

The World Vegetable Center

- **Introduction:** Spider plant (*Cleome gynandra*) or *Mgagani* in Kiswahili is a traditional African crop that grows well in a range of environments in East Africa during the warm and cool seasons. It is also harvested from the wild in many areas. It has few pests and diseases that require intensive control measures. The leaves and tender stems are highly nutritious with more protein and vitamins than kale or cabbage, and there is a growing market for it both locally and in major cities.
- **Varieties:** Only four of the 50 African species of spider plant are edible, and there are many local mixed selections. Improved varieties produced by AVRDC - The World Vegetable Center yield more leaves for a longer period than traditional varieties. These include the PS line with purple stems and GS line with greener stems. Seed of improved lines can be obtained from the World Vegetable Center in Arusha, Tanzania. Many farmer groups in Kenya and Tanzania are also producing seeds of improved lines developed by the Center for sale and some seed companies have started selling seed.

PS line



GS line



- **Suitable locations:** Spider plant prefers warm sunny conditions and will grow on a wide range of soils, including sandy loams. It does not cope with water-logging, very cold weather or shading from trees. An area of 1-2 m² will provide enough for a family's needs for 4 months.
- **Land preparation:** Plough well and mix in compost, cattle or chicken manure at the rate of up to 2 kg/m² before sowing. Spider plant can be grown alone, or intercropped with nightshade or amaranth.
- **Sowing:** Sow seed by broadcasting or in rows 30-50 cm apart after watering or soon after rain. Cover with a thin layer of soil about 1 cm deep and water if more rain is not immediately expected. Thin plants when they have four to five leaves or a month after sowing. Allow 15-20 cm between plants in rows, or about 5 cm between plants if they are broadcast.
- **Weeding:** Weeds need to be controlled particularly in the first month, but after that crop shading can control most weeds if a thick stand is maintained.
- **Watering:** Good moisture is important during the whole growing season and it is advisable to water at least twice a week during the dry season. At other times otherwise adjust frequency according to the rainfall. Spider plant requires much less water than tomatoes, and is relatively more tolerant of dry conditions than amaranth, but it is important to prevent the plants from wilting.



- **Harvesting:** The whole young plant can be uprooted after 5-6 weeks and re-sowing can be done straight away or young leaves and stems can be regularly harvested as the plant grows so that new leaves are produced. If only part of the plant is harvested each time it will keep producing edible leaves for up to 4 months after sowing.



If plants are older than 4 months and the leaves are becoming small and hard the whole plant can be cut at the base. If cut during the warm season it will re-sprout (ratoon) and produce a new lot of soft young leaves which can be harvested within 4 weeks. Such a plant can continue to produce edible leaves for up to 4 months. Ratooning should be carried out during the warm and humid season. Ratooning and continuous picking of the leaves are recommended growing strategies when seed and labor are scarce or unaffordable.





- **Cooking:** Several recipes involving onion, tomato, carrot, groundnut, fresh milk and cooking oil have been developed by the World Vegetable Center and are available as leaflets. The cooking time does not exceed 30 minutes. Spider plant leaves are rich in iron, calcium, phenols, proteins, vitamins including vitamin C, carotenoids, and antioxidants.
- **Sale of leaves:** Young and tender branches bearing the leaves are harvested and packed in 100-200 g bunches in Tanzania or 450-650 g bunches in Kenya. These bunches sell for Tsh 50-100 in Arusha and up to Ksh 14 in Nairobi. Detached sun-dried leaves can also be sold and packed using local containers.
- **Seed production:** Seed may be produced on the main stem or on lateral branches. Once the pods bearing seed are dry and seed is mature the whole plant is cut at the base and threshed on a clean hard surface to remove the seed from the pods. Discard the broken pods, stems and leaves mixed with the seed. Any light debris still remaining can be removed through winnowing by pouring the seed onto a clean surface from a height of 1.5 m. Seed is then packed into new plastic or paper bags or clean tins. Seed should be stored in as cool a place as possible. Because

the seed contains oils that can be used as insecticides there are rarely problems of insect damage to stored seeds.



Sale of seed: Some farmers groups who have received training on seed production are producing seed for other spider plant growers. In Kenya where spider plant is in high demand, this seed production activity generates more income than growing the crop as a vegetable. Commercial seed is now available from some companies.

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How to Grow SPIDERPLANT

A hardy crop
with an expanding market

