



MASTER GARDENER
COLORADO STATE UNIVERSITY
EXTENSION

CMG GardenNotes #137

Plant Structures: Seeds

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A seed (mature ovule) is a miniature plant with a protective cover in a suspended state of development. Most seeds contain a built-in food supply called endosperm (orchid is an exception). The endosperm can be made up of proteins, carbohydrates, or fats.

Function

- Propagation
- Feed
- Horticultural uses
 - o Feed, food and oil

Structure and Emergence

Seeds of monocots and dicots differ in structure.

Monocot Seeds

Seed coat – Forms the wall of the embryo sack (mother tissue)

Endosperm – Food supply containing 3 sets of chromosomes (2 from the mother and 1 from the father)

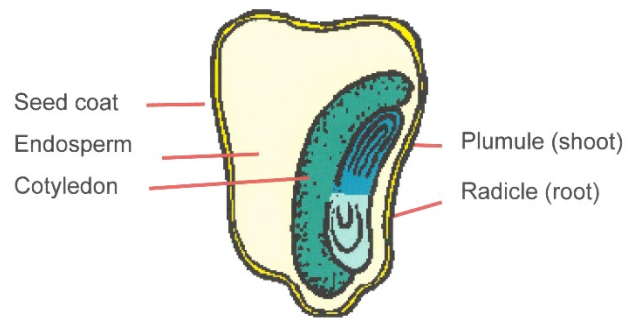
Embryo – Immature plant

Cotyledon – Seed leaf

Plumule – Shoot

Radicle – Root

Figure 1. Cross section of monocot seed (corn).



Dicot Seeds

Seed coat – The protective outer covering of a seed.

Embryo – Immature plant

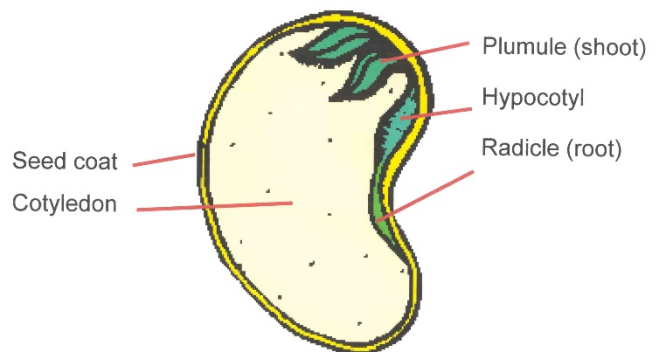
Cotyledon – Food storing seed leaf

Plumule – Shoot

Hypocotyl – Stem

Radicle – Root

Figure 3. Cross section of dicot seed (bean).



Seed Growth and Development Terms

Dormancy – State of suspended growth to survive adverse conditions and aid in dispersion. Adapting plants to a variety of hostile environments, nature programs a variety of germination blocks. The following are common types.

Seed coat dormancy – When the seed coat is impermeable to water, and gases (oxygen). It requires action by weathering, microorganisms, passage through an animal's digestive track, or fire to soften the seed coat.

Embryo dormancy – Due to physiological conditions or germination blocks in the embryo itself. It requires a specific period of cold (or heat) with available moisture and oxygen. Embryo dormancy is common in woody plants.

Double dormancy – Condition of both seed coat and embryo dormancy.

Chemical inhibitor dormancy – Seed contains some type of chemical that blocks germination. Many desert plants contain chemical germination inhibitors that are leached out in a soaking rain.

Germination – Sprouting of seed following exposure to correct environmental conditions for the species

Stratification – Techniques used to overcome dormancy.

Additional Information – *CMG GardenNotes* on Botany:

#121	Horticulture Classification Terms	#136	Plant Structures: Fruit
#122	Taxonomic Classification	#137	Plant Structures: Seeds
#131	Plant Structures: Cells, Tissues, and Structures	#141	Plant Growth Factors: Photosynthesis, Respiration and Transpiration
#132	Plant Structures: Roots	#142	Plant Growth Factors: Light
#133	Plant Structures: Stems	#143	Plant Growth Factors: Temperature
#134	Plant Structures: Leaves	#144	Plant Growth Factors: Water
#135	Plant Structures: Flowers	#145	Plant Growth Factors: Hormones

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