



## Tree kale, Perennial kale

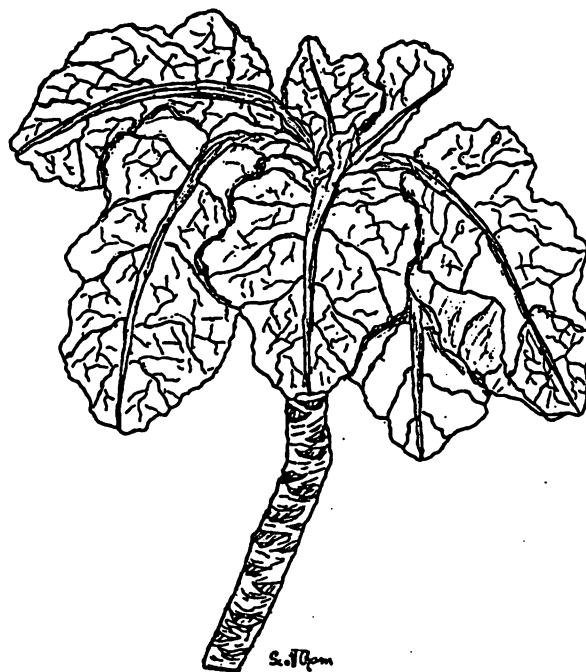
*Brassica oleracea* subspecies *acephala*

It is rare to find a perennial *Brassica* species that is adapted to the hot and humid tropics. In general, the nutritional value of *Brassica* species is high and tree kale is no exception.

### Characteristics

Tree kale is a member of the family Cruciferae which contains several hundred different vegetables such as cabbage, mustard and broccoli. It is most likely related to the tree cabbage or walking stick cabbage of European origin.

The plant grows upright to 5 ft (1.5 m), producing large, smooth leaves at the growing tip. The stems, 1-2 inches (2-6 cm) in diameter, do not produce leaves. The plant tends to fall over when it reaches a height of 3-5 ft (1-1.5 m), rooting where the stem touches the soil and sending up new shoots along the length of the stem. Tree kale plants can last many years.



### Environmental Requirements

Tree kale is adapted to a variety of tropical habitats, even though it is of temperate origin. It thrives in humid climates, growing well in areas receiving 140 inches (3500 mm) or more of annual rainfall. It is much more tolerant of low temperatures than other tropical vegetables.

It grows under a variety of soil condition, from heavy clays to sandy soils. Tree kale is tolerant of acid soils, but applications of lime will improve growth. Waterlogged or muck soils will cause root rot. It prefers full sun, but under partial shade larger and more tender leaves are produced.

### Uses and Preparation

Young leaves can be used raw in salads or used as a garnish, after being washed in clean water. The leaves can be cooked and simply eaten as a green vegetable. Chopped leaves can be added to soups, stews, and stir-fry dishes. The leaves are large and thick, which is ideal for wrapping other foods. Meats and vegetables can be wrapped in leaves and steamed until tender.

### Nutritional Value

Everyone in the family should eat some green leaves everyday. Children, pregnant women and nursing mothers especially need the protein,





vitamins and minerals found in green leaves. Green leaves also contain phytochemicals, that are the new frontier in cancer-prevention research.

## Propagation

Tree kale is propagated only by stem tip cuttings. Cuttings can be taken from the main stem or secondary shoots. Cuttings should be 1/2 -1 inch (1-2 cm) in diameter and 12-16 inches (30-40 cm) in length. Young, thin cuttings will wilt easily. Woody cutting should be avoided. It is important to remove all leaves, except the youngest two or three at the apical bud, to prevent water loss.

Cuttings are planted vertically with only one-fourth of the cutting exposed, in nursery containers or directly in the ground. Cuttings must be kept moist, but too much watering will cause rotting. Container grown cuttings will be ready for transplanting within 4 to 6 weeks.

## Establishment

Transplanting is best done at the beginning of the rainy season. A thorough watering is important before planting. The planting hole must be deep enough to allow the roots to hang down vertically.

Plants can be spaced 20 inches (50 cm) apart. Adding compost or green manure in the planting hole will provide nutrients for good establishment. Mulch placed around the transplant will reduce soil moisture loss and help to control weeds.

## Management

Tree kale has the tendency to wander, as the taller stems bend to the ground and take root. As the stems bend and root, new shoots appear on the main stem producing smaller leaves. One can either choose to grow the plant as a perennial in this fashion, or cut off the new shoots and replant

them as cuttings. Vegetative growth and harvesting is continuous.

In soils with low fertility, periodic applications of green manure from woody legumes or well-rotted animal manure are good sources of nutrients.

## Planting Systems

A 6-8 ft<sup>2</sup> (2-3 m<sup>2</sup>) patch of tree kale is enough to provide a family with nutritious leaves year round. Tree kale can be intercropped with fruit and coconut trees. For market production, tree kale can be alley cropped with nitrogen fixing trees managed as a nutrient source.

## Pests and Diseases

Damage to tree kale leaves is caused by the cabbage butterfly larvae, also known as the cabbage looper. The larvae will not kill the plant, but large areas of the leaves can be eaten. In small plantings, the larvae can be removed simply by hand. In larger plantings, *Bacillus thuringiensis* (a commercially available safe bacterial insecticide) is very effective against this pest.

Root rot will occur under waterlogged conditions. Tree kale is highly resistant to root-knot nematodes, even when grown in the same location for many years.

## Sources of Planting Material

Tropical Rural and Island/Atoll Development  
Experimental Station (TRIADES)

P.O. Box E

Hakalau, Hawaii 96710 USA

Telephone/Fax: 808-963-6823

This leaflet may be reproduced for educational purposes. When doing so, please acknowledge the ADAP Project.



**A D A P**  
P R O J E C T

Agricultural Development in the American Pacific  
Pacific Land Grant Programs

