

Leafy Greens: Kale, Collard, Mustard, Turnip, and Pac Choi

Kale and collards, (*Brassica oleracea* L. *Acephala* Group) mustard greens (*Brassica juncea* and *Brassica rapa*), turnip greens and pac choi (*Brassica rapa*) are called leafy greens because the leaves (and in the case of pac choi the stems) are the part of the plant that is eaten.

Collards, kale, mustard, turnips and pac choi are related to broccoli, cauliflower, and kohlrabi. They are tolerant of cooler temperatures, and where winter is not too severe kale will re-sprout from stems in the spring. They can be grown in spring and fall but fall may be the preferable season because they benefit from frost which increases the sugar content and flavor of the leaves. These vegetables are quick to mature, being ready to pick in 30 to 60 days, depending on variety. Turnips are a two way vegetable in that certain varieties can be grown to produce both greens and roots (eg. 'Purple Top,' 'White Globe,' 'Just Right' and 'Tokyo Market').

Cultivation:

In spring, plant seeds as soon as soil can be worked (3 to 4 weeks prior to frost date). You can also germinate seeds indoors and plant 3 to 4 week old transplants into garden soil. For fall planting, determine time to maturity (e.g. 55 days) add 10 to 14 days ("short day factor") and plant seeds that many days prior to the first fall frost date (e.g. 65 to 69 days). As in the spring, transplants can also be used in the fall.

Sow seeds of these vegetables about 4 inches

apart in rows 8 to 12 inches apart. In fertile raised beds, seeds can be broadcast and thinned later. In general, leafy greens should be spaced about 8 inches on center and thinned plants, if large enough, can be eaten. As with most vegetables, closer spacing will result in smaller, "baby leaved" plants, and farther spacing will result in larger heads or plants.

- **Fertilizing** - Leafy greens are medium feeders. Incorporate well-rotted manure (fall) or compost (fall, spring) at planting. Addition of manure or compost can add micronutrients and organic matter to soil. A garden fertilizer can be used if compost is not available, applied at the rate of 2 pounds per 100 sq. ft. or about ¼ cup 10-10-10 or equivalent per 10 feet of row. If soil is not rich in organic matter, side dress with fertilizer once during the growing season at a rate of 1 pound per 25 feet of row.

Note: If soil test shows soil does not need additional phosphorous, use nitrate of soda (15-0-0) or calcium nitrate (16-0-0). Apply about 1 cup (.7 lb) per 100 sq. ft. of garden area. You can also use lawn fertilizers that contain a high percentage of nitrogen and a low percentage or no phosphorous (e.g. 27-3-3, 24-0-15). **Be very careful not to use a lawn fertilizer that also contains an herbicide.** Continuous use of high phosphorus fertilizer such as 10-10-10 or 15-30-15, or high rates of manure or composted

manure results in phosphorus buildup in the soil. Although phosphate fertilizer applied to soil is bound tightly and resistant to movement in the soil, some runoff may occur. It can then become a major pollution concern in our lakes, rivers and streams. High levels of phosphorus support over-production of algae, which causes significant reduction in water.

- **Watering** – Plants should be well watered as this produces the quickest harvest. In general, this means an inch of water a week or .62 gallons per square foot planted.
- **Weeding** - Plants should be kept weed free as weeds will use nutrients meant for the crop. If seeds are sown thickly, early weed competition could be minimal due to shading by vegetable plants. Plants can be thinned to their desired spacing. Plants that are removed can be eaten.

Harvesting:

With the exception of pac choi where the entire plant is usually harvested, the outer leaves of these greens are usually harvested. Make sure the outer leaves show no sign of yellowing, since at this stage they are past prime and should be composted. Alternatively, a raised bed can be thickly sown with your favorite leafy green and thinned to an 8 inch spacing after they are 6 to 10 inches tall. These thinned plants are your first harvest,

with future harvests coming from the outer leaves of the remaining plants.

Storage and Preservation: Very cold (32°F), moist (95% RH) conditions, 2 to 3 weeks. Turnip roots can be heavily mulched and picked throughout the winter, as needed.

Nutrition: Greens are a good source of vitamins A, C, K, and the minerals iron and calcium as well as phytonutrients. The brassica family of vegetables contain phytonutrients recommended for their anti-cancer properties.

Cooking:

Rinse under tap water and remove tough stems by hand or with a knife. Boil, steam, microwave or add to cooked pasta during the end of boiling time. *(See recipes on page 3)*

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