Peas, Green and Other Types

Revised 2018

Thermal Properties

	English	Metric
Moisture, %	78.86	--
Protein, %	5.42	--
Fat, %	0.40	--
Carbohydrate, %	14.45	--
Fiber, %	5.10	--
Ash, %	0.87	--
Specific Heat Above Freezing	0.90 Btu/lb*°F	3.75 kJ/(kg*K)
Specific Heat Below Freezing	0.47 Btu/lb*°F	1.98 kJ/(kg*K)
Latent Heat of Fusion	113 Btu/lb	263 kJ/kg

Storage Conditions

	Temperature	Storage Period	Relative Humidity	Freezing Point
Fresh	32°F (0°C)	1 to 2 weeks	95 to 98%	Shelled: 29.9°F (-1.2°C) Pods: 31°F (-0.6°C)
Frozen	-10 to 0°F (-23.3 to -17.8°C)	1 year+	Gas-tight packaging	

Peas are commonly known as green peas. In the Southern region of the U.S. green peas are referred to as English peas to differentiate them from Field peas (Southern peas or Black-Eyed peas), which are botanically not a pea but a bean.

There are three horticultural types of peas:

1. Sweet peas
2. Alaska peas (early June peas)
3. Edible pod peas (snow peas, sugar peas, snap peas, sugar snap peas)

The sweet peas are wrinkled, and the Alaska peas are smooth. Generally, the sweet peas are used for freezing and the Alaska peas are canned. The edible-pod peas have a wide and thin pod and are consumed before the pod is filled.

The process of freeze drying has been applied on non-pod peas, among other vegetables, for remanufacturing in the soup and baby food industries.

Green peas should be cooled in the pods promptly after harvest, either by hydrocooling or by vacuum cooling. The peas should be pre-wetted prior to vacuum cooling. Rapid cooling retards conversion of sugar to starch and avoids fermentation, which can occur within the mass of un-cooled peas.

The addition of crushed ice after precooling is desirable in maintaining freshness during marketing. Even slight yellowing of pods is an indication of starchiness, toughness, and fermentation. Peas should be refrigerated until ready for use. Adequate use of crushed ice (20 to 25% by weight) helps provide the high relative humidity (RH) needed to prevent wilting. Failure to precool peas rapidly and store them at 32°F (0°C) with 95 to 98% RH results in yellowing of pods, browning of calyces, and loss of tenderness.

Green peas store better unshelled than shelled. Unshelled peas in the pod may be held at 32°F (0°C) for 1 week but at 40°F (4.4°C) for just a few days. If packed in crushed ice, storage for 2 weeks at 32°F (0°C) is possible. Shelled peas cannot be stored for more than just a few days at 32°F (0°C). Edible pod peas can be stored for about 1 to 2 weeks at 32°F (0°C). Controlled atmosphere benefits vary with the season, but at 32°F (0°C) 2 to 3% O_2 plus 2 to 3% CO_2 may improve pea quality for short term storage.

New cultivars having edible pods should be handled similarly to other unshelled peas. However, the pods are particularly sensitive to bruising, resulting in a water-soaked area.

Varieties of edible pod peas, including snow, Chinese sugar, sugar snap or snap peas, have been derived from the sweet type by selection. They are grown on poles or bush and are hand-picked for the fresh market and frozen industry. Due to high labor cost in harvesting and processing, these edible-pod peas are widely imported from Central America and Asia. The snow peas are characterized by a tender flat pod and little seed development. The sugar peas are round tender pods with more developed seeds.

Freshly harvested southern peas have a storage life of 6 to 8 days at 40 to 41°F (4.4 to 5°C) with 95 to 98% RH. Without refrigeration, they remain edible only about 2 days, the pods yellowing in 3 days. Large quantities of shelled southern peas are now processed by freezing, and lesser quantities are canned. Shelled southern peas are much more perishable than southern peas in the pod and will retain good marketable quality for only about 1 day at 40 to 41°F (4.4 to 5°C). Hydrocooling of southern peas soon after harvest followed by good refrigeration until processing is the most effective method of maintaining a high-quality product.

Diseases and Injuries

Anthracnose	Oval or circular spots with light centers and reddish dark brown borders on pods. **Control:** No warehouse control. Growers use disease-free seed, crop rotation, and field hygiene.
Bacterial Blight	Small, water-soaked spots on pods, later irregular sunken greasy or water-soaked spots with gray or grayish-brown centers. May enlarge during transit and storage. **Control:** No warehouse control. Crop rotation, disease-free seed.

Downy Mildew	Primarily found on peas from the humid area along Pacific coast; yellowish, slightly raised, irregular blotches, seeds underneath usually aborted or maybe discolored, inside walls of pod usually show white, velvety areas under yellow spots on outside. **Control:** No warehouse control. Control by seed treatment, spraying or crop rotation.
Gray Mold	Primarily on peas from humid areas of the west coast; water-soaked grayish-green spots initially, later fine white mold with grayish-brown or brown fungus and spores in center of areas. **Control:** Cool promptly and store at 32°F (0°C) to minimize decay.
Mosaic Virus	Distorted, poorly filled pods. **Control: No warehouse control.** Field Sanitation.
Pod Spots	Pinkish to tan depressed spots; in older stages, spots show small black bodies in their centers. **Control:** No warehouse control. Field control is feasible: burning old vines, using disease-free seed and possibly crop rotation.
Powdery Mildew	Irregular, brown lace-like superficial spots and blotches, covered with characteristic white powdery spores. **Control:** No warehouse control. Field spraying or dusting.
Spotted Wilt	Brown spots, irregular brown patterns with concentric markings on pods; pods may be stunted, distorted and collapsed; resembles Mosaic. Seems to accompany thrips infestation. **Control:** No warehouse control. Control in the field.
Thrips Injury	Superficial grayish or silvery-white marks, streaks or outlined areas. Other diseases apparently never follow. **Control:** Field spraying or dusting for the insect.

Freezing

Freezing of green peas is done either after packaging, or loose on belts for subsequent packaging. Fluidized-bed IQF freezing is commonplace. When stored in gas-tight containers, high-quality storage life is maintained for a full year at 0°F (-17.8°C), and for 2 years and longer at -10°F (-23.3°C).

Frozen pod peas should be held at 0°F (-17.8°C) or below for a maximum of 12 months. The process for freezing pod peas is:

1. Pods are snipped and strings removed with hand knives.
2. Pods are washed in cold water.

3. Hot water blanched for 3 minutes at 201°F (93.9°C). Excessive blanching will cause sloughing of the pods.
4. Product is cooled immediately in fresh water.
5. Product is packaged in retail boxes and then frozen in a blast freezer (wet pack), or frozen IQF on a belt freezer and then packaged.

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