



ACCLIMATIZATION OF GRAFTED FRUIT TREE SEEDLINGS IN PROTECTED FIELDS.

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Here Are The Advantages Of These Rootstocks Expressed In Five Key Points:

1. Adaptability: These rootstocks can adapt to calcareous and heavy-textured soils, making them versatile for various agricultural conditions.

3. Climate Suitability: This fruit rootstock is widely used in temperate climate regions, demonstrating its effectiveness in these environments.

5. Growth Characteristics: These rootstocks produce standard trees that are 20% smaller in crown size compared to peach seedlings, allowing for strong growth of grafted varieties and developing a moderately deep root system.

2. Disease Resistance: They are highly resistant to root nematodes and various diseases, including root rot, Armillaria, and root cancer.

4. Soil Versatility: It can be utilized in different types of soils, including heavy-textured soils, showcasing its broad applicability.



Descriptions of Selected Clonal Rootstocks:

1. Garnem Fruit Rootstock - used as a rootstock for peach, nectarine, plum, and almond varieties.

2. GF – 677 Fruit Rootstock - this is a peach and almond hybrid. GF – 677 fruit rootstock is applied as a good rootstock for certain varieties of peach, nectarine, almond, and plum.

3. Myroblan C-29 Fruit Rootstock - considered a suitable rootstock for cultivated varieties of plum and apricot.



Purpose of the Topic

The aim of this study is to adapt the vegetatively propagated

- Garnem,
- GF-677,
- Myrablan C-29

grafts to the external environment
under greenhouse conditions.

This involves the development of standard grafts and the assessment
of graft compatibility and adherence

by grafting cultivated varieties of peach, plum, and almond.

Additionally, it focuses on improving the key elements of intensive
technology for
the production of certified seedlings



Tasks of Topic

1. Vegetative Propagation:

Investigate the growth and development of

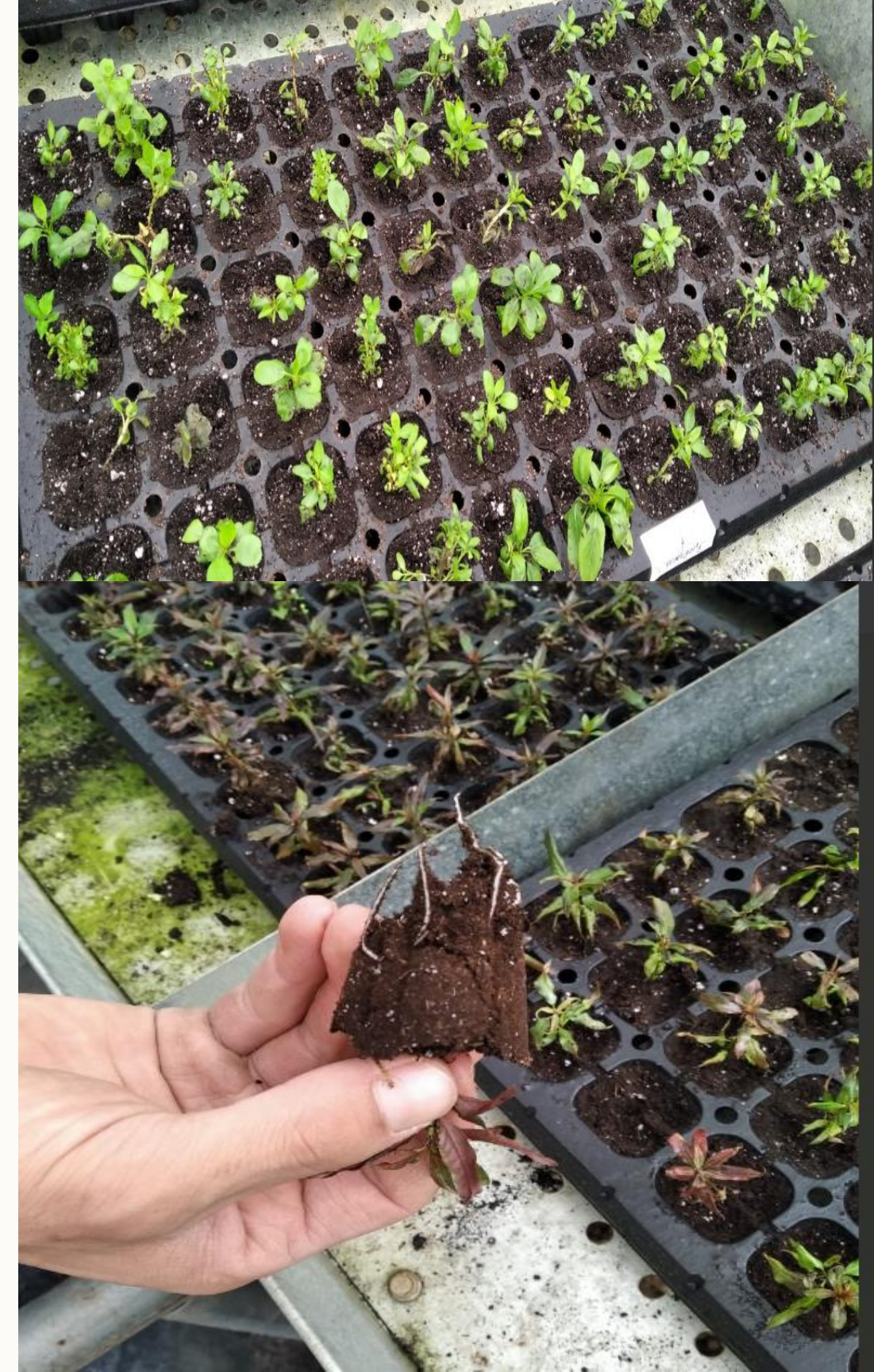
- Garnem
 - GF-677
 - Myrablan C-29
- grafts propagated vegetatively under protected areas, controlling air temperature and humidity in three stages.

