USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Fact Sheet

PEA

Pisum sativum L.

Plant Symbol = PISA6

Contributed by: NRCS Plant Materials Center, Pullman, Washington

Field of peas. Rebecca McGee, USDA-ARS

Alternative Names

Common Alternate Names: garden pea, field pea, spring pea, English pea, common pea, green pea (*Pisum sativum* L. ssp. *sativum*); Austrian winter pea (*Pisum sativum* L. ssp. *sativum* var. *arvense*)

Scientific Alternate Names: Pisum arvense L., *Pisum humile* Boiss. & Noe, *Pisum sativum* L. ssp. *arvense* (L.) Poir., *Pisum sativum* L. var. *arvense* (L.) Poir., *Pisum sativum* L. var. *humile* Poir., *Pisum sativum* L. var. *macrocarpon* Ser., *Pisum sativum* L. ssp. *sativum*, and *Pisum sativum* L. ssp. *sativum* var. *arvense* (L.) Poir.

Uses

Commercial crop: Peas are a cool-season crop grown for their edible seed or seed pods. Garden or green peas are harvested before the seed is mature for the fresh or fresh-pack market (Elzebroek and Wind, 2008). Sugar snap peas and snow peas lack the inner pod fiber and are also harvested early for the fresh or fresh-pack market (McGee, 2012). Field peas, including fall-sown Austrian winter peas, are harvested when seeds are mature and dry, and are primarily blended with grains to fortify the protein content of livestock feed. Dried peas are also sold for human consumption as whole, split or ground peas. Peas are a nutritious legume, containing 15 to 35% protein, and high concentrations of the essential amino acids lysine and tryptophan (Elzebroek and Wind, 2008).

Forage crop: Peas are grown alone or with cereals for silage and green fodder (Elzebroek and Wind, 2008). Peas can also be grazed while in the field. Young Austrian winter pea plants will regrow after being grazed multiple times (Clark, 2007).

Rotational crop: Peas and other legumes are desirable in crop rotations because they break up disease and pest cycles, provide nitrogen, improve soil microbe diversity and activity, improve soil aggregation, conserve soil water, and provide economic diversity.

Green manure and cover crop: Peas are grown as green manures and cover crops because they grow quickly and contribute nitrogen to the soil (Clark, 2007). Pea roots have nodules, formed by the bacteria *Rhizobium leguminosarum*, which convert atmospheric nitrogen to ammonia. Peas also produce an abundance of succulent vines that breakdown quickly and provide nitrogen (Sarrantonio, 1994, as cited by Clark, 2007). Austrian winter peas are the most common type of pea used as a green manure or cover crop because they are adapted to cold temperatures and fit in many rotations.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Description and Adaptation

General: Legume family (Fabaceae). The pea is a cool-season annual vine that is smooth and has a bluish-green waxy appearance. Vines can be up to 9 ft long, however modern cultivars have shorter vines, about 2 ft long. The stem is hollow, and the taller cultivars cannot climb without support (Elzebroek and Wind, 2008). Leaves are alternate, pinnately compound, and consist of two large leaflike stipules, one to several pairs of oval leaflets, and terminal tendrils (McGee, 2012).

Flowers have five green fused sepals and five white, purple or pink petals of different sizes. The top petal is called the 'standard', the two small petals in the middle are fused together and called the 'keel' (because of their boat-like appearance), and the bottom two petals taper toward the base and are called the 'wings' (Elzebroek and

Wind, 2008). The fruit is a closed pod, 1 to 4 inches long that often has a rough inner membrane. Ripe seeds are round, smooth or wrinkled, and can be green, yellow, beige, brown, red-orange, blue-red, dark violet to almost black, or spotted.

Peas are adapted to many soil types, but grow best on fertile, light-textured, well-drained soils (Hartmann et al., 1988; Elzebroek and Wind, 2008). Peas are sensitive to soil salinity and extreme acidity. The ideal soil pH range for pea production is 5.5 to 7.0 (Hartmann et al., 1988). Peas grow well with 16 to 39 inches annual precipitation (Elzebroek and Wind, 2008).

Uncovered pea plants may tolerate temperatures as low as 14°F, and if covered with snow, may tolerate temperatures as low as -22°F (Elzebroek and Wind, 2008). Peas are most productive at temperatures of 55 to 64°F (Hartmann et al., 1988).

Distribution: *Pisum sativum* is currently grown in temperate regions, at high elevations, or during cool seasons in warm regions throughout the world (Elzebroek and Wind, 2008). Major pea producers are China, India, Canada, Russia, France and the United States (Food and Agriculture Organization, 2012). In the United States, the most production occurs in Washington, Montana, and North Dakota (USDA-National Agricultural Statistics Service, 2011).

Establishment

Peas are established by seed in the spring or fall. Seed should be inoculated with *Rhizobium leguminosarum* prior to planting in fields where peas have not been previously grown to ensure root nodule formation and the fixation of atmospheric nitrogen. Typical seeding rates range from 50 to 80 lb/acre when drilled and 90 to 100 lb/acre when broadcast (Clark, 2007). Seed is planted at a depth of 1.5 to 3 inches in rows spaced 6 to 12 inches apart (Elzebroek and Wind, 2008).

Management

Peas are poor competitors with weeds. Rapid seedling emergence, adequate crop density, pre- and post-plant tillage, and herbicides help reduce weed pressure (Elzebroek and Wind, 2008).

Austrian winter peas grown as a green manure crop can produce 90 to 150 lb/acre nitrogen (Clark, 2007). The actual amount of nitrogen available for the next crop depends on timing and method of incorporation, soil temperature, moisture, and other factors. Peas are easily killed with herbicides, mowing, or disking. This should be done at full-bloom stage to optimize the nitrogen contribution (Clark, 2007).

Pests and Potential Problems

Peas are susceptible to multiple foliar, root, and seed diseases.

Environmental Concerns

None.

Cultivars, Improved, and Selected Materials (and area of origin)

Numerous pea cultivars for various purposes are commercially available.

References

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