest saplings
- Supply inputs to NGOs, orchard growers, private companies, etc

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Addresses of the 3 NGAs;

1- Umulbelad Ha NGA
Add: Mazar Mohammad Ibrahim market
Cell: +93(0)700049952
Email: ummul.belad.nga@gmail.com

2- Khulm NGA
Add: Balkh Khulm
Cell: + 93(0)799485749

3- Aybak NGA
Add: Aybak Sarak e Godam
Cell:+ 93(0)799102397
Email: aybak.nga@gmail.com

Stonefruit saplings available in all 3 Norther Zone NGAs

نهال های پیوندی خسته سنگی در تمام انجمن های قوریه داران زون شمال موجود است.
Central Aghanistan NGAs;
This zone consists of following associations;
1. Sayedkhail Nursery Growers Association (28 members)
2. Bagrame Nursery Growers Association (35 members)
3. Shakardara Nursery Growers Association (45 members)
4. Paghman Nursery Growers Association (76 members)
5. Logar Nursery Growers Association (22 members)
6. Sayedabad Nursery Growers Association (23 members)
7. Dr. Wakil Nursery Growers Association (43 members)
8. Maidan Nursery Growers Association (60 members)
9. Kahmard Nursery Growers Association (39 members)
10. Hakim Saneei Nursery Growers Association (16 members)

Introduction;
All the above NGAs are legal bodies registered with the Ministry of Justice and provide all possible supports to its members. The NGAs help members improve the quality of their production & sell the certified saplings with higher price.

Available MSNs: the above NGAs have following mother stock nurseries (MSNs);
1. Stonefruit MSNs in Bagram, Kapisa Sayedkhail
2. Grapes MSN Bagram
3. Apple MSNs Shakardara and Guldara
4. Cherry and stonefruit MSNs Paghman
5. Stonefruit and grapes MSNs in Logar
6. Stoolbed, stonefruit, Pomefruit MSNs in Maidan province (3 NGAs)
7. Stonefruit, apple MSNs in Kahmard
8. Stonefruit and stoolbed in Hakim Saneei NGA in Gazni province.

Main Productions;
Main production of certified the central zone NGAs are apples, pears, apricots, Cherries, almonds, peaches, grape and clonal rootstocks for apples

Services;
- Sale of certified and quality budwoods
- Sale of certified saplings
- Sale of ornamental and forest saplings
- Supply inputs to NGOs, orchard growers, private companies, etc.
- Technical staff for orchards layout, budding, pruning, spray, etc.

<table>
<thead>
<tr>
<th>Central Aghanistan NGAs</th>
<th>CENTRAL ZONE NURSERY GROWERS ASSOCIATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sayedkhail Nursery Growers Association (28 members)</td>
<td>1. انجمان قوریه داران فاریاب (۲۸ عضو)</td>
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<tr>
<td>2. Bagrame Nursery Growers Association (35 members)</td>
<td>2. انجمان قوریه داران بگرام (۳۵ عضو)</td>
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<tr>
<td>3. Shakardara Nursery Growers Association (45 members)</td>
<td>3. انجمان قوریه داران شاهرود (۴۵ عضو)</td>
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<td>5. Logar Nursery Growers Association (22 members)</td>
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<tr>
<td>6. Sayedabad Nursery Growers Association (23 members)</td>
<td>6. انجمان قوریه داران سیا آباد (۲۳ عضو)</td>
</tr>
<tr>
<td>7. Dr. Wakil Nursery Growers Association (43 members)</td>
<td>7. انجمان قوریه داران دقیق غیان کلی (۴۳ عضو)</td>
</tr>
<tr>
<td>8. Maidan Nursery Growers Association (60 members)</td>
<td>8. انجمان قوریه داران میدان (۶۰ عضو)</td>
</tr>
<tr>
<td>9. Kahmard Nursery Growers Association (39 members)</td>
<td>9. انجمان قوریه داران کهمد (۳۹ عضو)</td>
</tr>
<tr>
<td>10. Hakim Saneei Nursery Growers Association (16 members)</td>
<td>10. انجمان قوریه داران حکیم سنایی (۱۶ عضو)</td>
</tr>
</tbody>
</table>

Introduction;
All the above NGAs are legal bodies registered with the Ministry of Justice and provide all possible supports to its members. The NGAs help members improve the quality of their production & sell the certified saplings with higher price.

Available MSNs: the above NGAs have following mother stock nurseries (MSNs);
1. Stonefruit MSNs in Bagram, Kapisa Sayedkhail
2. Grapes MSN Bagram
3. Apple MSNs Shakardara and Guldara
4. Cherry and stonefruit MSNs Paghman
5. Stonefruit and grapes MSNs in Logar
6. Stoolbed, stonefruit, Pomefruit MSNs in Maidan province (3 NGAs)
7. Stonefruit, apple MSNs in Kahmard
8. Stonefruit and stoolbed in Hakim Saneei NGA in Gazni province.

Main Productions;
Main production of certified the central zone NGAs are apples, pears, apricots, Cherries, almonds, peaches, grape and clonal rootstocks for apples

Services;
- Sale of certified and quality budwoods
- Sale of certified saplings
- Sale of ornamental and forest saplings
- Supply inputs to NGOs, orchard growers, private companies, etc.
- Technical staff for orchards layout, budding, pruning, spray, etc.
Addresses of the 9 NGAs:

1-Sayed Khail NGA:
Add: Said Khil,Parwan
Cell: +93(0)799752889
Email: Sayedkhil.nga@yahoo.com

2-Bagram NGA:
Add: Bagram Robat village,Parwan
Cell: +93(0) 700029628
Email: bagram.nga@gmail.com

3-Logar NGA:
Add: Logar beekeeping building ,Puli Alam
Cell: +93(0) 772350853
Email: logar.nga@gmail.com

4-Shakardara NGA:
Add: Shakardara,Kabul
Cell: +93(0) 798718114
Email: Shakardara.nga@gmail.com

5-Paghman NGA:
Add: Dou deh mast village,Paghman,Kabul
Cell: +93(0) 700280657
Email: paghman.nga@gmail.com

6-Maidan NGA:
Add: Gulzar Market,Maidan
Cell: +93(0) 775181237
Email: maidan.nga@gmail.com

7-Dr.Wakil NGA:
Add: Sang e Siah, Maidan
Cell: +93(0) 799193259
Email: dr.wakil.nga@yahoo.com

8-Hakim Saniee NGA:
Add: Urgon previous bus station Ghazni
Cell: +93(0) 799471946
Email: ghazni.nga@gmail.com

9-Kahmard NGA:
Add: Kahmard,Bamyan
Cell: +93(0) 775851690
Email: Kahmard.nga@yahoo.com

Apple saplings available in all NGAs
نهال های پیوندی سیب در تمام انجمن های قوریه داران موجود است
Southern Zone NGAs;
The southern zone consists of following associations;
1. Dand Nursery Growers Association (23 members)
2. Helmand Nursery Growers Association (14 members)
3. Zabul Nursery Growers Association (21 members)

Introduction;
These NGAs were supported by ADA with project from EU. The NGAs are actively involved in the production of certified saplings. Each NGA has MSNs and certified nurseries producing true to type and healthy saplings to orchard growers.

Available MSNs: The above NGAs having following mother stock nurseries (MSNs);
1. Stonefruit MSN Dand district (361 MTs)
2. Pomegranate MSN Dand district (167 MTs)
3. Pomegranate & Stonefruit MSNs Helmand Province (280 MTs)
4. Stonefruit MSN Zabul Province (256 MTs)
5. Grapes MSN Zabul Province (106 MTs)

Main Productions;
Main production of certified the southern zone NGAs are Pomegranate, grapes, almonds, apricots, peach and plums.

Services;
• Sale of certified and quality budwoods and cuttings
• Sale of certified saplings
• Sale of ornamental and forest saplings
• Supply inputs to NGOs, orchard growers, private companies, etc
Addresses of the 3 NGAs:

1. Dand NGA
   Add: Gadiano Sarak Shop 2 Kandahar
   Cell: +93(0)700305406
   Email: knd-nga@yahoo.com

2. Helmand NGA
   Add: Agriculture Directorate Lashkargah
   Cell: +93(0)706906810
   Email: helmend.nga@gmail.com

3. Zabul NGA
   Add: Jalal Khan village, Qalat
   Cell: +93(0) 700382737
   Email: zabul.nga@gmail.com

Pomegranate saplings available in all South NGAs
نهال های پیوندی انار در تمام انجمن‌های قوریه نارن زون جنوب موجود است
Western Zone NGA;
The western zone consists of following association;
• Herat Nursery Growers Association (70 members)

Introduction;
The only largest association with more production of certified saplings is Herat Nursery Growers Association (NGA). The total area of Herat province is 54,778 sqkm. Herat is one of the thirty-four provinces of Afghanistan. The NGA is also active in Badghis, Farah, and Ghor province. The NGA has good relations with nursery growers in Iran and Turkmenistan and have been exporting saplings to these countries.

Available MSNs; The above NGAs having following mother stock nurseries (3 MSNs);
• Stonefruit MSNs in Enjil and Guzara districts (1,131 MTs*)
• Apple MSN in Karukh district (44 MTs)
• Cherry & Apple clonal rootstocks Guzara district (1 stoolbed) (369 MTs)

Main Productions;
Main production of certified the western zone NGAs are peach, Plums cherries, apricots almonds, apples and apple clonal rootstocks. The NGA is also producing large number ornamental shrubs and trees.

Services;
• Sale of certified and quality budwoods
• Sale of certified saplings
• Sale of ornamental and forest saplings
• Supply inputs to NGOs, orchard growers, private companies, etc

Certified cherries saplings available
Herat NGA sale point
Certified almond saplings available
Address of the NGA:

1- Herat: NGA
Add: Directorate of Agriculture, Herat Province
Cell: +93(0)708462422
Email: nga_herat@yahoo.com

Grape saplings available in all West NGAs

نهال های پیوندی گردو در تمام انجمن های قوریه داران غرب موجود است.
**ANNGO Executive Board Members**

**Name:** Abdul Sattar “Mubariz”
**Sapling production Experience:** 15 years
**Position in ANNGO:** ANNGO Board Chairman
**Province:** Kabul

**Name:** Aisa Jan “Atteq Ubdiani”
**Sapling production Experience:** 15 years
**Position in ANNGO:** Asst.ANNGO Board Chairman
**Province:** Nangarhar

**Name:** Shah Mohammad “Muhaqiq”
**Sapling production Experience:** 18 years
**Position in ANNGO:** Board finance
**Province:** Baghlan

**Name:** Haji Mohammad Shafi “Faizi”
**Sapling production Experience:** 16 years
**Position in ANNGO:** Encourage fundraising
**Province:** Kandahar

**Name:** Haji Mohammad Akram “Hashimi”
**Sapling production Experience:** 40 years
**Position in ANNGO:** Foreign relationship
**Province:** Balkh

**Name:** Abdul Nasir Khan “Haidari”
**Sapling production Experience:** 22 years
**Position in ANNGO:** Board Marketing
**Province:** Herat
Sheen Ban Agricultural Services Company is a community based agricultural services, inputs and capacity building company with years of experience in Afghanistan. Supply following agricultural inputs and services.

**Inputs:**
- True-to-type fruit tree and nuts saplings with ANNGO Certificate.
- Ornamental plants, flowers and roses.
- Agricultural tool kits and fertilizers.

**Services:**
- Provide upgraded knowledge and skills for farmers.
- Design and establishment of fruits tree orchards.
- Design and establishment of green houses.
- Landscaping.

Add: Company, Kabul, Afghanistan
Cell: +93 (0) 706814813, +93 (0) 777899080
+93 (0) 773120199
Email: sheenban@yahoo.com, Website: www.sheenban.com
هدف‌ها
نیرویی‌بنا بر مواد برای کشت، تولید مواد غذایی صحي و احیای
محدود منابع طبیعی ومدریت متر باز و رهگیری پاپاپارامیه نماهاد
اخیار درون‌اره جایگاه افغانستان قبل از جنگ در تولید میوه‌ها و جیره
پیشگام در تولید میوه‌ها با کیفیت عالی منطقه و جهان، به وسیله مواد زراعی
- اخلاق قوریه جات منجر و غير منجر
نیروی باز کم‌بسته به قیمت مناسب و رضایت از خدمات زراعی
سیستم 15 قوریه در سراسر افغانستان دارد در حدود ناله
12000 ناله به منظور داشت مارکت نوله، مبناشد
این ناله‌ها شامل نسی و درازه (گلادی)، نارنگی‌نکور آر، و سروی نسی
- ابتدای باعث های منجر
نیروی باز باعث
مزایا ناله از نگاه تحقیکی
مضرات ناله
- کنترل همه جانبه افاه و ادیبان جات زراعی
شرکت خدمات زراعی سیستم 15 جهت کنترل همه جانبه افانت
و اجرای دارای بروز کم‌متر نزدیک به شرکت ملی جهانی مبناشد
شرکت خدمات زراعی سیستم 15 اقدامی با کیفیت عالی جهانی ار
کم‌بسته های
- مه‌های جام جونه، نوار زراعی
- سیستم از آنتاسم‌ها و وسیله زراعی
- سیستم بروز، و استفاده مردمی
آدرس: تماس: 0767712171 / 0787712171 / 0799618683
آدرس ایمیل: info@samsoorban.com
آدرس وب‌سایت: www.samsoorban.com
Almond

بادام
<table>
<thead>
<tr>
<th>Flowering Time</th>
<th>Variety</th>
<th>Feb-دو</th>
<th>March-حوت</th>
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<tr>
<td><strong>Early Flowering Accessions</strong></td>
<td>ستار بایی سایز کندز</td>
<td>Sattarbai Sais Kunduz</td>
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<td></td>
<td>شاخ بز سفید</td>
<td>Shakh-i-Buz Safid</td>
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<td>قهار بایی</td>
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<td>کاغذی چهار دره</td>
<td>Kaghazi Chahar Dana</td>
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<td>کاغذی سیاه دانه</td>
<td>Kaghazi Sia Dana</td>
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<td>خیرالدین</td>
<td>Khairodini</td>
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<td>ستار بایی دوم</td>
<td>Sattarbai Doum</td>
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<td>قمیری کندز</td>
<td>Qambari Kunduz</td>
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<td>Sattarbai N° 4</td>
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<td>کف مال</td>
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<td><strong>Medium Flowering Accessions</strong></td>
<td>ستار بایی گل دار</td>
<td>Sattarbai Guldar</td>
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<td>ستار بایی ممتاز</td>
<td>Sattarbai Mumtaz</td>
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<td>نن پیریل</td>
<td>Nonpareil</td>
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<td>ستار بایی بخملی</td>
<td>Sattarbai Bakhmali</td>
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<td>ستار بایی لشمک</td>
<td>Sattarbai Lashmak</td>
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<td>کارمل</td>
<td>Carmel</td>
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<td><strong>Late Flowering Accessions</strong></td>
<td>قهار بایی ای خانم</td>
<td>Qaharbai Aykhanum</td>
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<td>دو مغزه سپین</td>
<td>Du Maghza Spin</td>
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<td>Shir Bai</td>
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<td>Tuonu</td>
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<td></td>
<td>جینکو</td>
<td>Genco</td>
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<td></td>
<td>سوری نووا</td>
<td>Supernova</td>
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</tbody>
</table>
Almond

Almond is one of the major crops of Afghanistan and large number of local varieties are available in the country. The soft shelled almonds of Afghanistan are famous through out the world. The almond growing areas in Afghanistan are Takhar, Kunduz, Baghlan, Gazni, Samangan, Balkh, Sar-i-Pul, Kabul, Parwan, Logar, Zabul, Uruzghan, Herat and Helmand provinces. All these provinces have prefect climatic conditions for almond production. Almond is Self-fertilizing late-flowering varieties are Genco, Tuono, Supanova.