2. Standard Seedlings: Study the yield of standard seedlings

from

- Garnem,
 - GF-677
 - Myrablan C-29
- grafts grown under controlled air temperature and humidity in protected areas.

3. Adhesion: Determine the relationship between the compatibility of grafts and scion plants with respect to their varieties.





Methodology

- Vegetative Propagation:** Propagation through apical meristems.
- Conditions:** A three-stage systematic acclimatization process by controlling temperature and humidity in a greenhouse.
- Evaluation:** Analysis of grafting success and growth indicators of seedlings.



Acclimatization Stages



Stage	Temperature (°C)	Humidity (%)	Duration	Purpose
1. Initial	23–24	95–100	21 days	Acclimatization in high humidity
2. Intermediate	24–25	85–90	21 days	Acclimatization by reducing humidity
3. Final	30–32	50–55	48 days	Acclimatization to dry and hot conditions



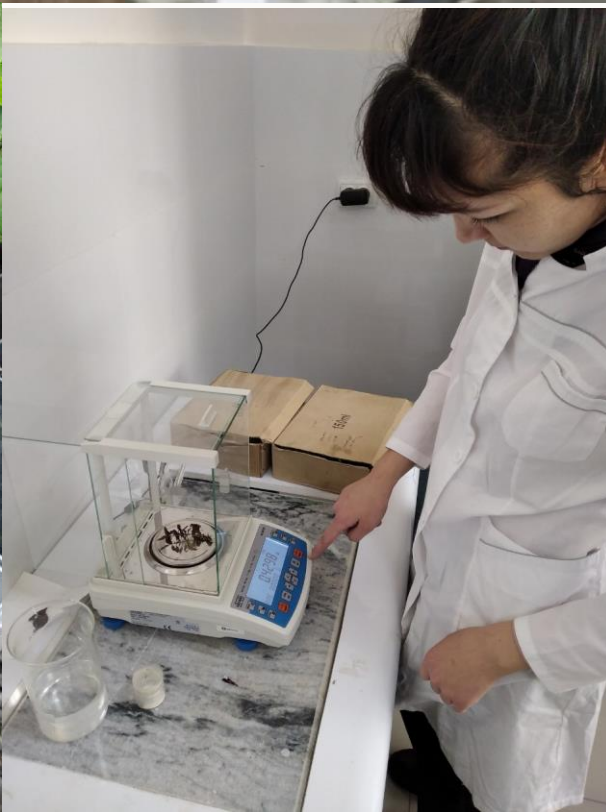
Fundamentals of Acclimatization

Temperature Control

In greenhouses, protection against relatively high or low temperatures is required. It is necessary to maintain the temperature consistently within the range of 22 to 25 degrees Celsius..

