

# ENGLISH PEAS: A Cool-season Legume in Conservation Planning



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Definition: English pea or Garden Pea (*Pisum sativum*) is an annual, belonging to the legume family and is one of the oldest cultivated crops in the world. Also known as shell peas, early or June pea and green peas, these are frost-tolerant, cool-climate, climbing edible plants that originated in Asia. Peas were introduced to the British by the Romans and the colonists brought them to America. Presently, it is cultivated all over the country for its tender green seeds and pods.

## **Purposes**

- ❖ To conserve soil and water through the use of vegetation
- ❖ To maintain and/or to improve soil availability, quality, and soil nutrients
- ❖ To suppress weeds, reduce insect pests and diseases, and increase crop yield
- ❖ To improve soil tilth, soil organic matter, and soil structure

## **Condition where practice applies:**

Peas grow in different soils but favor well-drained, silt loam or sandy with good drainage, organic matter and a touch of acid (6.8) to (7.2) pH. Sunny or partially shaded site and early planting are essential for sturdy growth and plenteous harvests.

**Planting:** Peas prefer moist, cool and moderate weather. In the South, they are a winter crop and are planted in December, January or February and in the North, close to the last week of March (45°F and up), until autumn. Seeds fail to germinate properly above 85°F. Peas can be straight sown 1-2 inches (2.5-5 cm) deep and about 2 inches distant (5 cm), at a rate of 100 to 150 lbs per acre. Peas benefit from the support of fence or trellis, closer plant spacing, ample sunlight, and minimal diseases. Early planting and prior preparation of bed with compost, organic manure, fertilizing based on soil test, and irrigation will double the yield within a span of 3-4 months. English peas are ready to harvest usually 3 weeks after the plants bloom. Harvesting on a daily basis encourages continuous production. A longer harvest can be ensured by simultaneously planting early, midseason and late varieties.

**Crop Rotation** is the technique of planting non-related crops in the same field, in sequence. It is a necessary and beneficial tool for cropping systems. By changing the site of pea production frequently through rotation, the grower can effortlessly prevent the build-up of diseases and pests in the garden soil such as root rot, wilt, bacterial blight and anthracnose. Peas should be preceded by the cabbage family (because this legume crop clears the ground early for the establishment of a green manure crop) and succeeded by tomatoes since peas need an early bed. Few other successive crops include beets or beans and carrots. Peas are good for intercropping also. Avoid planting peas near onions.

**Cover crops** retain soil structure and soil surface, prevent soil erosion, control pests and weed growth by supplying organic matter to the soil, they increase water holding capacity and aeration. Peas are excellent cover crops when planted in rotation with heavy-feeding vegetables. English pea, as a legume, helps in developing nodule forming micro-organisms to fix nitrogen in soil.

**Disking** is a universal strategy practiced in agriculture prior to planting the main crop. Disking breaks up the ground and loosens soil, prepares a uniform seedbed and permits nutrients and water to flow deep into the plant roots. Disking after the stage of maturity (that gives the N contribution to Peas) adversely affects the plants by destroying them. At the same time, light disking can preserve the residue and control erosion to a certain extent. Disadvantages of disking include labor cost, dust, soil compaction and erosion, and reduction in productivity.

**Mulching** helps warm up the soil in early spring and acts beneficially for English peas by extending the growing and harvesting periods. Organic mulches (2-inch deep) improve soil structure and microbial activity and reduce soil erosion, soil borne diseases and weeds. Composted manure mulching retains soil moisture, supplies nutrients for plants and safeguards the surface roots from excess heat.

**Weed and Pest Control:** The initial six weeks after planting are the critical period. Prevention is the most practical defense. A hard spray of insecticide soap and fungicide will get rid of most of the pests. Aphids, viruses, powdery mildew, root rots and wilt diseases have to be controlled by using resistant varieties and crop rotation. Avoiding overhead irrigation, choosing quality seeds, planting early, shallow cultivation, changing planting site yearly, weekly checking, contacting

the local Cooperative Extension office for guidance, etc. are different ways of weed and pest control.

**Residue Management** is an imperative factor of conservation tillage systems. Surface residue help reduce water loss and erosion. The rate of decomposition of residue depends on the organic N content or C: N ratio and its placement. Buried residue decays faster than surface residues. The total residue mass (root and shoot) ranges from 4500 to 5500 lbs/acre (980 to 1200 lbs/acre of dry residue). English pea residue contains 36.77% carbon and 3.25% nitrogen. At this rate, the crop returns 360-440 lbs of carbon and 32 to 40 lbs of nitrogen per acre. English pea provides moderate vegetation with more than 55% canopy cover after 45 days of seeding. Leaf area index (LAI) is the unit area of leaves per unit area of soil surface. LAI of English pea goes up to a maximum of 1.6 after 60 days of seeding. The maximum root depth and width recorded are 11 inches and 18 inches, respectively. The residue cover recorded after disking is 44%. As this crop returns a good quantity of plant residue and its canopy cover goes beyond 50%, it can be recommended for regions with high precipitation and erodible soils.