NATAE
North African Transition to AgroEcology

Using local seeds in the Mediterranean

Agroecological zones

Suburban | Cereal plain | Mountains | Irrigated | Oasis

Introduction

Local seeds, often referred to as farmer or traditional seeds, can provide an alternative to improved and hybrid varieties. These seeds are derived from varieties selected over generations for their resistance to disease and pests, their tolerance to stress and their adaptation to local soil and climate conditions. Exchanged between farmers, they are often made of populations where genetic variability remains, contributing to their resilience.

Source: INAT, Tunisia

Advantages of using local seeds

Local seeds are generally well suited to **low-input systems**. They are less demanding in nutrients and water, thus requiring less fertilizer and irrigation than improved and hybrid varieties. They are often more **resilient** to difficult or irregular climatic conditions (drought, heat) and to infestations of diseases, parasites and pests. They can also be particularly useful for **intercropping**, **meslin** and **mixed** populations. These local accessions help maintain **genetic diversity**, which is crucial for adapting to climate change and phytosanitary pressures.

They enable **farmers to be self-sufficient**, producing their own seeds at individual or community level. This makes farmers more resilient to market price fluctuations, supply disruptions and environmental crises. Finally, the use of local ecotypes is often associated with traditional **agricultural knowledge** and a specific **culinary culture**. These varieties are often richer in nutrients or used locally in preparations that are less processed than those sold in supermarkets. Local seeds thus help to maintain the ancestral knowledge and cultural identity of rural communities, and preserve nutritional balance.

Examples of local seeds

Many local durum wheat genotypes (such as *Hadhba* and *Mahmoudi* in Tunisia) offer interesting agronomic qualities in extensive production systems, and are appreciated by farmers for their yield stability even in difficult years.

Local vegetable seeds and aromatic and medicinal plants are also of great interest in the Mediterranean.

Harvesting local seeds

To guarantee their **quality** and **germinative power**, seeds should be harvested when the plants are **fully mature**, generally when the fruits or seeds are fully formed, but before they begin to decay or fall. Harvesting should take place in **dry weather** to avoid mould and rot.

Local seeds are often harvested **by hand**, which means that the best samples are carefully selected and a clean harvest is guaranteed. On larger surfaces, **mechanized** harvesting is possible, but the seeds must be treated immediately after harvesting to prevent damage. After harvesting, the seeds must be **cleaned** to remove any plant debris, dust or soil residues, and dried. Fruit and vegetable seeds are often washed in clear water to remove the pulp. They are then left to dry for one or two hours in the sun, before being placed in a dry, well-ventilated place in the shade for 10 to 15 days. For certain species, seeds need a specific treatment to ensure proper conservation and germination.

Local seed conservation

Good **storage** conditions for **local seeds** maintain their **viability**. Seed **humidity** should be reduced to less than **10-12%** to avoid mould. Seeds should be stored in **airtight containers** (boxes, canvas bags, jars) to protect them from insects, rodents and adverse weather conditions. They should be stored in **cool**, **dry** places, if possible at a stable temperature of 5°C to 10°C, in the **dark** or in a dark place.

The shelf life of local seeds can vary from 1 to 10 years, depending on the species, variety, storage method and climate conditions. Before sowing, it is important to **test germination** by taking a small sample of seeds and germinating them under controlled conditions (on damp cotton, for example) for a few days. A germination rate of less than 80% may mean that the seeds need to be renewed.

Participatory varietal selection

Selecting, preserving and disseminating local varieties, or those adapted to local conditions, is a **collective process**.

Participatory varietal selection **involves farmers** in the selection process. Varieties are selected for their resistance to climate conditions (drought, heat, salinity, etc.), soil characteristics (acid, alkaline, dry, etc.), food demand, and local processing and consumption patterns. Farmers choose the seeds they feel are best suited to their practices and needs, evaluating criteria such as disease resistance, productivity, ripening time, organoleptic qualities, transformation characteristics.

Traditional knowledge can be combined with scientific research in **participatory research**, to select or create varieties that are better adapted to local needs, for example by crossing local varieties with more robust or more productive varieties. Farmers contribute to the evaluation of new varieties by growing them on their land and selecting the best-performing plants, using a multi-criteria approach.

Participatory selection helps maintain a high level of genetic diversity in seeds, and promotes the transmission of local agricultural knowledge to younger generations. Working with researchers enables farmers to validate seed performance, and ensure compliance with phytosanitary and seed legislation.

Organizing the multiplication and sharing of farmer seeds under legally acceptable conditions

The multiplication and sharing of farmer seeds must comply with the legislation in force, which is sometimes strict in terms of **seed certification** and **intellectual property**. **Seed laws** are often influenced by international standards such as the **International Convention for the Protection of New Varieties of Plants** (CIVP) or **European Union** regulations, which tend to favour seeds that are certified and controlled by multinational companies, even though the **International Treaty on Plant Genetic Resources for Food and Agriculture** (ITPGRFA) promotes farmers' rights over seeds and supports the conservation of agricultural biodiversity.

When authorized, **community seed banks** and **platforms**, organized as cooperatives or associations, can play a key role in organizing the multiplication, conservation and sharing of farmer seeds.

Community seed enterprises generate local income. Farmers participating in these initiatives produce seeds in their fields, after selecting them according to rigorous quality criteria. Once harvested, the seeds are carefully cleaned, sorted and stored, before being sold at affordable prices, often via cooperatives or local markets. Through community enterprises, farmers often benefit from training.

Cooperatives or associations can set up an internal control system to ensure that seeds shared or multiplied comply with quality criteria, while remaining accessible and locally adapted.

Some Mediterranean countries allow local producers to register traditional varieties in a specific **register** (for example, through participatory certification systems).

Participatory certification, when authorized, enables farmer seeds to be legally recognized without going through the official certification process, while guaranteeing quality criteria. These certificates can be developed by community organizations or agricultural cooperatives in partnership with the relevant authorities.

Examples of initiatives in the Mediterranean to use local seeds

Several Mediterranean countries have set up **gene banks** to collect local seeds of cultivated species, thus conserving agrobiodiversity.

Several Mediterranean countries have also launched initiatives to organize the multiplication and sharing of farmers' seeds within a **legal framework**.

- **Farmer seed platforms:** In Tunisia, projects such as the Réseau National des Semences Paysannes (National Farmers' Seed Network) promote the conservation and sharing of local seeds, while ensuring that seeds comply with local standards.
- **Flexible legislation for traditional seeds:** Morocco has set up a participatory certification system for local seeds, enabling farmers to multiply and sell local seeds without having to meet the same requirements as official certification.
- **Local funding mechanisms:** In Morocco, seed multiplication projects are sometimes supported by community funding, facilitating farmers' access to quality seeds.
- In Spain, seed banks managed by local associations have enabled the preservation and multiplication of traditional seeds, while complying with legal requirements through participatory certification.

Challenges and limitations

Farmers and local actors often operate in a legally complex environment. They need to be **trained or made aware of seed legislations** to avoid infringement of intellectual property rights, while encouraging the conservation, multiplication and sharing of locally adapted seeds. Revisions to the legal framework are sometimes necessary for the collective preservation and dissemination of local seeds.

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