The harvest takes place between July and August, depending on the cultivar. Traditionally fallen nuts are picked up from the ground. The rootstocks used in Afghanistan bitter almond, peach and GF 677. Bitter almonds is not suitable for land subject to waterlogging; Almond is Self-fertilizing late-flowering varieties are Genco, Tuono, Supanova.

The rootstocks used in Afghanistan bitter almond, peach and GF 677. Bitter almonds is not suitable for land subject to waterlogging; Almond is Self-fertilizing late-flowering varieties are Genco, Tuono, Supanova.

The accessions in the group are liked by consumers for direct consumption. It performs well in poor soils and drought also active lime content exceeding 12%. Over 100 accessions are available in the national collections in Mazar and Kunduz PHDCs.

**AFGHAN VARIETIES**

**SATTARBAI GROUP**

The cultivars are grown in all almond growing areas of Afghanistan. Over 650 mother trees are present in the MSNs of NGAs. The cultivars are early flowering, soft shelled. Kernel is Crescent Shape or Narrow Elliptic, medium sized, Kernel colour is light or red brown. Mostly used for direct consumption. This group consists of top export quality almonds of Afghanistan. These are one of the attractive and premiere export qualities for international markets and are exported to India, UAE and Central Asia.

**QAMBARI GROUP**

The origin of the cultivar is Khulm district of Balkh province. The MSNs of the group are distributed and certified saplings are available in all almond growing areas of Afghanistan.

The group is soft shelled. Medium size, elliptic shaped and red brown in color.

The group is one of the leading exporting accessions. The group performs well in poor soils and drought also active lime content exceeding 12%. Over 100 accessions are available in the national collections in Mazar and Kunduz PHDCs.

**ABDUL WAHIDI GROUP**

The group is one of the well-known exporting qualities, widely grown in Kunduz, Balk and Samangan provinces. The group is early flowering, hard shelled; kernel is Elliptic and light brown.

The accessions in the group are liked by consumers for direct consumption. The rootstocks used in Afghanistan bitter almond, peach and GF 677. Bitter almonds is not suitable for land subject to waterlogging; Almond is Self-fertilizing late-flowering varieties are Genco, Tuono, Supanova.

The accessions in the group are liked by consumers for direct consumption. It performs well in poor soils and drought also active lime content exceeding 12%. Over 100 accessions are available in the national collections in Mazar and Kunduz PHDCs.
KHAIRODINI GROUP

The origin of the accessions is center of Samangan province. Currently found in all MSNs of NGAs. Clone AFG0172 is mostly used accession for budwood in most of the NGAs.

The group is early flowering and hard shelled. The kernel is light brown in colour, large and crescent shaped.

The group has international market for its nut. The group is exported to India and central Asia.

KAGHAZI GROUP

The group consists of soft shelled cultivars which are early flowering, medium sized and dark chest nut brown kernel. Shir bai soft shelled narrow kernel almond is a new accession from Imam Sahib District of Kunduz province which has good local and international market.

The group is preferred for direct consumption by local and international consumers.

QAHARBAI GROUP

The origin of the group is almond growing areas of Afghanistan. Mother trees of the group are present in all MSNs.

The group is earliest flowering among all other groups of almond in Afghanistan. Shell of the nut is semi-hard. Kernel is Narrow Elliptic shaped medium sized and yellowish brown in color.

The local and international market wants the whole nut for direct consumption. The group is exported to India, Pakistan and central Asia.

IMPORTED VARIETIES

NONPAREIL & CARMEL GROUP

It’s one of the medium flowering and high yielding group. Its performance is impressive in most of the non-almond growing areas. Carmel and Nonpareil are semi-soft shelled. Nut is medium and flat. For better performance and yield Nonpareil is planted with Carmel

All the group members are processed for confectioneries and are locally used for direct consumptions. Nonpareil can be treated with salt and fried for value addition in the north of Afghanistan.

GENCO, SUPERNOVA & TUONO GROUP;

It’s one of the late flowering and high yielding group. Its performance is impressive in most of the non-almond growing areas. Nut is medium and flat. Genco, Supernova, and Tuono are hard shelled and flat nut as well. The members of the group are self-fertile.

All the group members are processed for confectioneries and are locally used for direct consumptions.
**MISCELLANEOUS GROUP**

This group of local accessions is grown in Kunduz, Balkh, Baghlan & Samangan provinces. The group is early flowering. The resistance to cracking of the group is low (soft shelled). Kernel is elliptic or crescent shaped medium sized and red brown to dark chest nut in colour.

The accessions in the group are used for direct consumptions and have good local market and international market, sold in neighboring countries.

**Almond Rootstocks**

**GF677**

Natural hybrid of "P. persica x P. amygdalus" selected by INRA and released in 1960. Young shoots are green, grown upright and produce feathers. It is a very vigorous rootstock, with high grafting compatibility and promoted elevated productivity. The rootstock is suitable for dry and calcareous soils with high percentage of lime. It is resistant to Phytophthora and very susceptible to Agrobacterium tumefaciens, Armillaria and root knot nematodes. Good fruit quality is observed on almost all kinds of soils. It's productivity is slightly reduced if trees are grown on fertile soils, in high density orchards and if grafted with early and/or vigorous varieties. GF677 is propagated mostly by micro propagation (in vitro), and it's one of the most popular rootstock on the market. It represent the standard for poor dry and calcareous soils. Despite these favorable traits GF 677 is excessively invigorating on fertile soils and summer pruning is required to balance the tree.

GF 677 mother trees in Badam bagh
درختان مادری جی اف 477 در بادام باغ

Micro propagation of GF677
تکثیر کوکک جی اف 477

Qambari (AFG0143)
قامبوری

Qambari (AFG2009)
قامبوری (2009)

Qaharbai
قهاربایی

Qambari
شرکت نهالستان هرات

خدمات مشوره دهی
• ظرفیت باعثه گردش و تکامل‌های جهیزه ای‌ان‌کور
• مشورت به‌طور مجزا از اختصاص انواع و یا انواع میوه‌های غالب در منطقه مختلف کشور
• مشورت در مورد استانداردها و مقررات کشور در زمینه گردش و تکامل میوه‌های اصیل
• دریافت میوه و انواع
• مشورت به‌طور مجزا از انواع و یا انواع میوه‌های غالب در منطقه مختلف کشور
• مشورت در مورد استانداردها و مقررات کشور در زمینه گردش و تکامل میوه‌های اصیل
• دریافت میوه

هدف همیشه‌گی شرکت نهالستان هرات ارائه خدمات متعدد از اندازه‌بندی و تولید انواع با بالاترین کیفیت و استاندارد می‌باشد و به چنین اهداف وظیفه شما در کشور نهال‌هایی را در آسیب‌ناپذیری به نهال‌هایی که در زمینه‌های در فناورانه ارائه می‌شود. به همین‌واکنش، شرکت نهالستان هرات، از نظر باعثه گردش و تکامل میوه‌های اصیل، به زمینه‌های در فناورانه ارائه می‌شود.

 تماس با ما
 آدرس: شرکت نهالستان هرات، شهر پارک نهالستان، باغ‌های هرات
 فکه‌های نهالستان هرات، خیابان استاندارد، شرق، هرات
 تلفن: 06322390417, 09795725848
 مشاب: info@heratplantnursery.com
 www.heratplantnursery.com

شرکت‌کاری:
• SHELADIA ASSOCIATES Inc-USA
• ITALIAN COOPERATION
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ما بهترین خدمات را برای شما ارائه می‌دهیم.
Apple
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APPLE

IMPORTED VARIETIES

The group consists of Fuji, Heise-Fuji Benishogun, Anna, Double Red Delicious, Red Chief and Saturn, Treco Gala, Gala, Mitsu, Royal Gala, Piro, Galaxy, Cripps Pink, Blushing Golden and Golden Delicious Starkspur. All the varieties in the group are either imported from USA or Europe. A short description of each for each member of the group is given below:

FUJI GROUP;

The Fuji variety is cross between two classic American apple varieties - Red Delicious and Virginia Ralls Janet. Fuji apples contain between 15 to 18 percent sugar levels, making them one of the sweetest varieties available. Fuji apples are typically large in size and have a long shelf life compared to other apples. Fuji apples can last between 5-6 months when kept refrigerated.

The appearance of the variety is Reddish stripes over yellow background color. Texture & Firmness is Firm and fine grain, very juicy. Internal Character is Creamy white, blush over yellow background color. Texture & Firmness is Firm and bright skin. It has an elongate shape with strongly marked skin. It has an elongate shape with strongly marked skin.

Red Chief is a variety of intense red color, although not uniform, and is highly aromatic but of sweet, tender and firm flesh. It is consumed fresh, stewed, cooked and roasted. It is available in the markets in September and it is sold, keeping all its quality, until June.

SATURN GROUP;

Saturn is cross of Starkspur Golden Delicious x scab resistant. It is originated from: England, United Kingdom in 1980 And Developed by: Dr Frank Alston. It has attractive fruit. The variety is either eaten fresh or good for juice extraction. The flavor quality is good and sweeter. It is heavy cropping and self fertile. It is also planted as pollinator with other varieties. The variety is generally resistant to diseases.

Red Chief GROUP;

Red Chief is a variety of intense red color, although not uniform, and bright skin. It has an elongate shape with strongly marked lobes. It is hardly aromatic but of sweet, tender and firm flesh. It is consumed fresh, stewed, cooked and roasted. It is available in the markets in September and it is sold, keeping all its quality, until June.
Red Delicious apple is also called locally Lebnani Sorkh. It’s one of the most famous, delicious and bright red colour American apple varieties. Cropping is heavy, mid late season flowering, self-fertile and tree vigor is medium. Fruit color is red while flesh is white. Consumers in Afghanistan like it for fresh consumptions. It is resistant to cedar apple rust, mildew, fire blight while susceptible to Golden Delicious apple which is locally also called Lebnani Zard one of the most important apple varieties of the 20th century, both as a commercial variety in its own right, and as breeding stock for many other varieties. The variety has very good flavor when home-grown. It is originated from West Virginia of US.

Fruit colour is yellow. Flesh colour is white to greenish, greenish yellow or creamy. Fruit size is variable (mostly medium).

Flesh texture is Crispy and Breaking. Flesh is juicy and good for fresh eating. The ripening period is very late. The cropping is heavy, partially self-fertile and good in pollinating other varieties.

Low Chill Group;

Anna is the low chill variety A very early season red colored Golden Delicious style apple variety, noted for its very low chill requirement of less than 300 hours. Its performance is good in eastern Afghanistan and comes to the market at the time when there are no local apples in the market. It is heavy cropping and self-sterile.
GALA GROUP;
This group consist of early varieties.
Gala is one of the most widely-grown apple varieties, with a sweet pleasant flavour, and good keeping qualities. The Gala Apple is a cross between Kidd’s Orange Red and Golden Delicious Apples. The Gala was first introduced from New Zealand in 1965. It has a sweet, creamy, yellow flesh. It is great eaten fresh and is excellent for many culinary uses.
The Galaxy Gala apple is medium in size with a juicy and moderately firm flesh. This variety has a high yield, maturing from the middle to late in the season. Galaxies have a yellow ground color with dark red to purple over the yellow. The Galaxy Gala apple is a natural mutation of the standard Royal Gala, and was discovered in 1985.
Mitchgla Mondial Gala vigour is strong. Its growth habit is half spread with opened angles within branches. The tree is a half-spur type. It bears essentially on 1 to 3 years old wood like Golden Delicious.
Good pollinators: Idared, Cox’s Orange Pippin, Golden Delicious, Granny Smith, Elstar, Glosber, Red Delicious, Fuji, Braeburn, Florina, Akane
Chilling requirements: same as Gala standard Shape: the fruit is truncated conic, half elevated, very regular and ribbed like the original variety.
Colour: MONDIAL GALA Mitchgla has a very beautiful deep red striped blush covering 3/4 to 4/4 of the skin on a yellow-orange background. Its colour is much more deep and bright than the original variety.

Gala Group

The Gala Group consists of early varieties. Gala is one of the most widely grown apple varieties, with a sweet, pleasant flavor, and good keeping qualities. It is a cross between Kidd’s Orange Red and Golden Delicious Apples. The Gala was first introduced from New Zealand in 1965. It has a sweet, creamy, yellow flesh. It is great eaten fresh and excellent for many culinary uses.

The Galaxy Gala apple is medium in size with a juicy and moderately firm flesh. This variety has a high yield, maturing from the middle to late in the season. Galaxies have a yellow ground color with dark red to purple over the yellow. The Galaxy Gala apple is a natural mutation of the standard Royal Gala, and was discovered in 1985.

Mitchgla Mondial Gala vigour is strong. Its growth habit is half spread with opened angles within branches. The tree is a half-spur type. It bears essentially on 1 to 3 years old wood like Golden Delicious.

Good pollinators: Idared, Cox’s Orange Pippin, Golden Delicious, Granny Smith, Elstar, Glosber, Red Delicious, Fuji, Braeburn, Florina, Akane
Chilling requirements: same as Gala standard Shape: the fruit is truncated conic, half elevated, very regular and ribbed like the original variety.
Colour: MONDIAL GALA Mitchgla has a very beautiful deep red striped blush covering 3/4 to 4/4 of the skin on a yellow-orange background. Its colour is much more deep and bright than the original variety.
Flesh: firm, juicy, yellow, the eating quality is the same than the original variety.
Size is identical than the original variety, the fruit size is medium to big, very homogenous.

