''MORINGA''

Commercial Cultivation & Contract Farming

NUTRITIONAL DYNAMITE

CLICK-N-GROW
Agroventures Pvt Ltd
Farmer's e-Buddy

INTRODUCTION

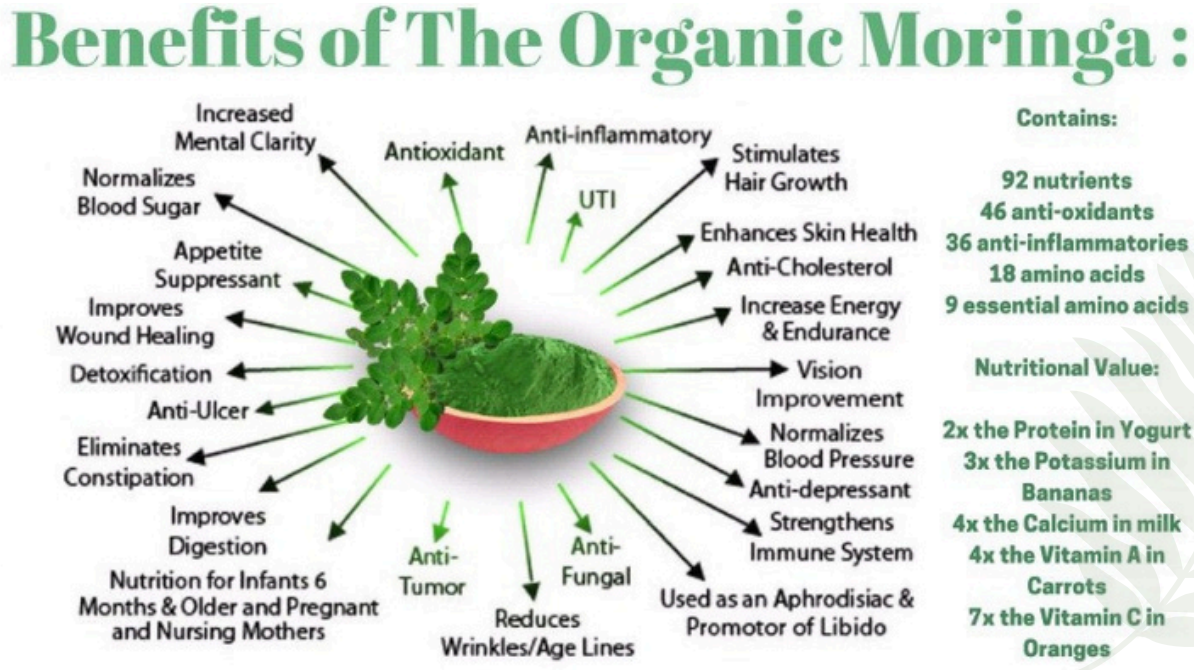
Moringa (Moringa oleifera), also known as drumstick in Hindi, shevga, munga/mungana in Marathi, and drumstick in English, is a multipurpose tree rich in nutrients. Every part of the drumstick tree, root, stem, leaf or fruit, flower, seed, and oil are used in one way or the other by humans and animals. Moringa has been used in Ayurveda since ancient times. Being highly nutritious, it is used to make a variety of items. Malnutrition can be treated if this plant is frequently consumed by every household or family. These days, flowers of drumstick are easily available in the market, along with pods of drumsticks. Its pods contain more vitamins, proteins, calcium, potassium, iron, amino acids, and minerals than other vegetables and fruits.

