

Soybean Growth and Development

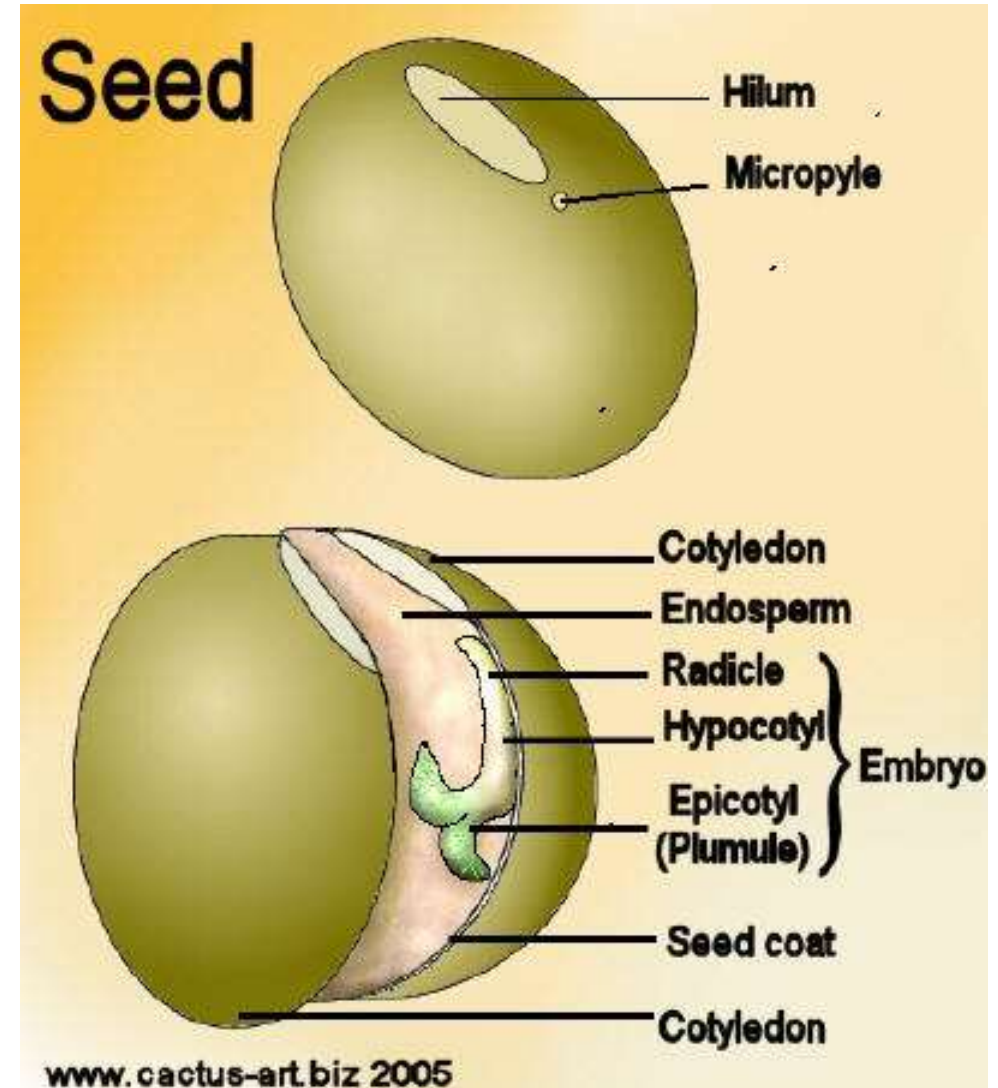
Emergence

Soybean Germination Tips

- First step in pest control is a healthy crop
- Seed depth $\frac{3}{4}$ " to $1 \frac{1}{4}$ " good range, deep enough water absorption but not too deep to complicate emergence
 - Soil compaction and crusting can compromise emergence
- 50% Moisture content needed for germination to begin
- At least 55 degrees Fahrenheit to trigger germination
- Early planting can maximize yield potential, how early is too early?
 - Early planting in cold soils increase disease exposure
 - Seed treatments off set early planting risks
- Soybean seed has two distinct parts Cotyledons and the Embryo