Harvest is 10 to 15 days before Golden Delicious.
Storage: excellent storage until March at 2°C and until May in CA.

Mondial Gala Mitchell is usually consumed from September to March.

Yield is high and consistent. The tree is medium sensitive to fire blight, codlin and apple scab. The variety is early bearing with a precocious bud break.

A great variety, MONDIAL Gala Mitchell is much more coloured than the standard Gala. Easy to handle, a controlled thinning is necessary in order to get a good fruit size.

The Royal Gala apple is a cross between Kidd’s Orange and Golden Delicious apples which originated in New Zealand in 1960. These apples ripen early in the season, starting about the middle of August. It is a juicy apple that can be eaten raw, baked into pies, used in a sauce and cut up into a salad.

The Royal Gala apple grows to medium size, and has a rounded shape with red stripes and a yellow color underneath. The color can indicate the age of the apple since a light red coloring indicates that the apple was left on the tree longer before picking while a dark red coloring indicates that the apple was picked early on, and a dark red coloring indicates the age of the apple since a light red coloring indicates that the apple was left on the tree longer before picking while a dark red coloring indicates that the apple was picked early on.

PINK LADY GROUP;
The Pink Lady apple, also known as Cripp’s Pink apple, is a premium modern apple variety. It was developed in Western Australia and is a cross between Golden Delicious and Lady Williams apples. It has a white flesh and its flavor has a great balance of sweet and tart. It is best eaten fresh and is an excellent dessert apple.

BLUSHING GOLDEN & GOLDEN DELICIOUS STARKSPUR GROUP;
Blushing Golden is high yield variety in Afghanistan. Fruit is yellow with up to 50% of the fruit surface covered with a dirty orange-pink blush. Waxy yellow skin is rough, bruise resistant and will not shrivel even in storage. Flesh is yellowish white with a subacid flavor and a fermented aftertaste. Shape is conic and fruits weigh 0.35 to 0.4 pounds. A full rich flavor that develops in storage.

The Golden Delicious Starkspur is a sport variety of the Golden Delicious. The Golden Delicious Apple came from a seedling of the Grimes Golden Apple in West Virginia. It was introduced in 1900. It has a crisp juicy flesh. This apple is sweet and has a distinct flavor.
**MUTSU GROUP;**
The Mutsu apple is a cross of the Golden Delicious and Indo apples. It originated in Japan in 1930. It is sometimes called the Crispin apple, but is more commonly known as the Mutsu. The Mutsu is highly rated for ciders and sauces. It is a tart crisp apple and is great eaten fresh.

Piros is a high-quality top grade among the summer varieties with ripeness for consumption of minimum 3 weeks. It is characterised by a very low pre-harvest fruit fall, uniform ripeness and regular yield.

**LOCAL VARIETIES**

**NAZAK BADAN GROUP;**
Nazak Badan is the earliest cultivar maturing in Afghanistan, Nazak Badan is strong. Its growth habit is half spread with opened angles within branches. It is self-fertile and high yielding.

Chilling requirements: same as Gala
Color: Nazak Badan has a very beautiful deep red striped blush covering 2/4 of the skin on a yellow-orange background.
Flesh: loose and soft, less juicy, white, good for fresh consumption.
Size: identical than the original variety, the fruit size is small to medium, very homogenous.
Harvest: early to mid July, good market and sold with high price.

**Gروب متسو**

سیب متسو از دوره گردی سبب های گورنل ایلیشیز و ایدو بوجوا امده است. متشا ان چالن زد و سال 1930 یوجود امده است. می گردد، لینک بیورز لیبیشن مشوره ای از رونا برای جوز و مساله جا قابل اثر میشود. این می به سبب ترش و شکلت ام و برای مصرف نتایج پیش از میشود. پاروس از جمله علی ترین سبب های بین ویلی یک راستی با رنگ خورون در مدت کمتر از ۳ فهره میم. خصوصیاتی این است که فرآیند رویه متاسفه این سبای خشک نسبت به میوه این باید. متسو بسیار ترش و شما این است که قبل از رفتن حاشیه میوه این می و به نمک پیمان می‌گردد و حاصل منظم دارد. درخت که با شکل تدبیری و اهتمام منفی می‌شود، متسو مشهور است. متسو بسیار ترش و شما این است که قبل از رفتن حاشیه میوه این می و به نمک پیمان می‌گردد و حاصل منظم دارد.

پایروس ای جمل مالی ترین سیا ها بین ورایتی اماایه برا جوس و مساله ۱۲۲۰ اسپا ها شولان ایلیشیی و ایماو بوجوا آماه اسا.

**ورایتی های محلی**

گروب نازک بدن

سیب نازک بدن وراوندزرس است که در افغانستان پیش از چالن واقع میشود. خصوصیاتی نمی‌بینیان آن به روناگر و شیانی های ای دارای وراوندزرس است. کلکل می باشد. این وراوندزرس سبب خوان بارور و حاصل زیاد را تولید می کند. ضرورتی ها برای ایجاد وراوندزرس برای کمی از طرفین سبک می باشد. نتایج می باشد. نتایج می باشد. این وراوندزرس در طول زمان و در طول زمان های مختلف می‌تواند تولیدکننده خواهد شد.

نیروهی با وی اوقاا با رنگ زرد برا خوران ار ماا ۱ هات  بعاای جمع آور برا پخت می شوا. خاصیت این که دکت میوه آن زرد میباش، میوه آن ب  ش ل ی سان پخت میشود. این سیا ترش و شما این است که قبل از رفتن حاشیه میوه آن ممی رییا، میوه آن ب  ش ل ی سان پخت میشود و داصل ممظز اارا.

اماایه: این سیا ترش و شما این است که قبل از رفتن حاشیه میوه آن ممی رییا، میوه آن ب  ش ل ی سان پخت میشود و داصل ممظز اارا. میوه طعز و بو خوش ااشت، ش مماه، موایم خوبی بین مواا قما و ترشی آن چنگار. آهست سر داصل می آیا، لی ن ار اواخیر پر داصل و تولیا ممظز اارا. جمع آور  میوه ار اخیر ماه جولا یا اوایل ماه اگست می باشد. وقغ میوه در اهی جولای با اولی ماه اسپا ها با رنگ های مختلف ورایتی های محلی باشد.

میوه که دکت میوه آن زرد برا خوران ار ماا ۱ هات  بعاای جمع آور برا پخت می شوا. خاصیت این که دکت میوه آن زرد میباش، میوه آن ب  ش ل ی سان پخت میشود. این سیا ترش و شما این است که قبل از رفتن حاشیه میوه آن ممی رییا، میوه آن ب  ش ل ی سان پخت میشود و داصل ممظز اارا.
Rakhsh is one of the famous cultivar grown in Badakhshan province of Afghanistan. Its vigorous and strong. Its growth habit is spread with opened angles within branches. The tree produces pleasant smell during fruiting. The trees are high yielding.

**Colour:** Rakhsh has a very beautiful deep red striped blush covering 3/4 to 4/4 of the skin on a greenish white background. Its colour is much more deep and bright than the original variety.

**Flesh:** soft flesh, less juicy, white, the eating quality are the same than the original variety with a taste

**Size:** The fruit size is medium to big.

**Harvest:** Mid-August in Badkhshan province

**Storage:** fruit matures mid-August and can only be stored for 2 to 3 weeks under special conditions.

The variety widely grown in Afghanistan is Double Red Delicious. Double Red Delicious is a sport of the Red Delicious whose defining character is its very red skin. The Double Red has the same taste and texture as its parent. Red Delicious is a very popular eating apple and is the most widely grown in America. The Red Delicious, like many other cultivars, was a chance seedling. Fruit is firm with red skin with darker red streaks, and five "points" on the bottom. Double Red Delicious has white flesh that is aromatic and sweet, with a bit of a crunchy texture to it. Keeps very well, and is often used for decoration. The bloom time is mid-April while fruit ripening time is mid-September.
Apple Rootstocks

**M9**

Originated from seedling of the French cultivar "Paradis Jaune de Metz" released in the market in 1930. Weak vigor with intermediate growth habit. The root system is not very spreading, superficial, and composed of fragile primary roots and hairs. Anchorage in the soil is poor and trees need a support. Average suckering activity. Plants easily produce roots and can be propagated by the common layering methods. Not suitable for hardwood cutting. This rootstocks prefers fertile, permeable and irrigated soils, and do not perform well in dry or heavy and/or moist soils. Its early flowering, makes it sensitive to low winter temperature. It is also sensitive to fire blight, crown gall and woolly apple aphid. Medium sensitive to powdery mildew and scab. Suitable for most soil types, susceptible to fire blight.

**B9**

A cross between "M8 x Red Standard" a hardy rootstock of Russian origin. In general, B.9 is slightly more dwarfing than M.9 and has slightly higher yield efficiency than M.9. B.9 was selected as a dwarfing cold hardy rootstock and initial inoculation results indicated that it was as susceptible to fire blight as M.9. However, in field trials, trees grafted onto B.9 survived fire blight outbreaks better than trees on other dwarfing rootstocks. B.9 becomes more resistant to fire blight as the tissue ages. Requires staking or other support to keep anchored. Resistant winter cold and to collar rot. Mildly resistant to powdery mildew and scab. Suitable for most soil types, susceptible to fire blight.
Hybrid of the rootstocks “M16 x M9”, commercially introduced in 1959. Trees are slightly more vigorous than M9, and show an intermediate growth habit. Shoot growth straight, are reddish brown and medium pubescent. The root system is stronger and better developed vertically than the one of M9. Anchorage is not always satisfying, and according to the soil type, a support might be needed. Trees produces few suckers. The rootstock has a high rooting potential and can be easily propagated in stool beds, hardwood cutting root fairly well, while micro propagation leads only modest results. Problems concerning compatibility might occur with bud grafting (for ex. In Granny Smith and Imperatore). M26 prefers fertile permeable and irrigated soils and does not thrive in asphatic conditions; drought could be tolerated until a certain extent.

Tree vigor is negatively affected by the high tendency to produce burk knots which leads to irregular growth of trunk and branches. The rootstock is suitable for medium density orchards.

M7

Enotype of unknown origin obtained in UK in pre-war times. Trees are medium vigorous, shoots growth straight and are composed of long reddish brown internodes. Leaf buds are small. The root system provides a very good anchorage in the ground. Suckering activity is common. Trees adapt their self well to all kind of soils except for heavy, asphatic and wet ones. M7 is more resistant to low winter temperatures than M9. It is sensitive to crown gall and wooly apple aphid. It is tolerant to collar rot and fire blight.

Excellent grafting compatibility with the main cultivars. In terms of production and early bearing M7 is the most efficient of medium vigorous rootstocks. Fruit size and quality are good. M7 promotes a similar tree vigor as MM106 and is therefore suitable for medium-low density orchards. Due to its low sensibility to collar rot could be used as alternative to MM106. However it is too vigorous for high density orchards.
The MM111 is too vigorous for standard type of varieties especially varieties. Medium density orchards could be established in rain fed rootstock is particularly recommended for non blight (Erwinia amylovora). It is resistant to woolly apple aphid. This rootstock generally adapts well to all kinds of soils but fears asphictic and wet conditions. On sandy soils it is moderately sensible to hardiness cuttings. MM111 adapts well to different kind of soils and particularly dry and calcareous ones. It is moderately sensible to waterlogging but very resistant to winter frost. The rootstocks shows low susceptibility to collar rot (Phytophthora cactorum), fire blight (Erwinia amylovora). It is resistant to woolly apple aphid. This rootstock is particularly recommended for non-vigorous or spur varieties. Medium density orchards could be established in rain fed or scarce fertility areas, hilly or mountainous zones with poor soils. The MM111 is too vigorous for standard type of varieties especially on fertile soils where it tends to produce smaller fruit and make the orchard management difficult.

**MM106**

Hybrid of "Northern Spy x M1", commercially introduced in 1952. Trees are medium high vigor with upright growth habit, shoot and produce feathers. The root system is well developed both vertically and horizontally, anchorage is good and no support is needed. Low suckering activity and production of burr knots at the base is very scarce. MM106 is very susceptible to collar rot, and tomato ring spot virus. It has low susceptibility to fire blight, and apple scab. Resistant to wooly aphid. This rootstock generally adapts well to all kinds of soils but fears asphictic and wet conditions. On sandy soils it is moderately sensible to hardiness cuttings. MM106 has confirmed its suitability for the M9 clones. This rootstock is recommended for medium low density orchards. Fruit size and quality are lower with respect to other dwarfing clones as trees are medium vigorous and enter early into productivity. Fruit may give sensitivity to low winter temperatures and to fire blight.

Hybrid of "Northern Spy x Merton793", commercially introduced in 1952. Trees are medium vigorous with upright growth habit, shoot and produce feathers. The root system is well developed both vertically and horizontally, anchorage is good and no support is needed. Low suckering activity and production of burr knots at the base is very scarce. MM111 makes it not reliable for orchards established in valleys and on humid soils. MM111 is very susceptible to collar rot, and tomato ring spot virus. It has low susceptibility to fire blight, and apple scab. Resistant to wooly aphid. This rootstock generally adapts well to all kinds of soils but fears asphictic and wet conditions. On sandy soils it is moderately sensible to hardiness cuttings. MM111 has confirmed its suitability for the M9 clones. This rootstock is recommended for medium low density orchards. Fruit size and quality are lower with respect to other dwarfing clones as trees are medium vigorous and enter early into productivity. Fruit may give sensitivity to low winter temperatures and to fire blight.
One of the Gala variety, soon after harvest in Badam Bagh Research Station, Kabul
Organization Brief

Afghanistan Almond Industry Development Organization (AAIDO) established on 1st December 2007, as a nongovernment national organization registered with the Ministry of Economy (Registration # 1366). AAIDO is formed by national experts, almond nursery producers, almond farmers, processors, and exporters to promote the almond industry in Afghanistan.

Mission Statement

The mission of the Afghanistan Almond Industry Development Organization (AAIDO) is to link producers, traders, support businesses, NGOs and government into a collaborative effort to build the Afghan almond industry.

Our Objectives:

To increase the value/volume of Afghan almond sales by assisting the Afghan industry to increase its productivity and delivery of quality products and services to its domestic and international buyers.

To promote the development of a support industry providing agricultural inputs, banking, insurance, marketing infrastructure and services focused on the almond industry.

To bring collaboration and coordination among the public and private sectors to remove barriers towards industry development and create a supportive regulatory environment that encourages the growth of the industry.