Humidity Control

Proper irrigation and maintaining the appropriate humidity level are important. Additionally, humidity is required to be maintained at 85-90%



Light Control

Seedlings need 16 hours of light and 8 hours of darkness.

Results and Analysis



1. Acclimatization Conditions

The grafted seedlings grown in the in-vitro laboratory were acclimatized in a greenhouse under three stages:

- Stage 1:** Temperature – 23–24 °C, Humidity – 95–100%
- Stage 2:** Temperature – 24–25 °C, Humidity – 85–90%
- Stage 3:** Temperature – 30–32 °C, Humidity – 50–55%

2. ☀️ Light Regime and Seedling Yield

In stages 1 and 2: The seedlings were grown under 14 hours of light per day for 21 days.

In stage 3: They were maintained under external environmental conditions for 90 days.

Result: The seedling yield ranged from 86.0% to 89.2%, indicating high biological efficiency.

3. Grafting Compatibility

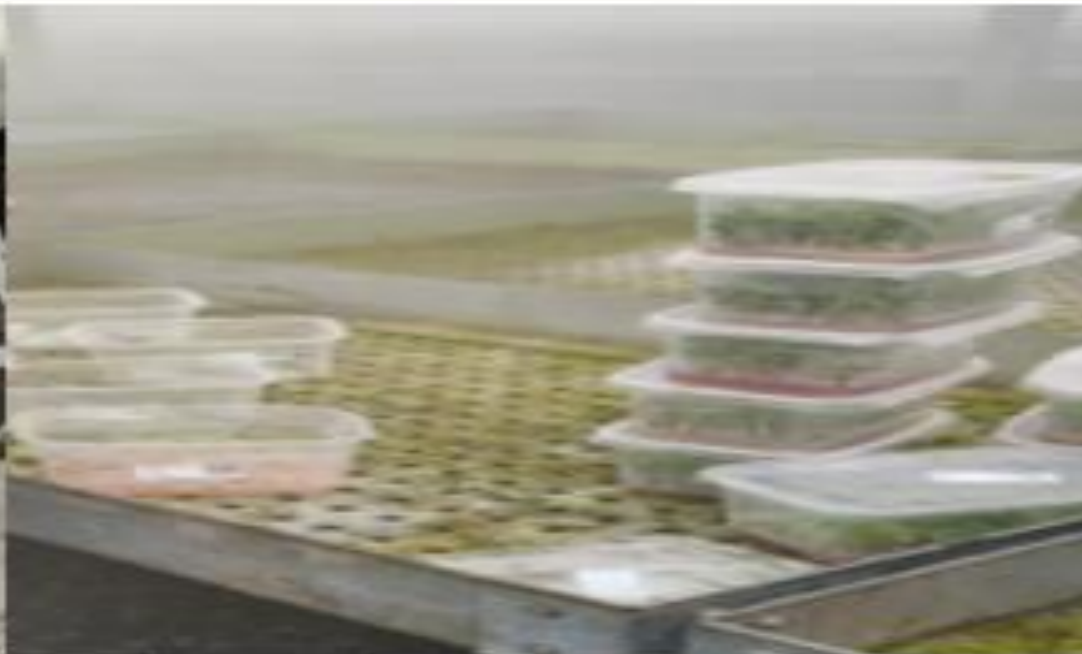
There was a high compatibility between each grafting stock and variety pair:

- Garnem + Peach Varieties** – High compatibility
- GF-677 + Almond Varieties** – Good compatibility
- Myrobalan C-29 + Plum Varieties** – Good adaptation

4. Grafting Results

Grafting Stock	Fruit Variety	Compatibility (%)
Garnem	Bigban (Peach)	96.2%
GF–677	Pervinets (Almond)	95.2%
Myrobalan C-29	Berton (Plum)	95.5%

Maintenance process





Conclusion & Recommendations



◆ Key Takeaways:

- Stepwise acclimatization in greenhouse conditions led to high survival and adaptation rates.
- Graft compatibility between selected rootstocks and cultivars was excellent, achieving over 95% success.
- Seedling emergence ranged between 86.0% and 89.2%, indicating high propagation efficiency.



◆ Recommendations:

- The proposed method can be successfully applied in commercial orchard management.
- Adherence to temperature, humidity, and light phases is critical for success.
- Rootstock–cultivar compatibility must be carefully considered for optimal results.



Thank You for Your Attention!

