

# QUINOA PRODUCTION GUIDE FOR SMALLHOLDER FARMERS

## QUINOA ("Keen-wah")

*Chenopodium quinoa*



### Nutrition Facts

- Complete protein
- Contains high levels of 9 essential amino acids
- High in essential fatty acids, particularly linoleic acid
- High concentrations of Ca, Mg, Fe, Cu and Zn
- Rich in beta carotene, niacin, riboflavin, Vitamin A, B2 and E

### GROWING METHODS

PLANTING	MAINTENANCE	HARVEST
<p>Quinoa can be planted as direct seeding in rows or broadcasting. Quinoa can also be planted in nursery and seedlings can be transplanted.</p> <ul style="list-style-type: none"> <li>• In rows: 20-30 cm between rows</li> <li>• Transplanting: 10cm between seedlings</li> </ul> <p>Quinoa prefers light, well-drained soil and full sun. When planting quinoa in rows the planting depths should be shallow: between 1 – 2 cm deep. When broadcasted, a very minimum soil to cover the seeds should be enough.</p>	<p>Quinoa is drought tolerant and does not like much water or fertilizer. Weed regularly to reduce competition for nutrients. If plants get very tall, they can fall over towards the end of the season. Staking may be considered. Most varieties grow 120 – 240 cm tall.</p>	<p>Quinoa is ready to harvest when the plants are dry, and the leaves have dropped. You should not be able to dent the grain with your fingernail. In dry autumns, grains can be harvested by simply stripping them from the stalk between thumb and forefinger. If rain threatens, plants may have to be cut and brought under the cover to continue drying. Quinoa will sprout readily on the plant in the rain or if it is kept in a moist environment.</p>

### PROCESSING

THRESHING	SEED-SAVING/STORAGE	COOKING TIPS
<p>Simply rub the dry seeds into a bucket or rub through a screen set over a wheelbarrow. Or simply proceed similarly to how you thresh sorghum. After threshing winnow off the chaff in front of fan or wind and use screens to help in cleaning the seeds.</p>	<p>Be sure to further dry your seeds before storage by spreading it out on screens or trays in a warm, dry location.</p>	<p>Quinoa must be thoroughly raised in several changes of water until the water runs clear, to remove the bitter saponins. Simmer it like rice for 15 minutes with a ratio of 1 cup quinoa: 1.5 cups of water. Young greens can be eaten raw in salads, and older greens can be cooked like spinach or stir-fried. Quinoa seeds can be milled into flour and can be used to make porridge or other drinks.</p>

### ADDITIONAL INFORMATION

- Quinoa is reportedly tolerant of a wide range of growing conditions, including saline soil infertile soil with pH 4.8-8.5
- **Germination:** 2-4 days when there is a good rain after planting
- **Seed life:** 2 years
- **Days to harvest:** 90 - 120 days