



HAWAII COOPERATIVE EXTENSION SERVICE

College of Tropical Agriculture and Human Resources
HOME GARDEN VEGETABLE SERIES No. 10

MUSTARD CABBAGE

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Many types of leafy cabbages are used for vegetables, particularly in the Orient. These vegetables belong to several different species and there are many varieties of each, so the classification is confusing to most people. Green mustard cabbage (kai choy) and white mustard cabbage (pak choy) are two types commonly grown in Hawaii. Kai choy, *Brassica juncea*, includes the types called kai choy in Hawaii, the mustard greens grown in the southeastern United States, and the rai and sarson grown for oil seed in India and Pakistan. It is also called brown mustard and Indian mustard. The species is variable, with either smooth or hairy, entire or divided leaves, and narrow or wide petioles. It can be distinguished from pak choy by its somewhat lighter green leaves and shorter green petioles. Pak choy, *Brassica campestris* (Chinensis group) or *B. chinensis*, includes types called white cabbage, spoon cabbage, choy sam (Singapore), pechay (Philippines), and taisai and Shirona (Japan), as well as others. Pak choy has darker green leaves than kai choy, and white petioles rather than green. Some varieties of both vegetables are grown for their flowers and flowering stems rather than for the leaves. Both kai choy and pak choy grow well under high temperatures, although they will form larger plants and are slower to bolt (flower) when temperatures are cooler.

Varieties

The type of kai choy preferred in Hawaii has wide petioles and forms a slight head with the innermost leaves. Of the two strains grown in Hawaii, the UH strain has a greater tendency to form a head and is somewhat darker green than the Waianae strain. Varieties obtained from Taiwan, Japan, or the mainland U.S. have either not grown as well or have not produced the right type of plant for the Hawaii market.

The type of pak choy preferred has dark-green leaves and somewhat wide, white petioles which are upright and long. Seeds imported from Japan are usually used by local growers.

Soil Management and Fertilization

Mustard cabbages do well on fertile, well-drained soils with a good moisture-holding capacity. If drainage is poor, seeds should be planted on raised beds. The pH should be between 5.5 and 7.0, and the soil should be free of nematodes. If nematodes are present, fumigate the soil before planting. Add lime if the soil is very acid. Add organic matter to improve the structure and water-holding capacity.

Apply general garden fertilizer, such as 10-30-10, at a rate of about 3 pounds per 100 square feet. Apply one-half at seeding time and the other half at thinning, about 3 to 4 weeks after planting. Place fertilizer in a band about 3 to 4 inches away from the base of the plants. Over-fertilization will result in plants that are too succulent and that may develop tipburn under warm conditions.

Planting and Thinning

Plant seeds directly in the field in rows spaced about 12 to 15 inches apart. At 3 to 4 weeks of age, before the plants start to become crowded, thin to about 10 to 12 inches in the rows for kai choy and 8 to 10 inches for pak choy. If thinning is delayed too long, the plants will become spindly and leggy, and may bolt before forming a useful plant.

Irrigation

An abundant and continuous soil moisture supply is essential for the best quality. Insufficient moisture may result in tipburn and slow growth with a loss of tenderness of the leaves. The best time to irrigate is during the morning hours to allow the leaves to dry before night, to prevent white rust infection.

Insect Control

The most common insect pests of mustard cabbages are cutworms, aphids, thrips, red spider mites, cabbage webworms, and loopers. A regular spray program from the time of seeding, using malathion or dimethoate (Cygon), will control the webworms,

loopers, cutworms, aphids and thrips. Dimethoate should be discontinued 14 days before harvest; malathion should be discontinued 7 days before harvest. Sprays containing rotenone and pyrethrin may be used up to 1 day before harvest. Mites can be controlled by spraying sulphur, which can be continued right up to harvest if necessary. Do not mix sulphur with other emulsifiable (liquid) insecticides or spreader-stickers or wetting agents, especially in the warm and humid lowlands, as it may cause foliage injury.

Disease Control

The most common diseases of mustard cabbages are damping off, mosaic, white rust, and soft rot. Damping off and soft rot can only be controlled by planting in soil free of the causal organisms, or by treating the soil with a fungicide before planting. Mosaic is best controlled by controlling the aphids which transmit the disease and removing any infected plants so they do not spread the disease. White rust can be controlled to some extent by spraying the undersides of the leaves with Zineb up to 10 days before harvest.

CAUTION: When using pesticides, always read the label and follow the directions carefully.

Harvesting

Both kai choy and pak choy can be harvested for

food before they are mature, and can be thinned by this method. For maximum yield, harvest at the mature stage, which is 45 to 50 days after planting. Cut off the whole plant at ground level and remove any damaged outer leaves. Harvest before the flower stalk begins to appear, except for the flowering types.

Seed Availability

Seeds of the Waianae strain of kai choy are available from the Department of Horticulture of the University. Other varieties may also be available from garden stores or from seed companies specializing in Oriental vegetables.

Pak choy seed is not available from the University. Seed of various varieties is often available from garden shops or from seed companies which specialize in Oriental vegetables.

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NOTE: The use of trade names is for the convenience of readers only and does not constitute an endorsement of these products by the University of Hawaii, the College of Tropical Agriculture, the Hawaii Cooperative Extension Service, or their employees.

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