Our Target Local Markets:

Balkh, Kunduz, Kabul, Ghazni, and Kandahar

Our Target International Markets:

India, Pakistan, Central Asia, China, Europe

Our Target Production Area:

Balkh, Samangaan, Kunduz, Sar e Pul, Ghorband, Kabul, Logar, Laghman, Ghazni, Zabul, Oruzgan & Helmand

AAIDO Services to Almond Producers:

- Trainings on GAP & BNP
- Provides Certified Ag input & supplies on Credit
- Links to National & International Buyers
- Coordinate with MAIL, programs and NGOs on almond production

Services to Exporters:

- International Market Match Making
- Provides Export Loan to Exporters
- Links to Certified/Quality Sources of Supplies
- Lobby with Gov. & International Community to Solve Issues

Our Contact Information:

Javid Hamidzada, Chief Executive Officer
Tel: 07999-758977
Email: j.hamidzada@aaido.af, info@aaido.af
Apricot

زردآلو
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APRICOT;
LOCAL VARIETIES;
AMIRI GROUP;
One of the medium late varieties of Afghanistan. The variety is mostly grown in Maidan wardak, Logar and Kabul provinces. The chilling requirement for the group is very high and fruit matures last week of July in Kabul. Fruit is large sized, ovate shaped and light orange to yellow green in colour. The kernel of the seed is sweet. The group is cross pollinated.
The group has good fresh market and also suitable for drying.

BADAMI & CHARMAGHZI GROUP
The group consists of low chill cultivars. The group flowers in last week of March and matures in Late July in Kabul Badam bagh research station. Fruit is medium in size, yellow or light orange in colour and oblate in shape. Kernel is sweet. Clone AFG6215 is self-fertile, Badami clone AFG6212 is partially self-fertile while the other members of the group are cross compatible.
The group has good market for fresh consumption.

CHARKHI GROUP;
The group of cultivars introduced from Charkh district of Logar province. The group flowers in last week of March and fruit matures in first week of August in Badam bagh, Kabul. The fruit is large to medium sized, yellow green in colour and varies in shapes. Kernel is sweet. The group is cross pollinated.
The group is mostly suitable for drying and processing.

QAISI GROUP;
One of the famous local group of cultivars of Afghanistan. The group flowers in last week of March and fruit matures third week of July. Among the group members clone AFG4041 matures only in last week of June. Fruit is light orange in colour, ovate shaped and medium sized. The Kernel is sweet. The group is cross compatible.
The group has good fresh market.
SAQI GROUP:
One of the famous cultivar of Kahmard district of Bamyan Province. The cultivar flowers in last week of March and matures in mid-July. The fruit is orange in color and medium size. Kernel is sweet. The cultivar is cross compatible.

In Kahmard district of Bamyan province people process the apricot for Chapa neim mak (a special folded dry apricot).

IMPORTED VARIETIES GROUP
The group consists of imported varieties from Europe and America. Based on production, the performance of the group is impressive. The varieties flowers in the last week of March in Badam Bagh, Kabul. Tom cot, Gold kist & pink cot are the earliest varieties mature in late June in Kabul. Varieties like Patterson & Turki matures in mid-July. Fruit is Large in size, light yellow to yellow green in colour. Varieties like Patterson and Turki are self-fertile, Tom cot and Gold Kist are partially self-fertile while the remaining varieties are cross compatible. The taste of kernel is bitter. The group has good fresh market.

SHAKARPARA GROUP:
One of the well-known group of cultivars of Afghanistan. Fruit can remain on the tree until it dries. Mostly grown in the center, west and south-west provinces of Afghanistan.

The group flowers during late-February to early-March and fruit matures in the last week of July. If the fruit not harvested can remain on the tree and dries in a month. Fruit is small, very sweet, and yellow green in colour. Kernel is sweet. Shakarpara clone (331, 464, 478 & 826) are self-fertile while the other cultivars in the group are cross compatible.

Fresh fruit has no market while dry fruit (locally called Shakarpara) has best local and international market.
MISCELLANEOUS GROUP;

The group consists of different cultivars originated from different provinces of Afghanistan. The group flowers last week of March and fruit matures mid-July in Badam bagh Agriculture Research Station. Cultivars like Pir Naqshi and Sheikmiri matures earlier in group (matures in mid-June).

Fruit is medium in size, yellowish to yellow green. Kernel is sweet except for Pri Naqshi and Nooraghai. Maidani and Pir Naqshi are self-fruitful while the other cultivars are cross compatible.

All the cultivars are good for fresh and processing.

APRICOT ROOTSTOCK

MYROBALAN 29C

Clone selected from a progeny of Prunus cerasifera, released for the first time in 1980. Suitable for calcareous soils, moderately resistant to Agrobacterium tumefaciens and leptonecrosis, susceptible to pseudomonas syringae and resistant to root knot nematodes. This clone adapt itself well to different soils (calcareous and dry ones) and is moderately resistant to waterlogging. It promotes early bearing and suckering activity is generally low. Myrobalan 29C is the most widely used rootstock for plum. It is appreciated for its adaptability as well as for the promotion of good yields and fruit quality. Recommended also for apricot.
ANNGO SERVICES;

- PROVIDE TECHNCIAL ASSISTANCE TO ALL NURSERY GROWERS IN AFGHANISTAN.
- REGISTER, INSPECT AND CERTIFY ALL ELEGIBLE FRUIT TREES NURSERIES AND ISSUE LABEL FOR THE CERTIFIED NURSERIES.
- RELEASE TRUE- TO TYPE AND FREE OF VIRUS MOTHER TREES TO MSN OWNERS OF NURSERY GROWER ASSOCIATIONS.
- PROVIDE VIRUS FREE CLONAL ROOTSTOCKS FOR ALL SPECIES TO NURSERY GROWERS.
- PROVIDE ALL TYPE OF TECHNICAL TRAININGS TO FIELD OFFICERS/AREA COORDINATORS AND EXTENSION OFFICERS OF NGOs AND EXTERNAL PARTIES WORKING IN THE FIELD OF NURSERY DEVELOPMENT IN AFGHANISTAN.
- PROVIDE VIRUS INDEXING, FUNGAL AND BACTERIAL TESTING SERVICES TO ORCHARD GROWERS AND NGA MEMBERS.
- ANNGO PROVIDES CERTIFIED AND TRUE-TO-TYPE BUDWOOD OF ALL FRUIT SPECIES AVAILABLE IN AFGHANISTAN TO NURSERY GROWERS.
- FACILITATE MOVEMENT OF CERTIFIED SAPLINGS OF NGA MEMBERS TO ALL PROVINCES OF AFGHANISTAN & EXPORT TO OTHER COUNTRIES.
- PROVIDE CITRUS SEED MOHTER TREES AND CERTIFIED SAPLINGS OF ALL SPECIES OF CITRUS TO ORCHARD GROWERS.
خدمات موسسه ملی قوریه داران افغانستان:

- فراهم کردن کمک‌های تехنیکی به تمام قوریه‌داران افغانستان.
- بررسی، تفیض و تصدیق تمام درختان مادر قوریه‌ها به‌وسیله شرکت‌های تخصصی.
- توزیع درختان مادری نوع مطلوب به اصل و عاری از امراض ویروسی به مالک‌های قوریه‌ها.
- تهیه یک‌پاره‌های مادری از تمام انواع درختان مادری برای کاربرد در برخی از ویروس‌های قوریه داران.
- فراهم کردن کورس‌های تربیتی به مامورین ساحه‌ی سازنده و مامورین ترویج ویروس‌های مادری به قوریه‌داران.
- فراهم کردن خدمات تشخیص ویروس و تشخیص امراض قارچی و بکتریایی به مالک‌های قوریه داران.
- فراهم کردن پیوند نهال‌های پیوندی و عاری از امراض ویروسی به مالک‌های قوریه‌داران.
- تسهیل نقل و انتقال نهال‌های مادری در داخل و خارج از افغانستان به‌وسیله مالک‌های قوریه داران.
- فراهم کردن درختان مادری ستروس به مالک‌های قوریه‌داران به‌وسیله مالک‌های مادری ستروس در مختلف ولایات افغانستان.
**Result of Apricot self pollination trial in Badam Bagh PHD Centre, 2009**

<table>
<thead>
<tr>
<th>Variety</th>
<th>no. of flowers pollinated</th>
<th>no. of fruit set</th>
<th>% Fruit set</th>
</tr>
</thead>
<tbody>
<tr>
<td>JA 6215 (Charmaghzi)</td>
<td>17</td>
<td>6</td>
<td>35%</td>
</tr>
<tr>
<td>JA 6212 (Badami)</td>
<td>25</td>
<td>5</td>
<td>20%</td>
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**Result of Apricot self pollination trial in Fac. Agric. Kabul University, 2009**

<table>
<thead>
<tr>
<th>Variety</th>
<th>no. of flowers pollinated</th>
<th>no. of fruit set</th>
<th>% Fruit set</th>
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<tr>
<td>Korpa</td>
<td>95</td>
<td>9</td>
<td>9%</td>
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<tr>
<td>Charmaghzi</td>
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<td>Bidmushk</td>
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<td>Shakparpa</td>
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<tr>
<td>Nooraghai</td>
<td>83</td>
<td>16</td>
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<td>Saqi</td>
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**SUMMARY OF SELF POLLINATION TRIAL RESULTS 2010-2012**

<table>
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<th>Varieties considered self fertile based on trials 2010-2012</th>
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<tr>
<td>206 (Amiri)</td>
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<tr>
<td>268 Ambercot</td>
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<tr>
<td>4037 Aqa Banu</td>
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<td>362 Bada Ghor</td>
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<td>6213 Badami Dir Ras</td>
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<td>4025 Baghal Sorkh</td>
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<tr>
<td>6310 Charmaghzi</td>
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<td>6215 Charmaghzi</td>
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Note accession 206 is very close to Turki 6313, and is misnamed as an Amiri type.
**Self Incompatible Varieties That Must Be Planted With A Pollinator**

The following varieties consistently produced very little or no fruit when self pollinated. They must be planted with other varieties to produce crops of fruit.

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<td>456</td>
<td>Hazara</td>
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<td>832</td>
<td>Jauras</td>
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<td>834</td>
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<td>453</td>
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<td>835</td>
<td>Jauras</td>
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**The accessions 309 (Amiri), 329 (Amiri), 453 (Amiri), are not considered to be true Amiri types based on fruit qualities. The accession 831 (Charkhi) is considered to be an Amiri type.**
ANNGO & ANHDO Technical Staff

Working team biotechnology lab
Cherry
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SOUR/TART CHERRY

tart cherries produce smaller fruit and grown for processing and mechanically harvested.

Tart cherry trees are more cold-hardy, but still suffer from summer heat, Tart cherries bloom later and generally suffer much less bacterial canker, fruit cracking and brown rot than do sweet cherries. Tart cherries are smaller tree, growing about 20 feet tall in nature and begin bearing earlier, often just 3 to 4 years after planting. Tart cherries produces 55 to 65% of their crop on shorter-lived spurs that produce for 3 to 5 years and the rest of the crop from lateral fruit buds on one-year-old branches like those of peaches.

Fruit buds of both (tart & sweet cherries) species produce clusters of 2 to 5 flowers, but fewer fruit per cluster usually set for tart cherry than for sweet cherries.

All tart cherry cultivars are self-pollinating and solid blocks of just one cultivars are often grown.

Tart cherry cultivars all have bright red to dark red fruit skin and are classified into two fruit types based on flesh and juice color. Some of tart cherry cultivars are greater cold hardiness, later bloom, smaller tree size, early bearing, sweet fruit.

In Afghanistan, two local cultivars are available, one for fresh and another for drying.

Tart cherries are self-pollinating and many growers produce only one cultivar.

Where one cultivar is the main crop and the pollenizer cultivar is desired in less quantity, pollenizer trees can be planted in every third row to produced 33% of the crop, or as every third tree in every third row to produce 11% of the crop.

Tart cherries rarely suffer from cracking. All the Mahali cherries are sour cherries.

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SWEET CHERRY

Sweet cherries produce larger, meatier and sweeter fruit than tart cherries. Sweet cherry grown for fresh market must be hand harvested. Sweet cherry trees are sensitive to both winter cold and summer heat.

Fruit buds of sweet cherries produce clusters of 2 to 5 flowers, but more fruit per cluster usually set for sweet cherry than for tart cherries. Many newer cultivars of sweet cherries are self-fertile, but growers must choose several different cross-compatible cultivars to provide cross pollination for most sweet cherries.

Sweet cherry cultivars: Sweet cherries grown for fresh market are usually dark red, large firm-flashed cultivars with high flavor. Many of these cultivars are very susceptible to fruit cracking, doubling, brown rot, bacterial canker and cold damage.

Bing has long been the predominant fresh sweet cherry cultivar due to its high fruit quantity. But some new cultivars offer better resistance to cold, fruit cracking, fruit doubling.

Sweet cherry grown for processing most often have clear yellow skin or yellow with a red blush. Sweet cherries that coming into bearing later, such as Bing or Lapins do best on rootstocks such as Malling 11 that induce greater spur formation. Cultivars which naturally bear heavy yields starting at a young age, such as Chelan, or sweetheart sweet cherries can set excessive fruit on Gisela 5. Cultivars with a more spreading tree form need less training and corrective pruning.

Most sweet cherry growers produce several cultivars, some of which are self-inferfertile and must be interplanted with a fertile or cross compatible polliner cultivars to assure good fruit set.

A common layout is to plant a row of each cultivar, with self-fertile or polliner cultivar rows placed between cultivar rows that need cross-pollination and repeat that pattern of rows across the orchards.

Where one cultivar is the main crop and the polliner cultivar is desired in less quantity, polliner trees can be planted in every third row to produced 33% of the crop, or as every third tree in every third row to produce 11% of the crop.

Reducing fruit cracking:
CHERRY ROOTSTOCK

COLT
Hybrid between “P. avium x P. pseudocerasus”, commercially introduced in 1977, could be used for sweet and sour cherries. This rootstock is suitable for most type of soils included heavy and wet ones. It is sensitive to high lime contents and to water shortage, tolerates replanting. It is quite sensitive to low winter temperatures, and crown gall. It is medium tolerant to bacterial canker and has a good susceptibility to root and collar root. Grafting compatibility is very high to the main sweet cherry cultivars. Tree vigor is similar as on sweet cherry seedlings (P. avium), or might be increased by 20%. Could cause a slight delay in flowering and ripening time. This rootstock is particularly recommended on tired and/or heavy soils. It is also suitable for specialized and irrigated cherry orchards of medium-low (300/400 trees/ha) or medium (500 trees/ha).

