

YAMS PRODUCTION



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Yams: An Introduction

Yams are a group of monocot plants, precisely speaking, a group of perennial herbaceous vines grown for their starch-rich, edible tubers. They belong to the family Dioscoreaceae and genus *Dioscorea*. Yams are widely grown in both temperate and tropical parts of the world and considered as an important food crop in the tropical areas of America, Asia and Africa. Yams are a rich source of carbohydrates.

Origin and Distribution

Yams are believed to be a native of Africa, Asia and America. In some parts of these regions, yams grow naturally as invasive plants.

Food Uses of Yams

Yams are used as vegetables and also as a staple food. Yam tubers can be consumed after baking, boiling, steaming, stir frying, microwave cooking, and roasting. Yams contain some acrid/pungent compounds which are eliminated while cooking by boiling or steaming.

Yams are often confused with sweet potatoes. But true yams, which differ in tuber sizes considerably (from the size of a small potato to the size of over 60-65 Kg tuber) are entirely different from sweet potatoes.



Food Value of Yams– Proximate

Nutrient	Unit	1Value per 100 g	1 cup, cubes = 150.0g
Proximate			
Water	g	69.6	104.4
Energy	kcal	118	177
Protein	g	1.53	2.29
Total lipid (fat)	g	0.17	0.26
Carbohydrate, by difference	g	27.88	41.82
Fiber, total dietary	g	4.1	6.2
Sugars, total	g	0.5	0.75

Food Value of Yams– Minerals

Nutrient	Unit	1Value per 100 g	1 cup, cubes = 150.0g
Minerals			
Calcium, Ca	mg	17	26
Iron, Fe	mg	0.54	0.81
Magnesium, Mg	mg	21	32
Phosphorus, P	mg	55	82
Potassium, K	mg	816	1224
Sodium, Na	mg	9	14
Zinc, Zn	mg	0.24	0.36

Food Value of Yams– Vitamins

Nutrient	Unit	1Value per 100 g	1 cup, cubes = 150.0g
Vitamins			
Vitamin C, total ascorbic acid	mg	17.1	25.6
Thiamin	mg	0.112	0.168
Riboflavin	mg	0.032	0.048
Niacin	mg	0.552	0.828
Vitamin B-6	mg	0.293	0.439
Folate, DFE	µg	23	34
Vitamin B-12	µg	0	0
Vitamin A, RAE	µg	7	10
Vitamin A, IU	IU	138	207
Vitamin E (alpha-tocopherol)	mg	0.35	0.53
Vitamin D (D2 + D3)	µg	0	0
Vitamin D	IU	0	0
Vitamin K (phylloquinone)	µg	2.3	3.5

Food Value of Yams– Lipids

Nutrient	Unit	1Value per 100 g	1 cup, cubes = 150.0g
Lipids			
Fatty acids, total saturated	g	0.037	0.056
Fatty acids, total monounsaturated	g	0.006	0.009
Fatty acids, total polyunsaturated	g	0.076	0.114
Fatty acids, total trans	g	0	0

Dioscorea Species

The genus *Dioscorea* contains about 250 species of plants of which all species do not produce edible tubers. Some are weeds or invasive plants while others are cultivated for edible tubers. Among the species cultivated are *Dioscorea alata* and *Dioscorea caryenensis*.

- ***Dioscorea alata* or Greater Yam:** These plants produce large edible tubers, some of which weigh up to 30 kg. Large tubers are used for propagation purposes while small and medium tubers are used for food purposes.
- ***D. caryenensis* or Yellow Yam:** Tubers of these plants are yellow in colour and hence the name “yellow yam”
- **Other Species of Yams:** *D. batatas* (Chinese yam) and *D. bulbifera*, (air potato) are also popular among yam-growers. These yams are grown for their edible aerial tubers.
- **Yams Grown in India:** *D. esculenta* is the most commonly grown *Dioscorea* species in India.

Medicinal Properties of Yams

Not all yams have medicinal properties. Some wild species of *Dioscorea* are known to have medicinal properties. Their extracts are used for treatment of arthritis.

Varieties

Three major varieties of yams are:

1. White-Fleshed
2. Yellow-Fleshed
3. Purple-Fleshed

Growing Requirements

Climate: Yams are tropical plants and hence warm, tropical climate is best for its healthy growth. Plenty of sunlight is needed for these plants.

Soil: Deep, rich, friable, well-drained and loose sandy loam soils are the most ideal for growing yams.

Propagation: Propagation is by division of tubers. These tuber cuttings are planted in a well-prepared nursery beds to allow sprouting. Sprouted tuber cuttings are then transplanted in the main field in pits/holes of appropriate size (at least 5 inches deep and 3 inches wide). While planting care is taken to place the sprouted leaves above the ground level.

Watering: Soon after planting, water the plants. Watering should be done regularly until plants get established in the field. Thereafter, need-based watering is done.

Manure Requirements: Just like other tuber crops, yams also need nitrogen for its vegetative growth and plenty of phosphorous for tuber development. Large quantities of farm yard manure or compost may be added to the top soil to replenish the soil fertility at the time of field preparation. Fertilizers for yams should be high in phosphorous.

Spacing: Under right growing conditions, yam plants grow vigorously and need sufficient space for tuber production. Hence it is recommended that at least one meter spacing should be given between two plants in each way.

Staking: Growing young yam plants may need staking sometimes. Plants are usually staked on bamboo supports or on trellis.

Harvesting: Yams are ready for harvest within 4 months. Harvested tubers are very tender and brittle and so sufficient care is to be taken at the time of handling.

Storage: If yams are stored in a cool, dry, hygienic place, it will last for several months. The best storage temperature is 14 to 15 Degree Celsius.

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Or

Contact us at

info@agrihortico.com

agrihortico@gmail.com

