

# Garden Peas — Cascadia, Oregon Giant, Oregon Trail, and Oregon Pioneer

## *Pea enation mosaic virus-resistant garden pea varieties*

M. W. Lancaster, R. E. Hayes, K. D. Stewart-Williams, and J. Baggett

Production of garden pea seed is an important component of the seed industry of Idaho. Release of these new varieties gives the industry access to improved varieties of snap, edible pod, and shelling peas.

Snap peas are edible-podded (parchment-free) peas with a thick wall conditioned by a recessive gene *n*. Snap peas are popular market as well as home garden varieties. Edible pod peas (snow peas) are garden and commercial varieties made popular through use in Oriental meals. Shelling peas are developed for use as an edible, immature seed.

The Oregon, Idaho, and Washington Agricultural Experiment Stations have jointly released Cascadia snap pea (OSU-722), Oregon Giant edible pod pea (OSU-706), Oregon Trail (OSU-695), and Oregon Pioneer (OSU-700) shell peas. These varieties were all developed by Dr. Jim Baggett from Oregon State University at Corvallis.

### Pedigree

Cascadia and Oregon Giant were derived from crosses of Oregon Sugar Pod II × Sugar Snap. Oregon Sugar Pod II is a pea enation mosaic virus (PEMV)-powdery mildew-resistant edible pod pea and Sugar Snap is the original snap pea variety introduced by Gallatin Valley Seed Company. Both parents are resistant to common pea wilt (*Fusarium oxysporum* f. pisi race 1).

Oregon Trail parentage includes Wando, Frosty, P601 (Gallatin Valley Seed), and Early Frosty. Oregon Pioneer parentage includes Wando, Eureka, P601 (Gallatin Valley Seed), Small Sieve Freezer, and Early Frosty.

### Disease reaction

Cascadia, Oregon Giant, Oregon Trail, and Oregon Pioneer are all resistant to pea enation mosaic

virus (PEMV). All varieties have been subjected to natural field inoculation by PEMV, and compared to susceptible and resistant lines to determine resistance. All varieties are also considered to carry acceptable levels of resistance to red clover mosaic virus.

Resistance to pea common wilt (*Fusarium oxysporum* f. pisi race 1) was determined through screening trials conducted by Dr. Fred Muehlbauer at Washington State University. All four varieties were determined to be resistant to common wilt based on comparisons to the susceptible control, WA-788.

Oregon Giant and Oregon Trail are resistant to powdery mildew (*Erysiphe polygani* DC). Oregon Pioneer is susceptible to powdery mildew.

Oregon Giant has shown resistance to bean leaf roll virus in southern Idaho.

### Description

Cascadia (OSU-722) is a snap pea with unusually thick pod walls (up to 3 mm) and pods are parchment free. It is a short plant, commonly reaching 30 inches high. Flowering begins on the 14th to 15th node. Pods are normally borne two per node, with four or more pairs of pods per plant under optimal growing conditions. Pods are 7 to 8 centimeters long with seven to eight seeds per pod. At full development pods are nearly round, measuring 17 millimeters wide and 15 to 17 millimeters thick. Seeds are dark green, wrinkled, and with a mature seed count of approximately 2,200 seeds per pound.

Oregon Giant (OSU-706) is an edible pod pea with unusually large and parchment-free pods. It is a short plant commonly reaching 30 to 36 inches high. Oregon Giant begins flowering on about the 16th node. One to two pods are borne per node with up to four sets of double pods per plant under good grow-



ing conditions. Pods may be up to 2.8 centimeters wide and to 13 centimeters long. Pods are dark green and tender, with a tendency to cup as they mature. Seeds are large, dark green, and wrinkled, normally bearing eight seeds per pod. The mature seed count is approximately 1,320 seeds per pound.

Oregon Trail (OSU-695) is a shelling pea with parchment pods. It is a short perfection-type plant commonly reaching 24 to 30 inches high. Flowering begins on the 15th to 16th node. Two pods are borne per node with up to eight sets of double pods under good growing conditions. Pods are often bunched at the top of the plant as internodes shorten. Pods are 1.7 centimeters wide, 9 centimeters long, and blunt, normally bearing nine seeds per pod. Edible seeds are medium dark green and mature seeds are wrinkled with approximately 1,980 seeds per pound.

Oregon Pioneer (OSU-700) is a shelling pea with long, straight parchment pods. It is a short perfection-type plant. Oregon Pioneer begins flowering at about the 14th node. Pods, borne two per node, are 1.5 centimeters wide, 8 to 8.5 centimeters long, blunt, and very straight, normally bearing eight to nine seeds per pod. Edible seeds are medium in size and medium dark green in color. Mature seeds are wrinkled with approximately 1,870 seeds per pound.

## Attributes

Cascadia has an unusually thick pod wall and excellent quality, and it remains tender and sweet longer than do other cultivars. Its good flavor im-

proves until seeds are overmature and rough. Pods remain more tender than those of most varieties.

Oregon Giant has unusually large (20 percent larger than Oregon Sugar Pod II) parchment-free pods. Both pods and seeds are dark green, which is more desirable than the light color of Oregon Sugar Pod II, the industry standard. The wrinkled seed of this variety is associated with improved sweetness and sweetness retention, compared to current smooth or dimple seeded varieties.

Oregon Trail, a late-season, and Oregon Pioneer, an early-season, shell peas are medium dark green and have mild, sweet flavored seeds.

## Seed availability

All varieties were released without restriction. Efforts are currently underway to include Cascadia and Oregon Giant in the Idaho Seed Certification Program with Breeder and Foundation seed maintained jointly by the Idaho and Oregon Agricultural Experiment Stations. Trial seed and limited quantities of stock seed are currently available through the Horticulture Department at Oregon State University, Corvallis.

**The authors** — Michael W. Lancaster is coordinator of the Idaho Agricultural Experiment Station Foundation Seed Program. Richard E. Hayes is the assistant superintendent of the Kimberly Research and Extension Center, Kimberly. Kathryn D. Stewart-Williams is a research associate in bean breeding and genetics at the Kimberly Research and Extension Center, Kimberly. Jim Baggett is a professor of agronomy and plant breeder at Oregon State University, Corvallis.