MAHALEB SL64
P. Mahaleb is autochthonous of central-south Europe. Tree are very vigorous and have an intermediate habit. The root system is composed of very deep growing and poorly ramified tap roots. Trees are firmly anchored to the ground and suckering activity is very low. The rootstock needs light and well drained grounds and thrives also in stony and marginal soils. Trees are very tolerant to high lime contents and perform well also in dry rain fed conditions; very sensitive to water logging and replant disease, but resistant to low winter temperatures. It is little sensitive to crown gall and collar and white rot. Good grafting compatibility has been reported with the main cultivars of sweet cherry. Tree vigor may vary by 80/90% more than P. avium seedlings. Mahaleb is considered a very rustic rootstock suitable for rain fed orchards of medium density (400/700 t/ha).

MAZZARD
Large, vigorous tree, not precocious. Adapted to loam to clay-loam soils. Moderately tolerant of poorly-drained soils. Can be produced in stool beds. Standard rootstock for sweet cherries; unpruned tree height of standard varieties is 30-40 ft.; trees may be held to any height with summer pruning. Vigorous, more tolerant of wet soils than Mahaleb, but good drainage still required. Resistant to root knot nematodes and oak-root fungus. Well anchored. Relatively cold hardy.

Mahaleb SL64 Mother

Mahaleb SL64

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64

درخت مادری محالب اس ال
GISELA 5

Dwarfing hybrid between “P. cerasus x P. canescens” introduced commercially in 1990. The root system is well developed with roots growing mainly horizontally. Suckering tendency is very low, anchorage is very low, trees therefore needs a support. Gisela 5 thrives well on different kinds of soil, provided they are fertile and well supplied of water. Could endure short periods of waterlogging, but fears loamy soils. It is moderately tolerant to chlorotic conditions but do not adapt itself to poor and dry soils. The rootstock is sensitive to root and collar rot and very sensitive to bacterial cancer especially under wet conditions. It has an high rooting potential and it can be easily micro propagated. Good grafting results are obtained with summer budding of dormant buds (T or chip budding). Also winter grafting leads to good taking rates both in the field or by bench grafting. Gisela 5 has good compatibility with the main cherry varieties. Trees are 60/80% weaker than on seedlings depending on environmental conditions. This dwarfing rootstock is suitable for high density orchards (800/1500 t/ha) on fertile and well irrigated soils, requires heavy and regular pruning in order to avoid overload.
ANNGO's Mother Stock Nursery (MSN) inspection & registration

Label printing process for certified sapling
Citrus

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Citrus are subtropical, evergreen plants originating in Southeast Asia, but the precise origins are obscure. There are about 1600 species in the subfamily Aurantioideae. The tribe Citreae has 13 genera, most of which are graft and cross compatible with the genus Citrus. There are some tropical species (pomelo). All Citrus combined are the most important fruit crop next to grape. Lemons and limes and sour orange may have been mutations of the citron.

Citrus classification based on morphology of mature fruit (e.g., juice sacs and vesicles) and is considered confused at present. The species originated from species with compound leaves, and although leaves are simple, all contain wings as appendages. The citrus species originated from species with compound leaves, which complicates the horticultural classification.

**Cultivated Familiar Citrus Species**

Include:

1. *C. aurantifolia* (lime, sour orange).
2. *C. grandis* (pomelo).
3. *C. limon* (lemon).
4. *C. medica* (citron).
5. *C. paradisi* (grapefruit).
7. *C. sinensis* (sweet orange).

Citrus grows best in a band 30° latitude on either side of the equator. It is a true subtropical crop. Good growing temperatures are 75–80°F, but 40°F good for rest, development of acidity, and color. Quality is best where there is a certain amount of low temperature. Peel color is especially related to temperature. Low temperature brings out orange color.

These are juvenile characteristics and is the reason why all citrus produced commercially is propagated by grafting (usually budding) despite the fact that many citrus comes up true-to-seed due to nucellar embryony.

Flower bloom is profuse; about 40,000 flowers are produced on a 10-year-old tree but only 1–5% of the flowers set fruit.

Flower parts are in sets of five (5 petals, 20 stamens, 5 sepals, 10 sections in a fruit, usually).

Most citrus species are self-fertile and have perfect flowers but usually produce fruit from cross pollination.

The species present in the national collection of citrus in Farm-i-jadid are generally described as:

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Because of their distinct origin, distribution and characteristics, which differ from other mandarin types the deliciosa, nobilis and unshiu types, were earlier described as independent species.

As might be expected, this group is quite varied and exhibits a wide range in both tree and fruit characters.

These types are characterized by small flowers and leaves and small to medium-large fruits. Clementine, Satsuma's and some ordinary mandarins belong to the so-called "easy peelers". Their skin is soft and loose.

Some of the varieties of Citrus reticulate characterized below are "tightskin" mandarins. Although peelable, their rinds are much more tightly adherent than the loose skin mandarins and puff very little, if at all.

Millions of dollars are being spent each year by traders to import kinnow mandarin from other countries to Afghanistan.
LEMON (CITRUS LIMON)

The lemon tree is vigorous, upright-spreading, and open in growth habit. The true lemon tree reaches 3-6 m in height. It attains large size under favorable conditions if not controlled by pruning. Seedlings and most varieties are comparatively thorny, with relatively short and slender spines. The flowers, which occur in clusters produced throughout the year, are large and purple-tinted in the bud and on the lower surface of the petals. The new shoot growth is purple-tinted.

Although more resistant than the citron and limes to cold and heat, the lemon is much more sensitive than the other citrus fruits of major importance, and hence its commercial culture is restricted to subtropical regions of mild winter temperatures.

Relatively equable growing-season temperatures are advantageous in that they seem to emphasize the ever-flowering tendency and are favorable for fruit-setting.

In Afghanistan major lemon growing areas are in east and north east provinces of Laghman, Kunar, Nangarhar and Kunduz provinces. ANNGO is also trying to expand the programme to Helmand, Kandahar provinces of Laghman, Kunar, Nangarhar and Kunduz provinces.

The sour lime is better adapted to both heat and humidity and is generally preferred.

In addition, lemon size is undesirably large in relation to market demand, rind diseases are prevalent, and storage is difficult and expensive.

The fact that the lemon is grown primarily for the acid it contains, a constituent which is at its maximum prior to the attainment of horticultural maturity, affords possibilities in fruit-handling which have found numerous and important applications in practice.

The lemons are then "cured" by storing them in a controlled temperature and humidity environment to mature them until the rind color is yellow.

Degreasing is often needed.

Although a large number of lemon varieties is presented below lemons do not show the same degree of varietal diversity that can be found for example in oranges or mandarins. The characteristics of a variety do not differ from other lemon types in the same degree that is common in other citrus fruit. It is often very hard even for a seasoned citrus expert to be able to recognize a specific lemon variety.

A number of lemon varieties are present in the national collection of citrus in Farm-i-jadid and the collection will be expanded with more varieties of lemon in the coming future.

More mother trees of improved varieties lemons will be distributed to nursery growers association in the eastern zone.
**ORANGE**

Sweet orange is a medium-sized tree with a rounded top and regular branches; twigs are angled when young, usually with slender, somewhat flexible, rather blunt spines in the axils of the leaves; leaves medium-sized, pointed at the apex, rounded at the base; pelticles narrowly winged, articulated both with the twig at the base and with the leaf blade at the tip; flowers in small racemes or singly in the axils of the leaves, medium-sized with 5 petals and 20-25 stamens. Fruits are subglobose, oval or flattened globose; peel thin, tight, not bitter, central axis solid.

Sweet orange is by far the most widely grown fruit tree in the world and the second most commonly cultivated fruit although it took the sweet orange several centuries to establish its position as one of the world's most common fruits, the increased demand for fresh orange juice and the development of very early and very late maturing varieties have contributed to its present popularity and its year-round availability.

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**ما لته**

درخت ما لته اندوز متوسط، قست فوفی این مندرو و دارای شاخ های منظم، در موقع جوانی نوده های ان زاویه دار، معنیالا باریک، کمی درم، چرخ ها در گوشه برگ ها موقعیت داشته نیز میانه. برگ های ان متوسط، نوده ان تیز در قاعدته می‌باشد، دمایه باریک بال دار وصل نمودی هر دو در قاعدته نوده و ترکیب نهایی تیغه برگ گل‌ها در خوشه کوچک‌یا مفرداتان در گوشه برگ‌ها به اندوز متوسط همرنگ با ۵۵-۲۰۰ میکروی می‌باشد. برگ‌ان شکل‌کری میانه، بیضوی یا همور کروی شکل، پوست باریک یا نازک، چسبیده بمی‌ماند، پوست ان نخ نیست و مرکز ان درایی مواد جامد می‌باشد. ما لته نامه مویه است که در جهان به صورت معمول به یونان و سیب کشت می‌گردد. گرچه چندین قرن را بر گرفته که سالمه به کمی از مویه های معمول جهان می‌باشد. از این تکثیف مارکیت برای جکس تازه ما لته و انکشاف علائمی های بسیار زیادی و بسیار دیری رسم به شورت فعلی افزوده و در تمام سال ما لته موجود می‌باشد.
GRAPEFRUIT (CITRUS PARADISI)

Probably arose as a hybrid between sweet orange and pomelo. The grapefruit tree reaches 4.5-6 m, has a rounded top of spreading branches.

There are four horticultural types, all due to mutations from a single clone:

- white flesh and seeded, the original grapefruit (‘Duncan’)
- white flesh and seedless (‘Marsh’)
- pink and seedless (‘Thompson’)
- pink-red and seedless (‘Redblush’)

The trunk may exceed 15 cm in diameter. The twigs normally bear short, supple thorns.

The evergreen leaves are ovate 7.5-15 cm long, and 4.5-7.5 cm wide, dark-green above, lighter beneath, with minute, rounded teeth on the margins, and dotted with tiny oil glands.

The fruit is nearly round or oblate to slightly pear-shaped 10-15 cm wide with smooth, finely dotted peel, up to 1 cm thick, pale lemon, sometimes blushed with pink.

The pale-yellow, nearly whitish, or pink, or even deep-red pulp is in 11 to 14 segments with thin, membranous, somewhat bitter walls. The fruit is very juicy, acid to sweet-acid in flavour when fully ripe. While some fruits are seedless or nearly so, there may be up to 90 white, elliptical, pointed seeds about 1.25 cm in length. Unlike those of the pummelo, grapefruit seeds are usually polyembryonic. The number of fruits in a cluster varies greatly; a dozen is unusual but there have been as many as 20.

ROJO BRILLANTE MARSH SEEDLESS

ماش بدون تخم

چیکورته خورا (دهن) قسمت گوشتنی آن سفید و دارای تخم می باشد.

چیکورته مارش قسمت گوشتنی آن سفید و بدون تخم می باشد.

چیکورته ریز بلوش قسمت گوشتنی آن سرخ گلابی و بدون تخم می باشد.

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چیکورته خورا (دهن) قسمت گوشتنی آن سفید و دارای تخم می باشد.
The trifoliolate orange \( (Poncirus trifoliata) \) has grown in China for thousands of years. Trifoliolate orange became the preferred rootstock for heavy soils.

\( Poncirus trifoliata \) is most suitable for lime-free soils and can withstand cold and wet conditions. However, impeded drainage can result in 'Sudden death' of trees on this stock. Trees on \( P. trifoliata \) grow well on fertile clays to loams but are intolerant of highly acid or highly alkaline soils. They also react to saline conditions, and trees on \( P. trifoliata \) readily take up chloride through the leaves, a problem most reported), most mandarins and lemons with the exception of Eureka, have been immune to grapefruit (although small fruit size is sometimes reported), most mandarins and lemons with the exception of Eureka, are immune to citrus tristeza virus. 

Incompatible with Eureka lemon, a yellow ring incompatibility develops at the bud union. Cincturing at the bud union is often a problem with \( P. trifoliata \) because of its slow and compact growth. Early spring and late autumn propagation of Eureka lemon is required due to extended winter dormancy. Small flowered selections of trifoliolate orange are less vigorous than large flowered types and are more bushy.

Cropping efficiency is good. Trees propagated on \( P. trifoliata \) are suitable for planting at high density. Field performance in tropical and sub-tropical regions is generally poor. \( P. trifoliata \) is the slowest growing of all commercial rootstocks. Early spring and late autumn propagation of \( P. trifoliata \) are difficult due to extended winter dormancy. Small flowered selections of trifoliolate orange are less vigorous than large flowered types and are more bushy.

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TROYER & CARRIZO CITRANGE ROOTSTOCK

Troyer and Carrizo citranges are hybrids of Washington navel orange and Poncirus trifoliata.

The original crosses were made in the early 1900s by the United States Department of Agriculture with the intention of producing cold tolerant scion varieties. They are general purpose rootstocks and are widely used for most commercial varieties in Australia with the exception of Eureka lemon.

Intolerant of high pH soils with high levels of available calcium and also intolerant of saline conditions. Trees on these stocks frequently show micronutrient deficiencies (zinc, iron, manganese) especially in the spring flush. Suitable for replant sites. Moderately cold tolerant. Best results with Troyer/Carrizo citrange are achieved in well drained soils. Both rootstocks are unsuitable for heavy clay soils.

Troyer and Carrizo citranges are tolerant of tristeza virus and Phytophthora root rot but are less tolerant than Poncirus trifoliata.

Main lateral and fibrous root development may be poor in young trees. Mature trees are medium to large. Young trees on these stocks are vigorous and produce good crops of high quality fruits in their early years. Crop regulation should be considered an essential management requirement for mandarin cultivars grown on these rootstocks. Trees in the Murray Valley older than twenty years often show a tendency to produce smaller fruit.

Troyer and Carrizo citrange are highly nucellar and produce uniform, vigorous, upright stocks that are easy to manage in the nursery. Most varieties are easy to propagate on both rootstocks with the exception of Imperial mandarin, where poor bud take is sometimes encountered. Nursery trees are faster growing than Poncirus trifoliata but slower than Rough lemon.

Fruit quality is excellent, but there is a tendency for increased albedo breakdown in older trees. Fruit size is medium, with a thin, smooth rind. Juice and sugar content are high and acidity levels are medium to high. Fruit maturity is earlier than Poncirus trifoliata.

Fully compatible with navel and Valencia orange varieties. These rootstocks are incompatible with Eureka lemon, forming a yellow ring at the bud-union.
ROUGH LEMON ROOTSOCK

Rough lemon. A recent study using molecular markers has shown Rough lemon to be a cross of mandarin and citron. It is believed to have originated in northern India, where it grows wild; carried in 1498 or later by Portuguese explorers to southeastern Africa where it became naturalized; soon taken to Europe, and brought by Spaniards to the New World. It is naturalized in the West Indies and Florida.

