Peas

General Information

Field peas (*Pisum sativum* L.), a cool-season legume can be grown for green manure, animal feed, or human consumption. The most common edible peas are white or yellow and can be either climbing or non-climbing dwarf peas. Field peas that lack long, climbing vines are much easier to harvest, and dwarf field pea varieties, with the shortest vines and smallest leaves, are the simplest to harvest. However, vine varieties are well-suited to compete against weeds and cope with moisture and heat stress. Both types of field peas can be grown in the northeast because they grow well in cooler temperatures (even seedlings can survive frosts); however, peas do best in slightly drier conditions than normal New England growing seasons.

For human consumption, peas are high in protein (21-25%) and can be used as dry peas or ground into flour. When grown for animal feed, peas are often inter-seeded with another small grain such as barley, which adds more energy and fiber to the forage and also makes the peas easier to harvest. The peas can easily climb up and be supported by the small grain. Peas are often chosen as animal feed for their ability to be fed directly to livestock without any processing. When conditions are right, peas are very effective nitrogen fixers and are therefore often grown as a soil-enhancing green manure and turned into the ground instead of being harvested for seed.

Preparation & Planting

Peas can do well in a variety of soils, ranging from sandy to clayey, but should have a well-drained seedbed with low saline levels. They cannot tolerate water-logged soils and often die within 24-48 hours if saturated. They do best in soils with a pH of 6.5-7.0. The field should be high in potassium, phosphorus, and manganese for optimal growth and nitrogen fixation. Excessive tilling in the spring can dry out soils and cause problems, and because peas require more moisture during germination than other crops such as cereal grains, this should be avoided.

To promote nitrogen fixation, growers should inoculate the seed with the appropriate strand of a nitrogen-fixing bacterium called *Rhizobia*. This will increase yields and nitrogen fixation for all legumes. For field peas (as well as lentils, vetches, and fava beans), this strand is *R. leguminosarum* var *vicaeae*. If growing organic peas, take care to ensure the bacterium is not genetically engineered. Some growers use a sticking agent like milk or sugar water to moisten the seeds before adding an inoculant, and plant the inoculated seed in the early morning or evening. If inoculation has been done properly, nitrogen fixation will occur approximately 4 weeks after germination and continue through the formation of seeds.

In our area, field peas are planted in mid-April or early May; their large seeds can germinate at 40°F (although 50°F is ideal), and early growth can survive light frosts. Seeds should be sown at

a rate of 100-175 lb per acre and planted 1-3 inches deep. Many farmers roll the bed after planting, because smooth seedbeds allow for easier harvesting.

Cultural Practices

To out-compete weeds, peas are often grown with other grains such as barley, oats, and wheat, which provide early weed control and also make harvesting easier. Peas are slow to emerge so weeds can quickly become a problem, especially in the first few weeks after planting. To minimize weed competition, avoid planting peas in fields that have been congested with perennial weeds and plant at a high seeding rate so that the pea stand develops with seven or eight plants per square foot. Pre-emergent cultivation, either with rotary hoes or harrows, is recommended, and careful post-emergent tilling should be done before the peas are four inches high. This will avoid damage to the crop because once the pea seedlings begin to branch out, they can easily be pulled out by cultivators. If weeds are persistent, pea yields can be dramatically reduced.

Crop rotation is very important with peas to reach maximum production and help with weed and disease management, as peas are extremely susceptible to both *Fusarium* and *Sclerotinia* diseases. *Sclerotinia* is a white mold that thrives primarily on moist, rotting flower petals and leaves. A good rotation includes at least two seasons between pulse crops (peas, dry beans, soybeans, etc.). *Sclerotinia* white mold is more likely to impact long-vine, climbing peas than dwarf field peas that have fewer, smaller leaves. However, all field peas are moderately susceptible to *Sclerotinia*, as well as various foot rots, especially in wet seasons. Precautions should also be taken to plant only clean, disease-free seed, and inoculate seed before planting.

Peas do best in cool weather and can be damaged by heat stress. Although peas are fairly efficient at utilizing minimal water resources, because their root structure is shallow, they are more likely to be susceptible to drought in sandy soils. Peas are self-pollinating, with white to purplish flowers that produce pods with four to nine seeds.

Harvesting & Storing

There are both indeterminate and determinate varieties of field pea, and determinate will ripen faster (in 80-90 days as opposed to 90-100 days). This is partly because indeterminate varieties will flower for a longer period of time; they are also more adaptable to hot, dry weather. Determinate varieties are more adapted to wetter climates and are easier to harvest because of their faster, consistent maturity. Most northeast growers recommend planting determinate field peas. When choosing a variety, growers should consider how well the pea will stand upright at harvest time and remember that in general, determinate dwarf field peas will probably be easiest for northeast growers to harvest, being lower to the ground, less likely to lodge, and less susceptible to disease.

The ideal test weight for field peas is 60 lb per bushel. Peas should be harvested at physiological maturity, when most pods have changed from green to a yellowish/tan color. Harvesting will be difficult if the plants are not sufficiently dry, but seed damage is possible if you delay harvest until peas are too dry and brittle.

If a field is weedy or the crop has not matured evenly it might be best to swath or mow the crop prior to combining. Swathing will allow the weeds and the crop to dry down, which better facilitates threshing the crop with the combine. Green weeds can stain the peas and make them unsuitable for sale into the food-grade market. In addition, green material can also easily plug the combine leading to crop losses and frustration. If swathing, harvest as soon as the plants are dry enough and monitor for bleaching of the peas, which can occur more quickly in swathed, drying field peas than living plants. Combine when field peas are at a moisture level of 14-20%. Removing any additional wet plant material as well as drying the peas to the proper storage moisture will minimize fungus and insect damage. For long-term storage, peas should be kept at low moistures (14%) and low temperatures (always below 90°F, and ideally similar to outdoor temperatures).

Only high-quality peas will be suitable for human consumption; anything bleached, split, cracked, or irreparably dirty will likely end up as livestock feed. Peas are high in protein and low in fiber, which makes them a great protein source for livestock feed. Also, field peas can be inter-seeded with small grains like oats, then harvested and processed together for forage. This is also a great crop for a green manure. Because peas do not leave much stubble after harvesting, many growers recommend planting a fall cover crop (if the length of the growing season allows) after harvesting peas, in order to add nutrients back to the soil and provide a cover to protect against erosion.

References:

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