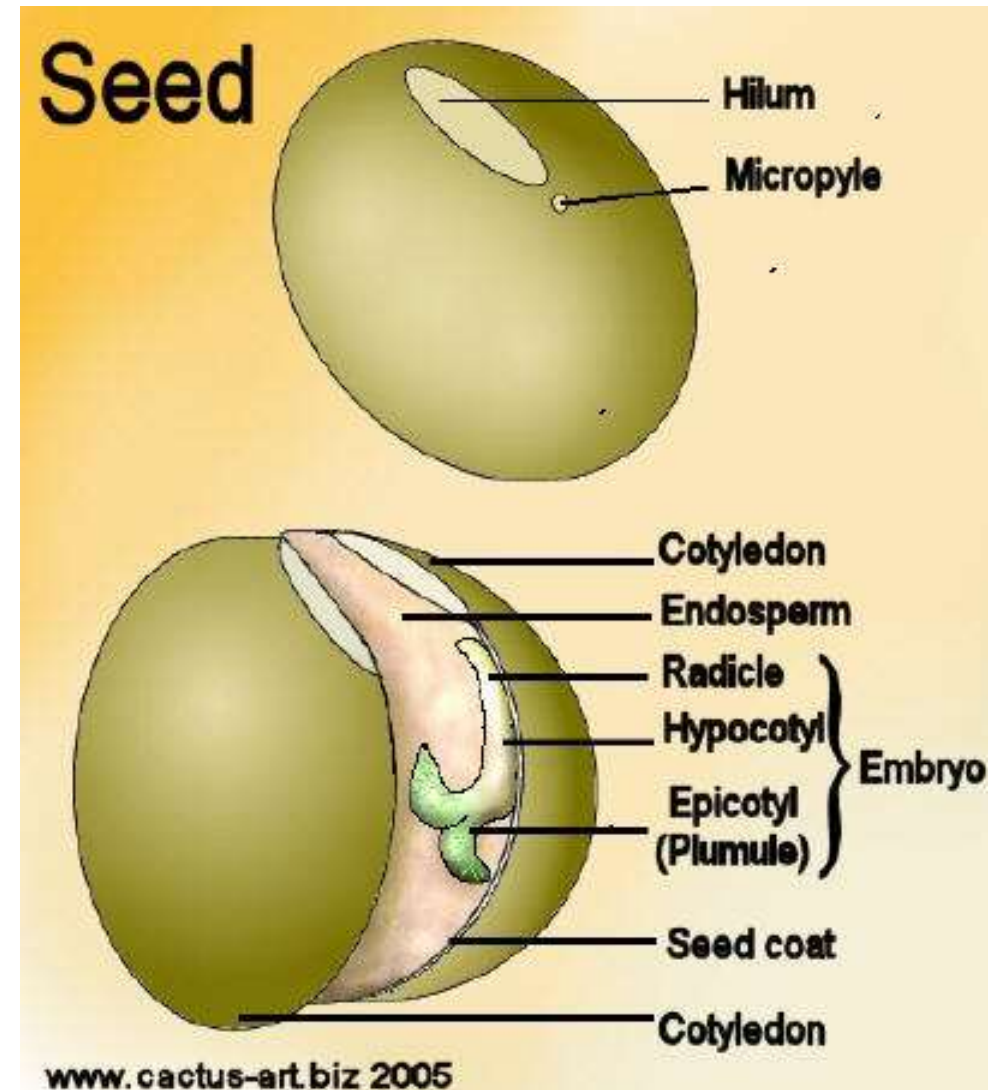
Soybean Embryo

- Hilum – point the seed attaches to the pod
- Seed Coat – outer protective covering of the seed
- Micropyle - a small opening in the surface of an ovule, through which the pollen tube penetrates, often visible as a small pore in the ripe seed



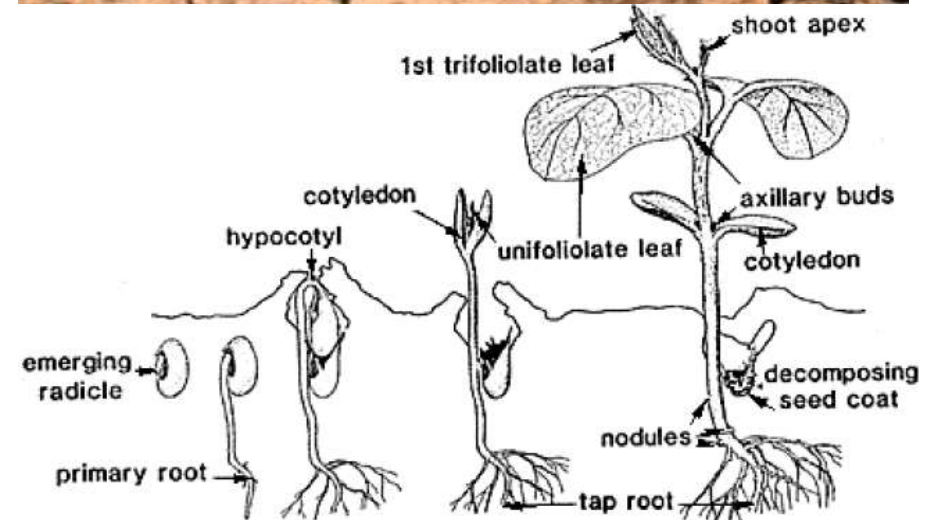
Soybean Embryo

- Radicle – first root lateral roots with root hairs grow out of
- Hypocotyl – modified stem that is pushed upward through the soil
- Epicotyl – leaves and growing point protected by cotyledons
- Cotyledon – Embryonic Leaves
- Endosperm - food store for the developing plant embryo, contains starch with protein and other nutrients



VE Emergence

- Radical emerges grows down
- Cotyledons pulled through the soil surface
 - Epigeal emergence
 - Hypocotyl elongates reaches soil surface absorbing sunlight
 - Cotyledon main food source – stored energy
 - Limited photosynthesis
- hold



https://crops.extension.iastate.edu/soybean/production_growthstages.html

<https://extension.umn.edu/growing-soybean/soybean-growth-stages>

VC Unrolled Unifoliate Leaves

- Unifoliate leaves unrolled sufficiently, so the leaf edges are not touching