Fruit oblate, rounded or oval, base flat to distinctly naked, apex rounded with a more or less sunken nipple; of medium size, averaging 2 3/4 in,(7 cm) wide, 2 1/2 (6.25 cm) high; peel lemon-yellow to orange-yellow, rough and irregular, with large oil glands.

Tree is large, very thorny; new growth slightly tinged with red; buds and flowers with red-purple. The scant pulp and juice limit the rough lemon to home use. It is appreciated as a dooryard fruit tree in Hawaii and in other tropical and subtropical areas where better lemons are not available.

Use as rootstock:
Rough lemon is a highly vigorous rootstock and shows good yield performance in early years. Rough lemon produces large trees with a large well developed root system. In wet conditions trees older than fifteen years often suffer from alternate bearing and declining yields. On sandy soils in drier areas rough lemon has stayed healthy and productive over forty years.

Rough lemon is the quickest growing of all common rootstocks. It is also the easiest rootstock to propagate and has the longest propagation season. Due to their high vigour, nursery trees on Rough lemon have a high nutritional requirement.

Advantages: fast growing, large fruit size, early maturing, drought tolerant, high yields, exocortis tolerant, tristeza tolerant.

Disadvantages: Phytophthora sensitive, poor fruit quality, thick fruit rind, sensitive to waterlogging, large tree size.

Yapita Madari Liemo Drést:

Liemo Drést: Meeqatax inbir rizay haliqooyin noo dhaay go Liemo Drést a laad hee Liemo Drést a fareeg oo siirto igooyin k joke. Fikirka dhiir aad hee Liemo Drést ayaa aan hadlay in Dagaa igooyin k waxa waaw, waxaad helay cnoop. 
Naal saatay, waxa naalamay in qoraalka 1598 ayaa aad soo sheegay gudbi jecelka. 

Afaan yar dhexeeya qalbi kuna barto, waxay ku saabsan yahay dhexeeya qalbi kuna barto. 
Fadlan sheegay in afaan yar dhexeeya qalbi kuna barto aad u soo sheeqay dhexeeyaha oo dhaqanka. 

Rough Lemon
Clone AFG 6026

Liemo Drést Koon

AFG 6026
VOLKAMERIANA ROOTSTOCK

Of Italian origin and thought to be a natural hybrid of lemon and sour orange. Also known as ‘Volkamer Lemon’.

Similar in all respects to Rough Lemon. Highly susceptible to Phytophthora with commercial instances of high tree losses in young plantings, even on virgin soils. Tolerant of citrus tristeza virus, and exocortis and xyloporosis viroids. Moderate tolerance to salinity and suitable for alkaline soil conditions. Like Rough Lemon, it is highly susceptible to blight.

Produces vigorous and large trees capable of carrying heavy crop loads. There are some evidence that yields are slightly lower than Rough Lemon.

NURSERY PERFORMANCE

A very vigorous and fast-growing rootstock that is easily budded and rapidly available for field planting. Sensitivity to Phytophthora requires a high level of nursery hygiene.

Fruit quality on this rootstock is poor. With the possible exception of lemons, this makes it a poor choice for most situations. Trial in the Mediterranean climate of Harvey W.A. suggest that fruit quality may be acceptable for some mandarin varieties, but caution is urged in extrapolating these findings beyond such climatic conditions. When used for orange and mandarin varieties the fruit have thicker coarser rinds, lower sugar, acid and juice contents and poor flavour. Granulation of Imperial and Nova mandarin on this rootstock can be extremely high.
Mercy Corps is a non-profit international relief and development organization that exists to alleviate suffering, poverty and oppression by helping people build secure, productive and just communities. Mercy Corps operates in more than 40 countries throughout the world reaching more than 13.5 million people.

Mercy Corps has been working in Afghanistan since 1986 implementing a range of relief recovery and development programs related to improving agriculture and natural resources-based livelihoods, livestock and animal health, infrastructure rehabilitation and access to credit.

With funding from the European Commission (EC) Mercy Corps is implementing Nursery Industry Support Project for Afghanistan (NISPA) in the central and northern region, the project is in line with the objectives of the Ministry of Agriculture, Irrigation and Livestock to contribute to poverty alleviation for the rural population. The proposed program is planned in recognition of the need to provide support to the horticulture industry, so as to facilitate rural development and economic recovery in Afghanistan.
Plum
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EUROPEAN PLUM:
Adaptable to various soils and climates, two main categories of edible plum trees, European (Prunus domestica) and Japanese (P. salicina). Fruit ripens sometime between May and September, depending on the cultivar and the local weather. Maturity takes approximately 140 to 170 days for both types of plums.

Plums of all sorts come in many colors, inside and out. The range of skin hues includes yellow, red, purple, green, blue and almost black, while the flesh may be red, yellow or green. European varieties are the smaller, oval, purple or blue fruits. Prunes, a plum variety with sugar content high enough to allow sun-drying without causing fermentation, fall under the European category. European plums, which have firmer flesh, are often canned or made into jams or jellies.

European varieties require cross-pollination. Although most European plums are self-fertile, you will produce a better crop if you grow two or more varieties together, as long as they are in the same color group. No one European variety is preferred over another as a pollinator.

JAPANESE PLUM:
In general, the fat, juicy red ones are Japanese. Japanese plums are nearly always eaten fresh.

Japanese plum trees are more likely than European varieties to require cross-pollination. You will produce a better crop if you grow two or more varieties together, as long as they are in the same color group. A self-fruitful Japanese cultivar, is reputed to increase the yield of any other Japanese variety when the two cross-pollinate.
PLUM ROOTSTOCK

Myrobalan 29C

Clone selected from a progeny of Prunus cerasifera, released for the first time in 1980. Suitable for calcareous soils, moderately resistant to Agrobacterium tumefaciens and leptonecrosis, susceptible to pseudomonas syringae and resistant to root knot nematodes. This clone adapt itself well to different soils (calcareous and dry ones) and is moderately resistant to waterlogging. It promotes early bearing and sucker activity is generally low. Myrobalan 29C is the most widely used rootstock for plum. It is appreciated for its adaptability as well as for the promotion of good yields and fruit quality. Recommended also for apricot.

Marianna G.F. 8/1

Hybrid of "P. cerasifera x P. munsoniana" selected by INRA and released in 1970. Suitable for most of the soils and tolerant to waterlogging. Resistant to calcareous, basic and salty soils. Marianna is well anchored into the ground and encourages and intermediate tree vigor between Myrobalan B and 29C, it promotes high and regular productivity, good yield and crop quality. Usually resistant to low winter temperatures. Easily multiplied by hardwood cuttings and mound layering. The rootstock is moderately tolerant to Agrobacterium tumefaciens and Armillaria. Very invigorating rootstocks particularly suitable for the plum. The use in almonds is limited due to the lack of compatibility with some varieties.

Myrobalan 29C cuttings mother trees

درخت مادری مایرو بالان برای قلمه

Myrobalan rooted cuttings ready for budding plum Varieties

قلمه های ریشه دار مایرو بالانام از مادری برای بودن ورایتی های آل و
**Introduction:** ANHDO is an Afghan NGO composed by skilled and experienced professionals, who wants to develop a modern and sustainable horticulture in Afghanistan in partnership with MAIL and the private sector.

**ANHDO Services:**

ANHDO can provide horticulture technical services for:
- Studies and surveys
- Training and capacity building
- Germplasm conservation
- Adaptive research
- Value chain studies
- Post harvest technology
- Marketing

**History:**

Perennial Horticulture Development Project (PHDP), from 2006 to October 2010, made national collection of fruits and nuts varieties in the country at the MAIL research farms on behalf of MAIL and collected the in-situ from all around the country.

Second phase of the project, PHDP II, started in November 2010 and will continue until February 2015. This second phase of the project is designed to follow on the activities of PHDP in Afghanistan. Like its first phase, the project operates in 6 Perennial Horticulture Development Centers (PHDCs), and it have its headquarters in Badam Bagh farm, Kabul.

PHDP II main tasks are to ensure continuity of the National Collection and enhance support to the nursery industry.

In addition, the project is committed to foster positive changes in MAIL policy and structure, and to support the development of the Afghanistan National Horticulture Development Organization (ANHDO).

From 1st November 2012 ANHDO took over the management of 6 PHDCs from PHDP II. The six field horticulturists of the 6 PHDCs were shifted to ANHDO and continued their work under ANHDO administration.
بر علاوه آن، پروژه معده برای انتقال و ساخت و ساز وزارت زراعت، آبیاری و مالداری از وزارت اقتصاد و امور مالی به مؤسسه ملی انکشاف باغداری افغانستان (ANHDO) گرفته اند. شش هزار کیلومتر به سمت تدریجی پروژه انکشاف باغداری افغانستان (PHDP)، در سال‌های 2004 تا 2010، کلکسیون ملی وزارت های مواد جاتی، مجزاً مسی و راز، از زمینه‌های زراعت، آبیاری و مالداری به مؤسسه ملی انکشاف باغداری تغییرات مثبتی در وزارت اقتصاد و امور مالی ایجاد کرده و توانایی این وزارت در حفظ دستگاه های فناوری و تنظیمات واحدهای زراعتی را بالا برده است.

مهم‌ترین مأموریت ملی انکشاف باغداری افغانستان (ANHDO) برای انتقال و ساخت وزارت اقتصاد و امور مالی به مؤسسه ملی انکشاف باغداری افغانستان (PHDP) گرفته شد. این پروژه در سال‌های 2004 تا 2010، کلکسیون ملی وزارت های مواد جاتی، مجزاً مسی و راز، از زمینه‌های زراعت، آبیاری و مالداری به مؤسسه ملی انکشاف باغداری تغییرات مثبتی در وزارت اقتصاد و امور مالی ایجاد کرده و توانایی این وزارت در حفظ دستگاه های فناوری و تنظیمات واحدهای زراعتی را بالا برده است.

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National collections

Objectives:
To gather, maintain, describe and evaluate the best fruit varieties originated in or adapted to Afghanistan, in order to enable the private nursery industry to produce true to type and

Structure and locations

The “protection” of the NC attains to the prevention of destruction by natural (drought, flood, pests, adverse climate, etc.) or human causes (tree removal, fire, negligence, etc.), but also concerns propriety rights and prevention of thefts of genetic resources.

In 2006 MAIL, on behalf of Afghanistan, signed the International Treaty on

The NC is constituted of living trees. Each entry (accession) originates from a single individual tree (in situ) that is replicated by vegetative propagation (generally 4 to 10 genetically identical trees), depending on the species); these identical trees form one plot.

The number of plots and accessions of a species constitutes the National Collection of that species.
م Joshe Melli انشاف باگداری افغانستان

کلاكسیون ملی

اهداف:

جمع‌آوری، حفظ و نگهداری، شناسایی و ارزیابی پاه‌های انواع میوه جاتی از افغانستان مشاگردی با توافق حاکم نموده است. بخلاء توانست کردن صنعت خصوصی قربانی داری تا نهایی پیدا یک نوع میوه به‌اسلام، مصحح و قانونی های قابل تولید نماید.

ساختار و محل:

حفاظت کلاکسیون ملی در برابر جلوگیری از تخریب توسط عوامل طبیعی (خشکسالی، سیلاب، افت، برق، ناسازی، زیست‌پزشکی، نگهداری، و غیره) یا عوامل بشر (چون اکسیداسیون، آتش، انتقال، و غیره) یا ملایمی و سختپوشی های بین المللی میباشد. مسئولیت پذیرنده به دو جور از دو نوع جلوگیری از تخریب باگداری افغانستان می‌باشد: بین المللی و در داخل. این دو نوع جلوگیری از تخریب باگداری افغانستان می‌باشد: بین المللی و در داخل.

در سال ۲۰۱۴ ویژه و مالی‌اکنی و از ممالک میوه قرارا بین المللی جرز پلایز افغانستان می‌تواند اقدامات قانونی این باغداری را تأمین و دیگر است. اما در حال حاضر، این باغداری در حال حاضر در حین در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، این باغداری در حال حاضر، 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Available National Collections (NCs) and Accessions in PHDC Kabul;

NCs: Apple  Apricot  Cherry  Pear

PHDC Kabul: Field Map 2013

Available National Collections (NCs) and Accessions in PHDC Herat;

NCs: Accessions
Cherry  28
Grape  139
Peach  108
Plum  28

PHDC Herat: Map 2013
کلکسیون ملی و کلون های موجود در مرکز اکتشاف باغداری کابل

کلکسیون ملی:
- گیلاس: 28
- انگور: 139
- شفتالو: 108
- آلو: 28

مركز اکتشاف باغداری
هرات: نقشه فارم 2013

مقره ملی اکتشاف باغداری افغانستان
PHDC Mazar

Available National Collections (NCs) and Accessions in PHDC Mazar;
NCs: Almond Apricot

PHDC Kunduz

Available National Collections (NCs) and Accessions in PHDC Kunduz;
NCs: Apple Almond Pear

PHDC Kunduz: Field Map
2013
نمایشگاه انگور در مرکز انکشاف باغداری مزار شریف
31/07/2013

کلکسیون ملی و کلون های موجود در مرکز انکشاف باغداری مزار شریف

کلکسیون ملی و کلون های موجود در مرکز انکشاف باغداری کندز

مرکز انکشاف باغداری کندز: نقشه ساحه 2013

کلکسیون ملی و کلون های موجود در مرکز انکشاف باغداری کندز

کلکسیون ملی و کلون های موجود در مرکز انکشاف باغداری کندز
### Available National Collections (NCs) and Accessions

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<th>NCs</th>
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<td>Loquat</td>
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<td>Peach</td>
<td>108</td>
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<td>Plum</td>
<td>77</td>
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کلکسیون ملی و کلون های موجود:

کلون های انگور:
- آلو: 77
- انار: 71
- لوتک: 12
- شفتالو: 108
- انگور: 139
- انجیر: 16

نقشه ساحه مرکز انکشاف باغداری کندهار:

کلکسیون ملی و کلون های موجود در مرکز انکشاف باغداری جلال آباد:

تجلو
MADERA is a French non-governmental nonprofit organization which operates only in Afghanistan. MADERA supports communities to implement integrated diversified programmes in the following fields:

- Perennial Horticultural development
- Agriculture
- Arboriculture
- Forest protection and management
- Animal health and animal husbandry
- Rural infrastructure
- Handicrafts and livelihoods
- National solidarity program NSP

Mission d'Aide au Développement des Economies Rurales – Afghanistan (MADERA) was founded in 1988, with the purpose of assisting to improve the quality of life of the people of Afghanistan and fostering the condition necessary for peace, its actions are oriented towards empowering rural communities by building their capacities and supporting their own development.

