

Types of garden crops

The main **garden crops** are **vegetables and aromatic plants**. These crops are characterised by being planted on a **smaller scale and more intensively**. They can be classified (1) **according to their environmental requirements** and (2) **their specific and morphological characteristics**. To choose which species to plant, on the one hand, it is essential to know which ones are capable of adapting to the **agroclimatic conditions** of the area; on the other hand, the characteristics linked to the **family to which they belong**, their morphology and their relationship with the environment must be known, since species of the same family usually have similar requirements and problems. All this allows us to alternate the species in terms of time and space **to obtain greater profitability of the garden**.



Figure 1. Regenerative agriculture garden on the Planeses farm (Catalonia) where the Polyfarming system is deployed. Photo: Ángela Justamante.

Garden crops (**Figure 1**) are characterised by being sown in smaller areas, intensively and by having a high value per unit of area planted. The main crops grown in gardens are **vegetables**, but **aromatic or medicinal plants** are also included. In the group of vegetables, which has no botanical basis, the so-called vegetables, legumes and fruits or roots of some plants are included (some examples are tomatoes, carrots, peppers, etc.). **Aromatic plants** usually accompany vegetables because they are very easy to grow and contribute positively to the garden. Among other things, they favour pollination, ward off pests and attract beneficial insects that protect them. The most widely used species are basil, lavender, mint or rosemary, among others.

■ Classification of horticultural crops according to their environmental requirements

In garden cultivation, it is necessary to know the **agroclimatic conditions** of the area to plant species that can adapt to these conditions during their growing period. The most important climatic characteristics include **temperature, frost-free periods, the season of the year**, which determines the daily variation in temperature, the **number of hours of sunshine or the distribution of rainfall**. Soil characteristics such as pH, salinity, texture

and structure must also be considered. Among this set of factors, two of the most used for vegetable classification are:

- According to their **thermal requirements**:
 - **Cold season crops tolerant to frost**: broccoli, broad bean, lettuce or carrot.
 - **Cold season crops intolerant to frost**: onion, leek, garlic or asparagus.
 - **Warm season crops with average monthly temperatures between 18-30°C**: tomato, corn, melon or cucumber.
 - **Warm season crops with average monthly temperatures above 21°C**: aubergine or watermelon.

• According to their **tolerance to soil salinity**, they are classified as:

- **Crops sensitive to salinity**: carrot, strawberry or onion.
- **Moderately sensitive crops**: potato, turnip or corn.
- **Crops tolerant to salinity**: beet, courgette or barley.

Crops and local varieties are those that are best adapted to the growing conditions of each area. They are characterised by having a **high genetic diversity because they are more resistant** to attacks by the organisms that feed on them. As for hybrid varieties, they have spread widely because they are more productive than local varieties and they have more homogeneous products, but unlike local varieties, they need a greater amount of external inputs for their growth and protection.



Figure 2. A: Chard culture, from the Quenopodiaceae botanical family. Photo: MJ Broncano. **B:** Cultivation of tomatoes from the Solanaceae botanical family. Photo Pikist, CCO.

■ Classification of horticultural crops according to their specific and morphological characteristics

A garden usually contains different types of horticultural plants both in space (**polycultures**) and in time (**rotations**). This diversity is associated with greater crop production and profitability, as it implies different uses of resources, both at aerial (light) and soil level (water and nutrients).

To decide which species to plant in the garden and when to do it, it is necessary to know which family the plants belong to because species of the same family usually have remarkably similar needs and problems. It is also important to know the shape and **depth of the roots** to avoid overlap and competition underground. Other aspects to consider are: 1) **the part of the plant that is used** and 2) the type of contribution that the plant makes to the environment it grows in, it can either be a fertiliser or a nutrient extractor.

Horticultural crops can be classified according to their botanical family, life cycle, the depth of their roots or according to the part of the plant that is used. Thus,

- According to **the botanical family to which they belong**:
- **Compounds**: lettuce, endive, artichoke or sunflower.
- **Crucifers**: cabbage, turnip or radish.
- **Cucurbits**: pumpkin, melon, cucumber or watermelon.

- **Legumes**: chickpea, pea, broad bean, bean or lentil.
- **Liliaceae**: garlic, onion, asparagus or leek.
- **Chenopodiaceae**: chard (**Figure 2A**), spinach or beet.
- **Solanaceae**: aubergine, potato, pepper or tomato (**Figure 2B**).
- **Umbellifers**: celery, parsnip, parsley or carrot.
- According to their **life cycle**:
- **Annuals**: potato, aubergine, pumpkin, cucumber, broad bean, spinach or lettuce.
- **Biannuals**: cauliflower, turnip, radish, carrot, celery, chard or leek.
- **Perennials**: artichoke, strawberry, asparagus or garlic.
- According to the **depth of their roots**:
- **Superficial** (45-60 cm): garlic, celery, onion, cauliflower, endive, lettuce, potato, leek or radish.
- **Intermediate** (90-120 cm): aubergine, pea, melon, cucumber, pepper, carrot or broad bean.
- **Deep** (> 120cm): artichoke, pumpkin, parsnip, watermelon, tomato or thistle.
- According to the **part of the plant that is used**:
- **Roots and tubers**: potato, radish, turnip or carrot.
- **Flowers, seeds and fruits**: broad bean, pea, cauliflower, pumpkin, melon or artichoke.
- **Leaves**: cabbage, lettuce or endive.
- **Bulbs and stems**: garlic, onion, asparagus or leek.