PSR Puglia 2014-2020
Misura 16 Cooperazione – Sottomisura 16.2 “Sostegno a progetti pilota e allo sviluppo di nuovi prodotti, pratiche, processi e tecnologie”

PEANUT
PUGLIA

PEANUT: DESCRIPTION

Classification

- **Kingdom**: Plantae
- **Division**: Magnoliophyta
- **Clas**: Magnoliopsida
- **Order**: Fabales
- **Family**: *Fabaceae*
- **Genus**: *Arachis*
- **Species**: *Arachis hypogaea*

Origin and distribution

The peanut is native to South America, particularly the Andean regions and Brazil, where it is believed to have been cultivated by indigenous populations for thousands of years. It later spread to Africa, Asia, and eventually Europe through colonial trade routes. Today, it is widely cultivated in tropical and subtropical regions worldwide.

Morphology

1. **Roots:** The peanut plant has a taproot system that penetrates deep into the soil, providing strong anchorage and an adequate capacity for water and nutrient absorption. The roots have nodules that house Rhizobium bacteria, which fix atmospheric nitrogen, enriching the soil.
2. **Stem:** The plant has an herbaceous stem, which can be erect or prostrate, depending on the variety. The stem is generally short, with a growth range of 30 to 60 cm.

3. **Leaves:** The leaves are compound and pinnate, comprising four elliptical or oblong leaflets, bright green in color. They are alternately arranged along the stem and are well adapted to strong sunlight, playing a crucial role in photosynthesis.

4. Flowers: The flowers are small, yellow, and papilionaceous, typical of the Fabaceae family. They are self-pollinating and grow in the leaf axils. After fertilization, the flower stalk elongates and bends towards the ground, allowing the fruit to develop underground.

5. **Fruits (Pods):** The peanut fruit is an indehiscent pod, also known as a legume, that develops underground due to geocarpy, a unique adaptation of this species. The pods are oval-shaped and contain one to four seeds, commonly known as peanuts. The seeds are covered by a red or brown skin and are rich in lipids, proteins, and vitamins.

Lifcycle

The peanut is an annual plant with a growing cycle of 90 to 150 days, depending on climatic conditions and the variety. After sowing, germination occurs in about 7–10 days, and flowering begins approximately 30–40 days later. The pods mature around 60–80 days after fertilization, and harvest takes place when the leaves begin to yellow, indicating that the fruits are ripe.

Growing Conditions

- **Climate:** The peanut plant requires warm climates, with optimal temperatures between 25 and 30 °C. It is sensitive to frost and requires a long warm season to complete its growth cycle.
- **Soil:** Prefers light, well-drained sandy soils with a neutral or slightly acidic pH (6.0–6.5). Heavy clay soils that retain water can promote fungal diseases.
- **Sun Exposure:** Full sun exposure is needed for optimal growth.
- **Irrigation:** Although drought-tolerant, water availability during flowering and pod development phases is crucial to achieve good yields.

Uses and Properties

1. **Food Uses:** Peanut seeds are consumed fresh or roasted and are used to produce peanut oil, peanut butter, and peanut flour. Peanut oil is highly valued for its high smoke point, making it ideal for frying.
2. **Nutritional Properties:** Peanuts are rich in proteins (about 25% of their weight), unsaturated fats, vitamin E, B vitamins, and minerals such as magnesium and phosphorus. Due to their high monounsaturated fat content, peanuts are considered beneficial for cardiovascular health.
3. **Industrial Uses:** Peanut oil is also used in the cosmetic and pharmaceutical industries. Additionally, by-products from processing (such as peanut meal and shells) are used as animal feed or as an organic soil amendment.

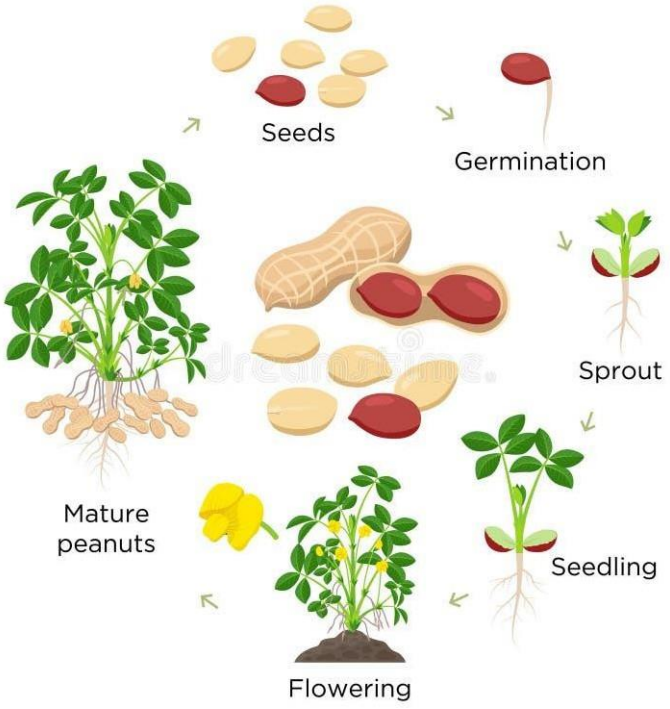
Diseases and Pests

Peanuts are susceptible to various diseases and pests:

- **Fungal Diseases**: Major fungal diseases include root rot caused by *Rhizoctonia solani* and *Aspergillus niger*, which can affect pods and seeds, especially in high-humidity conditions.
- **Viruses**: The Tomato Spotted Wilt Virus (TSWV) can significantly reduce the productivity of infected plants.

- **Pests**: Aphids and peanut bruchids (*Caryedon serratus*) are the main insect pests, as they attack seeds and can compromise harvest quality.

Figure 1: Peanutt lifecycle (source:web)



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