MADERA promotes collaboration with other partners and with the target populations, a participative and integrated approach to development, respecting the diversity of the needs of the population.

MADERA's programmes are currently supported by: the European commission (Europe Aid), Misereor, the Agence Française de développement, the World Food Programme (WFP), the French Embassy in Kabul (Fonds Social de développement – FSD), the Afghanistan Ministry of Rural Rehabilitation and development, (MMRD), the Swiss development agency (SDC), Food and Agriculture Organization (FAO), and the World Bank.

MADERA has its main bases in Kabul and Jalalabad and implement activities in rural areas in six provinces:

- Kunar
- Laghman
- Nuristan
- Nangrahār
- Ghor
- Wardak
Grapes

انگور
<table>
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<tr>
<th>Variety</th>
<th>Clone Number</th>
<th>July - اسد</th>
<th>August - سنبله</th>
<th>September - قوس</th>
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</table>
This group consists of following – subgroups;

AYTA CULTIVARS GROUP;
One of the well-known cultivar grown in Herat and Kandahar provinces. The group matures at the end of August in Kandahar and Herat. The size of the bunch and berry is medium. The color of berry is green-yellow. Seed is well-developed.
The group has good fresh and dry market.

IMPORTED VARIETIES GROUP;
The group consists of varieties imported from USA and the mother trees are grown in Laghman province. Some of the varieties in the group has impressive local and international market (flame seedless, Black emerald, red globe and ribier).

Perlette is the earliest variety matures in mid-July in Kandahar while Crimson seedless matures in last week of September.
The bunch and berry size are small to medium. Berry color also varies for each variety.

HUSSAINI CULTIVARS GROUP;
One of the commonly grown group of cultivars from central Afghanistan. The group matures in late August in Kandahar. Bunch is medium in size. Berry color is green-yellow and seed is well developed.
The group has good fresh market in Kabul and other provinces and also exported to Pakistan.

MISCELLANEOUS CULTIVARS GROUP;
The group is miscellaneous cultivars. Rouch safid is the earliest local cultivar matures in late June. The bunch of the Roucha is small and more compact. The size of the berry is also small.
Keshmeshi sorkh is good for drying. It matures late August. Its dry has good local market.
Lal Katta Dana has medium bunch and berry size. It has good fresh market.
Peach
<table>
<thead>
<tr>
<th>Variety</th>
<th>Clone Number</th>
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PEACH GROUP

This group consists of following 2 subgroups;

Peaches have either white or yellow flesh. White peaches are sweeter, but yellow peaches are firmer and better for shipping and canning. Peaches with flesh that cling to the pit are called clingstones. Those whose flesh separates easily from the pit are called freestones. Semi-cling peaches have attributes of both clingstones and freestones. Peaches and nectarines are best stored at temperatures of 0°C and high humidity. They are highly perishable, and typically consumed or canned within two weeks of harvest. Peaches are climacteric fruits and continue to ripen after being picked from the tree.

Peaches available in the National Collections in Kandahar and Herat are either white (Plawhite) or yellow (Maycrest). We can sort the available peaches in MSNs into following subgroups.

WHITE-FLESH PEACHES;

White-flesh peaches are very sweet with low acidity. They also tend to have a smoother texture than yellow-fleshed peaches.

YELLOW-FLESH PEACHES;

Most peaches imported from other countries like, Italy; France or USA is yellow-fleshed. They tend to have more of an acid tang than white-fleshed peaches.

LOW CHILL PEACHES;

Peach trees need enough hours of temperatures below 5.7 degrees centigrade (40 degrees Fahrenheit) in the winter, called the chill requirement, for their buds to open in the spring. This protects them from frost. Those peach trees will not flower and set fruit in warmer climates. Fortunately, horticulturists have developed several cultivars with chill requirements of under 450 hours, meaning that they can be grown in lower elevations. Winter chill hours are affected by topography and wind.

Described is a peach tree producing very early ripening fruit that has a low chilling requirement and bears clingstone fruit. For low-chill peach, 100 – 150 hours of temperatures below 50°F (10°C) are required for flowering and fruit production. The number of hour’s below 50°F accumulates through the winter months and constitutes total hours of chilling.

شکاکی سفید پلاوایا (Plawhite)

شکاکی سفید سامارا (Maycrest)

شکاکی سفید مایکوست (Shalil Shab Rang)

شکاکی سفید شالیل شاب رنگ (Shalil Shab Rang)

شکاکی سفید شالیل شاب رنگ (Shalil Shab Rang)
لابتاری پروتکل‌های نیمی

نخستین لابتاری پروتکل‌های نیمی افغانستان، با همکاری تکنیکی بی‌بی‌اف‌اق، و حمایت مالی کمیسیون اروپا در سال ۲۰۰۹ میلادی نمایش گردید. این لابتاری در بایاد باعث کاهش از سطح نیمی‌های میخون و توزیع بیماری زراعتی انتقالی افغانستان محلی می‌شود. هدف اصلی این پروژه همان تقویت و توسعه بخش بازیابی کشور از اطراف بهبود و بلندبندی کلی نیمات انتقالی می‌باشد. لابتاری پروتکل‌های نیمی با همکاری ترکیبی با پروژه توسعه بازاریابی چندین ساله و شرکای آن قرار داشته، و وجودی صحیح جرم‌بسی درختان و مصرف داخلی و خارجی را، به‌منظور توزیع آنها نیمات مصرف‌شده و باکتری‌های قوی در دانشگاه و زراعتی، مشخص و ثابت می‌نماید. همین سوال به‌منظور همکاری از نیمات جهت تحقیق و تجربه در این لابتاری، از زون های مختلف این کشور افغانستان جمع‌آوری می‌گردد. لابتاری تا بررسی همچنین در تکنولوژی پارادایم‌های فناوره‌ای پیشرفته و پیشرفته، تکنولوژی روزگاری و پسابیون می‌باشد. این پروژه با اشتراک فعال کمیته مشابه با پیشرفت ترین تکنولوژی اروپا و بی‌بی‌اف‌اق، پایان‌نامه‌های جدید به‌کاربرد و تکنیک‌های ارائه‌دهنده استفاده می‌نماید.

اسکاتلند تحقیقاتی

کشف و تشخیص نیمات با کمک نیمات‌شناسی، PCR

کشف امراض

تکنیک‌های PCR به‌منظور انتقالی نیمات مصرف‌شده و بی‌بی‌اف‌اق پایان‌نامه‌ها و فناوره‌ای فناوره‌های بی‌بی‌اف‌اق و پرسنل

ارتباطی فناوری

دوره‌های آموزشی

سازمان‌های سازمانی

فرصت‌های کارآموزی
Pomegranate

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<td>Crab</td>
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<td>Tashkurgani</td>
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<td>Red</td>
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<td>May Khosh</td>
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<td>Mahali</td>
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<td>Mae</td>
<td>IMP 7164</td>
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<td>Kandahari</td>
<td>AFG 0862</td>
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<td>Wonderful</td>
<td>IMP 7163</td>
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<td>Andalib</td>
<td>IMP 7180</td>
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<td>Sumbarski</td>
<td>IMP 7178</td>
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<td>Mayatadzh</td>
<td>IMP 7179</td>
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<td>Sorkhak</td>
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<td>Spin Khog</td>
<td>AFG 0563</td>
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POMEGRANATE DESCRIPTIONS

An attractive shrub or small tree, to 6 or 10 m high, the pomegranate is much-branched, more or less spiny, and extremely long-lived. It has a strong tendency to sucker from the base. The leaves are evergreen or deciduous, opposite or in whorls of 5 or 6, short-stemmed, oblong-lanceolate to 10 cm long, leathery. Showy flowers are home on the branch tips singly or as many as 5 in a cluster. They are 3 cm wide and characterized by the thick, tubular, red calyx having 5 to 8 fleshy, pointed sepals forming a vase from which emerge the 3 to 7 crinkled, red, brown or variegated petals enclosing the numerous stamens. Nearly 12.5 cm wide, has a tough, leathery skin or rind, basically yellow more or less overlaid with light or deep pink or rich red. The interior is fleshy, juicy, red, white or variegated petals enclosing the numerous stamens. Types with relatively soft seeds are often classed as "seedless". Among the best are divided into two groups.

LOCAL VARIETIES GROUP;
The local varieties include Sor Zod Ras, Spin Khog, Nazek Post, Spin Khog, Sorkhak, Tashkurchani, Kandahari, May Khosh, Sorkhak, Mahali and Lal Baqli Dana. The local varieties are ripening mid to late September in Nangarhar while ripens in mid to late October in Kandahar. All of the mentioned accessions are hard seeded (hard tegmen). Only accessions Spin khog (clone AFG 0563) and Mahali (clone AFG 0884) have medium tegmen. Accessions like Nazek Post, Spin Khog, Kandahari, May Khosh and Sorkhak are sweet while the other members of the group are sub-acidic (sweet-sour). Fruit weight or size is medium and skin colour is different (dark pink, greenish yellow, light pink or cream yellow). The skin thickness is medium to thick.

IMPORTED VARIETIES GROUP;
The varieties are imported from USA in early phase of PPD. The varieties are planted in the national collection of Farm-i-Jadid, Nangarhar and Kandahar.

Most of the varieties have good result in Farm-i-jadid national collection. The fruit ripens in Mid-September. Fruit weight/size is medium. Skin colour is different (cream yellow, dark pink, light pink or medium pink). Fruit juices are medium to high. The variety Andalib is sour in taste. The sweet varieties are Mae, Eve, Apseronski Krasnij, Nikitski Ranni, Girkanes, Sumbarski and Mayatadzhy while varieties like Wonderful, Purple Heart, Zubejda, Crab, Cranberry and Palermo. The seed is soft of Sumbarski and Mayatadzhy, while the other varieties are medium to hard tegmen.
Part 2

CATEGORY 2 Fruit saplings produced in ANNGO Registered Nurseries
(Uncertified)
1) Red Chief
Flowering time: late
Ripening time: late
Main characteristics:
Tree used as pollinator, fruit dark red. High chilling requirement, high yielding, fruit can be stored for long time.

2) Gow Rakhash
Flowering time: late
Ripening time: late
Main characteristics:
considered to be one of the famous local varieties but not so common. Same as Rakhash variety but bigger in size.

3) Shakari
Flowering time: average
Ripening time: average
Main characteristics:
fruit very sweet, medium size Fruit.

4) Swati
Flowering time: early
Ripening time: early
Main characteristics:
tree self fertile, large size fruit, grown in lower elevations.
**Fig - انجیر**

1) Siah
   Flowering time: early
   Ripening time: early
   Main characteristics:
   early variety black fig, seeded, fresh and dry consumption.

2) Kandahari
   Flowering time: average
   Ripening time: average
   Main characteristics:
   large size tree, whitish yellow in colour fruit. Good for drying.

3) Spin
   Flowering time: Average
   Ripening time: average
   Main characteristics:
   almost same as Kandahari.

4) Tor Kandahari
   Flowering time: early
   Ripening time: early
   Main characteristics:
   large tree, early variety, not good market and can not be dried.

**Loquat - لوكات**

1) Mahali Early
   Flowering time: early
   Ripening time: early
   Main characteristics:
   small fruit, sweet and trees are off types.

2) Mahali Late
   Flowering time: Late
   Ripening time: Late
   Main characteristics:
   medium size fruit, very sweet and trees are off types.
**Mulberry - توت**

1) **Khodi**
- Flowering time: average
- Ripening time: average
- Main characteristics: very sweet, white and light pink in color.

2) **Shir Tot**
- Flowering time: early
- Ripening time: early
- Main characteristics: large berry, white, very sweet.

3) **Bedana**
- Flowering time: early
- Ripening time: early
- Main characteristics: very sweet, seedless, tree self fertile, good for drying and fresh consumption.

**Persimmon - املوک**

1) **Pakistani**
- Flowering time: early
- Ripening time: early
- Main characteristics: medium size, very sweet, strangent.

2) **Tajiki**
- Flowering time: average
- Ripening time: average
- Main characteristics: medium size tree, medium size fruit, strangent.
<table>
<thead>
<tr>
<th>No.</th>
<th>Variety</th>
<th>Flowering Time</th>
<th>Ripening Time</th>
<th>Main Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Balkhi</td>
<td>early</td>
<td>early</td>
<td>upright tree, medium fruit, white flesh, satisfactory yield</td>
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<tr>
<td>2</td>
<td>Yakhnak</td>
<td>late</td>
<td>late</td>
<td>Mostly grown around Kabul, medium size fruit, need for pollinator, flash white and crispy</td>
</tr>
<tr>
<td>3</td>
<td>Fransawi</td>
<td>late</td>
<td>late</td>
<td>Upright tree, self fertile, large fruit with good taste</td>
</tr>
<tr>
<td>4</td>
<td>Kandahari</td>
<td>early</td>
<td>early</td>
<td>Spreading tree, high yielding, white flesh and juicy</td>
</tr>
<tr>
<td>5</td>
<td>Beruti</td>
<td>late</td>
<td>late</td>
<td>Upright tree, medium size fruit</td>
</tr>
<tr>
<td>6</td>
<td>Zamistan</td>
<td>late</td>
<td>late</td>
<td>Mostly grown around Kabul, medium size fruit, need for pollinator, flash white and crispy</td>
</tr>
<tr>
<td>7</td>
<td>Garma</td>
<td>early</td>
<td>early</td>
<td>Early variety with high yield, more juicy fruit</td>
</tr>
<tr>
<td>8</td>
<td>Awal Ras Garma</td>
<td>early</td>
<td>early</td>
<td>Early most, with spreading tress, small size fruit</td>
</tr>
<tr>
<td>9</td>
<td>Fransawi Dir Ras</td>
<td>late</td>
<td>late</td>
<td>Upright tree, self fertile, large fruit with good taste</td>
</tr>
<tr>
<td>10</td>
<td>Conference</td>
<td>late</td>
<td>late</td>
<td>Tree self fertile, fruit long and narrow with juice and flesh is firm</td>
</tr>
</tbody>
</table>
Pistachio - پسته

Khasak (Seedling)
Flowering time: late
Ripening time: late
Main Characteristics:
- small nut
- widely grown

Walnut - چالمغز

Khasak (Seedling)
Flowering time: late
Ripening time: late
Main Characteristics:
- small nut
- widely grown
- mostly propagated by seed
- available in local markets
Part 3

Ornamentals and forestry trees

درختان نباتات زینتی و جنگلی
شرکت گلریزان شمپینان شرکت میده

Gulrizaan Sham. LTD

شرکت گلریزان شمپینان سیز و ایجاد باغ، و دیگر خدمات زراعتی در کشور های مختلف آسیایی (ایران، آذربایجان، ازبکستان، قدیمی‌ترترکستان، تاجیکستان و غیره)...

