

# Chickpea

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*Cicer arretinum* (Leguminosae)

## Fast Facts:

Acres in Washington: 42,000 acres in 2007
Number of Growers: 100
Per Acre Value: \$320
Value of production in Washington: \$968,000 in 2006
Percent of Value of U.S. Production: 34% in 2004

## Description of crop:

Chickpea is grain legume that has one of the highest nutritional compositions of any of the dry legumes. There are two classifications of chickpea-kabuli and desi. Each type is differentiated by their seed size, color and the thickness and shape of the seed coat. The kabuli type produces a larger seed with a thin seed coat. Most kabuli chickpeas in the United States are marketed as canned garbanzo beans. Almost all of the chickpeas grown in Washington are the kabuli type. The kabuli falls into two groups, the large seed (>9mm) and the smaller seed (<8mm). It is the smaller seed that is usually ground into flour and used for humus. One seedpod will usually contain 2-3 peas which are nearly round, but flattened on the sides. The desi type chickpea produces smaller seeds with a thick often irregular-shaped seed coat. Desi chickpeas require a specialized process called decortication, to remove its seed coat if it is used for human food. Seed color is the single most important factor in determining crop marketability. The kabuli types produce seeds that range from white to a pale cream tan color. If the seed is dark or discolored the processors will not accept it. Desi chickpea grading does not fall under size or color constraints. Chickpea is an annual, warm-season pea-like, self-pollinated crop that reaches 24 inches in height, and has a taproot of two to six feet. Planting is in early spring after soil temperatures are over 41° F. The *Rhizobium* bacteria that produce nodules on peas and lentils will not produce them on chickpea. Thus, chickpeas planted in a field previously unused for chickpea production must be inoculated with a specific *Rhizobium* to obtain higher yields. Chickpeas can be harvested direct or swathed prior to combining depending on uniformity, maturity and weed problems. In Washington, most chickpeas are used for canning, thus a high quality product is required. Recently, a small but growing market for fresh green chickpeas is growing in the Northwest. It is gaining popularity especially within the Hispanic communities.

## Key pests:

Ascochyta blight is the most serious disease effecting chickpeas. Plants infected with ascochyta blight first show stem wilting and then dieback. Pythium can also be a problem if seeds are not treated with a fungicide. Various weeds can be pests such as thistles, mustards, pigweed and grasses. Nightshades, dog fennel and

prickly lettuce can lower the quality of the bean by contaminating the product. Insect pests in chickpeas are usually minimal since they are highly acidic; their stems, leaves and pods are covered with hair-like glandular structures that secrete malic and oxalic acids that deter insect pests. However, aphids may cause damage to chickpeas and transmit viruses. Depending on the tillage system, wireworms and cutworms can also be a problem. Growers that use conventional tilling on their fields before planting seem to have fewer insect problems than those that practice a no-till system.

**Key pesticides:**

Mertect is a seed treatment that can be used to control ascochyta blight. While there is a foliar spray for ascochyta blight, growers often find it cost prohibitive. Pythium tends to be more of a problem in kabuli chickpeas, and can be treated with Apron. Captan can also be used as a seed treatment, but it can reduce the viability of the nodule-producing *Rhizobium*. There are few post-emergence herbicides registered for managing weeds in chickpeas. If grasses continue after crop emergence, a post-emergence of Poast or Tough can be applied. Spot treatment with Roundup can be used to control prickly lettuce. Insect problems are limited here and insecticide applications have generally not been necessary. However, aphid population can be controlled with dimethoate. Wireworms and cutworms can be treated with Asana or Cruiser.

**Critical pest control issues:**

When raising chickpeas, most agronomists suggest a pre-harvest burn down or burying the previous years crop stubble since ascochyta blight is a pathogen that survives in infected seed and residue. For this reason, seed should be purchased from a reputable supplier and growers should select only ascochyta- resistant varieties to limit the development of this disease. Two strains of ascochyta have been identified and while varieties such as Sanford and Dwelly are resistant to the disease they cannot provide immunity. Two additional varieties have been released, Sierra and Troy. Growers should also implement at least a 4-year rotation and maintain at least a 3 mile distance from a field previously planted to chickpea. To reduce soil borne diseases, kabuli chickpea plants should be planted after the soil temperature is at least 50 degrees. Desi types can be planted when the soil reaches 40 degrees or above. The moisture content should be around 10-12 percent to prevent insects and or disease outbreaks in storage.

**Expert contacts:**

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**Location**

**of Production:**

Walla Walla, Columbia, and Garfield counties

**Pictures:**