فعالیت دارد که حدود 13 سال بایوجون آمدند. دولت مقتدر در کشور مان تصمیم به بازگشت به کشور وخدمت به مردم از طرفین است آخر هم زمان تا حال خدمات زراعی را را رادر بخش زراعت ایجاد فضای سز افزایش می‌دهد و ارائه می‌دهد و ایجاد فضای سز افزایش می‌دهد و ارائه می‌دهد...

خلاصه خدمات شرکت:

- طراحی و ایجاد فضای سز در حویلی و با ها و اما کن دولت به صورت استاندارد
- تولید و تکنیک‌گل و گیاهان زینتی
- تشخیص و تداوی امراض گل و گیاهان، و چمن و غیره
- واردات انواع کود و سم و انواع بذر چمن، چهار فصل
- کشت گل و گیاه و چمن در چهار فصل سال

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Roses are one of the oldest ornamental flowers in cultivation and still considered one of the most popular garden flowers today. Roses grow best in full sun but will grow satisfactorily if they have 6 hours of sun daily. Early morning sun is preferred since it gives the foliage a chance to dry early in the day. Damp conditions favor the development of diseases.

Roses should not be planted too close to trees or shrubs where they will compete for light, nutrients, water and air. Plant at least 40 centimeters to 60 centimeters away from buildings or solid barriers (except for climbers). Walls can be used to advantage if roses are located so the barrier provides protection from north winter winds.

Following classes of roses are found with NGA in Afghanistan.

1. Bush Roses
2. Climbing Roses
3. Shrub Roses

The genus Cupressus is one of several genera within the family cupressaceae that have common name cypress. With other conifers extensive cultivation has led a wide variety of forms, sizes and colours that grown in parks and gardens throughout the world. A few species are grown for their timber, which can be very durable and light. Cypress trees are also valued for their firewood and oil. The wood is easily to split, dries quickly and burns clean. In addition oil from the tree is used for shampoo and other beauty products. They are evergreen trees or shrubs, growing 5-40meters tall.
The dahlia is a native of Mexico and Central America where it grows wild, even on the mountain slopes. The dahlia, in botany is a member of the “Compositae” family, capable of self-pollination. Dahlias grown today are hybrids of several other varieties. For that reason, seed from named dahlias will not produce the same blooms as the parent, but will be a mixture of the colour characteristics of the parents of that plant. Therefore, it is necessary to plant a root or a cutting of a particular variety in order to have flowers of that variety.

Dahlias are classified according to the shape and arrangement of their petals. Single flowering dahlias have no more than a few rows of petals and show a central disc. Double flowering dahlias have multiple rows of petals and display no central disc.

Depending on the varieties and types selected, dahlias may be planted in borders, along fences or walls, in pots, in beds or in rows. Dahlia grows best in full sun but will tolerate some shade. Try to select a planting area that gets 6 hours of sun a day. Dahlias should be staked and the stake set before the tuber is planted.

Eucalyptus

Eucalyptus is a fast growing tree and has about 625 species and sub-species with several varieties and hybrids. It can be planted on agricultural lands both as monoculture and as a component of agro-forestry programmes. One of the principal factors for its widespread introduction is the ease of cultivation. Besides this, easily obtainable seed supplies, good germination and its adaptability to varying soil and climatic conditions are the other important characteristics of Eucalyptus.

Due to its ability to resist water logging and tolerance to salinity, this tree is largely used in water logged areas and as “wind breaker”.

اکالپتوس

اوکالپتوس درخت ایست که مورد سرویس دانشی و تغذیه‌ای 425 انواع و انواع قرار می‌دهد. به چنین واریتی‌ها و ژن‌ها نیز واژه‌ی درخت در زمین‌های زراعی بیشتر به‌کار می‌رود. در واقع این درخت در زمین‌های زراعی یکی از ایکس کریه‌ها و سایر اکالپتوس‌های مختلف جهانی است. این درخت در جایی که نیاز به پوشش شکنک‌های دیگری ندارد کار می‌کند. اکالپتوس در راه درخت در زمین‌های معادل یا موقتاً غرق در آب و در شرایط مختلف اقلیمی بکر می‌شود. اکالپتوس در جایی که نیاز به پوشش شکنک‌های دیگری ندارد یکی از ایکس کریه‌ها و سایر اکالپتوس‌های مختلف جهانی است. این درخت در جایی که نیاز به پوشش شکنک‌های دیگری ندارد کار می‌کند. اکالپتوس در راه درخت در زمین‌های معادل یا موقتاً غرق در آب و در شرایط مختلف اقلیمی بکر می‌شود. شکنک می‌گردد (Wind breaker).
Jasmine

Jasmine is one of the important flower which is liked by most of the people. Due to the fragrance only the demand is more. Concrete (essence) is also extracted from the flower. So, the demand in the market is both for the fresh flower and concrete. Jarnises are usually propagated by cutting and layering. Seed propagation, though uncommon, is necessary for crop improvement through planned hybridization. Multiplication through sucker, grafting, budding and tissue culture has also been found successful. The different methods used for propagation is described here.

Pelargonium

Pelargonium is a genus of flowering plants which includes about 200 species of perennials, succulents, and shrubs, commonly known as geraniums. They are extremly popular garden plants, grown as annuals in temperate climates. Pelargonium leaves are usually alternate, and palmately lobed or pinnate, often on long stalks, and sometimes with light or dark patterns. The erect stems bear five-petaled flowers in umbel-like clusters called pseudoumbels. The shapes of the flowers have been bred to a variety ranging star-shaped to funnel-shaped, and colors include white, pink, red, orange-red, fuchsia to deep purple. The Pelargonium flower has a single symmetry plane (zygomorphic), which distinguishes it from the Geranium flower which has radial symmetry (actinomorphic).
Afghan or Afghanistan pine

*Pinus eldarica*

The common name is Afghan or Afghanistan pine, Desert pine, Elder pine, Mondale pine and the latin name is *Pinus eldarica*. If planted, the dense habit can create a forest effect or barrier such as an attractive privacy screen, a western sun block, or tall a windbreak. A single tree in an open lawn provides area a large-scale specimen on spacious grounds. The variety is grown in most parts of Afghanistan along the sides of the roads, parks, streets and hills.

This symmetrical cone-shaped evergreen has a dense growth habit with short branches on the lower trunk that widen at the middle and narrow again towards the top.

Depending on water availability, a healthy tree will maintain a rapid growth rate of 1m to 1.5m per year, maturing at 10 to 15 m tall and 5m to 7m wide. The 10 to 15cm long, shiny green needles emit a crisp pine fragrance.

Seeds develop in classic reddish-brown pine cones, 10 to 15 cm long.

Provided it is situated with good drainage, this durable evergreen is tolerant of wide range of challenging terrains including rocky, un-amended alkaline soils of loam, clay or sand.

It requires weekly watering the first year and becomes extremely drought tolerant when established.

A full sun exposure is required. It is tolerant of desert temperatures and is cold hardy.

If the lower branches are removed for pedestrian passage or underplantings, they will not regenerate. Matured trees require needle and cone cleanup. What may be considered yard litter to some is a windfall for nature enthusiasts; the dense branches provide valuable cover, nesting and breeding areas for songbirds and other wildlife; its fallen needles make excellent garden mulch.

This fast growing pine tree is well suited to semi-arid conditions but will also prosper in well-drained irrigated areas. It is an outstanding tree for alkaline soils. Indigenous to limestone alkaline lands of Russia, Afghanistan and Pakistan.
Pistachio

The origin of pistachio is not known but most of the experts agree that it probably originated in Central Asia. Most of the pistachio production occurs in countries with arid climate.

Pistachio trees thrive on heat; better nut filling and less blanks are produced in hot-weather climates. However, winters need to be cold enough to complete their dormancy (a rest period during winter.) About 1,000 accumulated hours of temperature at 7 degrees Centigrade or below are required for pistachio trees to break dormancy and start normal growth in spring. Pollination is carried only by wind. Therefore, mild winds during pollen shed would help fruit set. Strong desiccating winds in spring may interfere with pollination and reduce crop set. Pistachio trees grow in virtually all soils. However they grow better in deep, sandy loam soils. Trees density should be decreased in poorer soils.
ANNGO and its member NGAs participation in 13th AgFair, Kabul

اشتراك ممقا و اعضای انجمن های قوریه داران در نمایشگاه زراعتی 2013، کابل

Takhar NGA Booth

ANNGO Booth

Nangarhar NGA Booth

Kunar and Nuristan NGA Booth

Bagram & Sayed Khail NGAs Booth

Laghman NGA Booth
**Populus**

*Populus* is a genus of 25–35 species of deciduous flowering plants in the family *Salicaceae*, native to most of the Northern Hemisphere. English names variously applied to different species include poplar. *Populus* are amongst the fastest growing tree species under appropriate agro climatic conditions.

Clones of hybrid poplar can be harvested in 5 to 7 years. *Populus* is a genus of 25 species. ANNOG recognized methods for propagation are Tongue grafting, Cleft grafting, and Patch budding.

**Walnut**

The scientific name of walnut is *Juglans regia* and belongs to family *Juglandaceae*. *J. regia* is native to the mountain ranges of Central Asia, extending from Xinjiang province of western China, parts of Kazakhstan, Uzbekistan and southern Kirghizia and from lower ranges of mountains in Nepal, Bhutan, Tibet, northern India and Pakistan, through Afghanistan, Turkmenistan and Iran to portions of Azerbaijan, Armenia, Georgia and eastern Turkey. In these countries, there is a great genetic variability, in particular ancestral forms with lateral fruiting.

Juglans regia is a large, deciduous tree attaining heights of 25–35 m, and a trunk up to 2 m diameter, commonly with a short trunk and broad crown, though taller and narrower in dense forest competition. It is a light-demanding species, requiring full sun to grow well.

*J. regia* 'Buccaneer' produces an abundant crop of seeds. A self-fertile cultivar, it comes into leaf very late and so usually avoids damage by late frosts.

It is cultivated extensively for its high quality nuts, eaten both fresh and as dried shelled or hard shelled. Walnut trees grow best in rich, deep soil with full sun and long summers. Mature trees may reach 50 feet in height and live more than 200 years, developing massive trunks more than eight feet thick.

In Afghanistan walnut saplings are seedling of walnut. The concept of grafting is very poor. The nuts found are either soft shelled, semi soft shelled or hard shelled.

**ANNOG recognized methods for propagation are**

- Tongue grafting
- Cleft grafting
- Patch budding

**Cheremis**

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His Excellency Asif Rahimi, Minister of Agriculture, Irrigation and Livestock, introducing the ANNGO Catalogue to Farmers.

Kabul AgFair 2012

popular trees grown as windbreak

Walnut trees widely grown on the hilly areas
Glossary

Accession - a collection of plant material from a particular location. An accession is assigned an identification number, which usually is preceded by the abbreviation PI (plant identification).

ANNO - Afghanistan National Nursery Growers’ Organization.

Brix - A scale used to indicate soluble solids content: °Brix = grams of sucrose per 100 grams of liquid at 68°F (20°C).

Bud - a structure of compact embryonic tissues, frequently enclosed in scales and becoming obvious in winter during plant dormancy.

Bud union - the junction between a scion or bud and its supporting rootstock.

Budding - a type of grafting that consists of inserting a single bud into a stock. It is generally done in late July and August, the latter part of the growing season.

Bud stick - a shoot of the current season's growth used for budding. Leaves are removed, leaving ¼ inch of leaf stem for a handle.

Cane - a green summer shoot matures (hardens off) into a woody, brown one-year-old cane after leaf fall.

Clone - a group of plants derived vegetatively from one parent plant, identical to each other and to the parent.

Compatible - plant parts (scion and rootstock) that are capable of forming a permanent union when grafted together.

Cordon - A permanent extension of the grapevine's trunk that is horizontally positioned along the trellis (arbor) wire.

CPN: Certified Production Nurseries. The nurseries get budwood from registered MSN are and follow ANNO standards in nurseries are CPNs

Cross-pollination - the process in which pollen is transferred from an anther (the upper part of the stamen in which pollen is produced) to one flower of the stigma (the pollen-receiving site of the pistil of the flower) of a different cultivar.

Cutting - detached vegetative plant parts which when placed under conditions favorable for regeneration will develop into a complete plant with characteristics identical to the parent plant.

Drupe - a stone fruit (cherry, plum, peach). Many berry-like fruits are technically small drupes, like huckleberry.

ELISA - Enzyme Linked Immuno Sorbent Assay - method to test for virus diseases.

Fleshy fruits - classification of fruits that includes the berry and fleshy fruits. Examples, apple, pears, grape, etc. They have a fruit wall that is soft and fleshy at maturity.

Flower - a shoot of determinate (limited in number) growth with modified leaves that is supported by a short stem; the structure involved in the reproductive processes of plants that bear enclosed seeds in their fruits.

Globose - shaped like a globe; spherical.

Graft - to unite a stem or bud of one plant to stem or root of another plant.

Graft union - the region where rootstock and scion come together; there can be slightly deformed growth at the union that is noticeable, but does not affect the function of the tree.

Grafting - describes any of a number of techniques in which a section of a stem with leaf buds is inserted into the stock of a tree.

Grape pruning - the systematic removal of wood in a manner that will result in a strong vine of convenient shape and good crops of large clusters. No operation influences grape production more than pruning.

Horticulture - horticulture is the science or art of cultivating fruits, vegetables, flowers, or ornamental plants. Etymologically, the word hortus (garden) and cultus (tilling) could be broken down into two Latin words: hortus (garden) and cultus (tilling).

Hybrid - a collection of plant material from a particular location. An accession is assigned an identification number, which usually is preceded by the abbreviation PI (plant identification).

Horticulture more than pruning.

I - immuno

K - Compatible

L - Lignin

PI - Plant Identification

Pruning is the systematic removal of wood in a manner that will result in a strong vine of convenient shape and good crops of large clusters. No operation influences grape production more than pruning.

Scion - a green summer shoot matures (hardens off) into a woody, brown one-year-old cane after leaf fall.

 compatible - plant parts (scion and rootstock) that are capable of forming a permanent union when grafted together.

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Lignin - a phenolic polymer formed during the secondary wall lignification process in plants.

M - mem"
Vary for different developers, growing environments and/or technology. ANNGO underlines that this catalogue contains preliminary varieties, and above all clones/accessions, characteristics and availability. "UPOV" formally names a named variety with distinct qualities in cultivation.

True-to-type (Variety) - Inbred plants that breed true and are kept as a named variety with distinct qualities in cultivation.

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