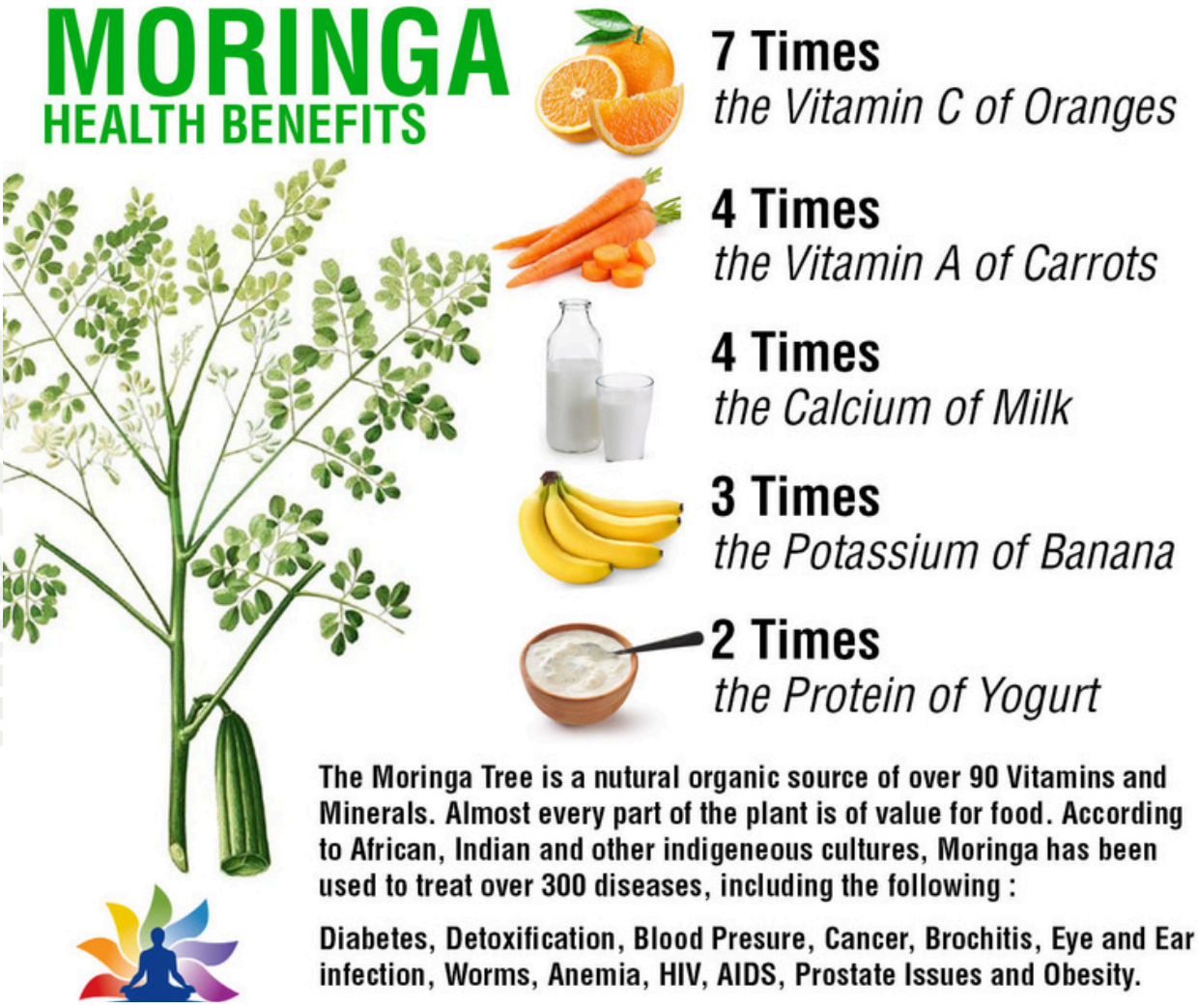
Its leaves and flowers are also an important source of various nutrients. In which Vitamin B, beta carotene, magnesium and protein are found in abundance. The oil obtained from their seeds has more effective properties than olive oil. Thus, the fruit, flowers, leaves, stem and even the root of this plant are useful.

HEALTH BENEFITS

This plant has many medicinal uses such as-

- Helping in wound healing,
- Helping in reducing pain and swelling,
- Useful in preventing blindness,
- Useful in bone diseases,
- Useful for women's nutrition,
- Useful in gastric and ulcer,
- Useful in blood sugar and blood pressure diseases,
- Makes the nervous system more effective,
- Increase brain function
- It is useful in improving the skin glow and in treating many diseases and ailments like these. Apart from this, its bark is used to bind animals when their collars are broken and provide relief.





CULTIVATION OF MORINGA LEAVES

Moringa, also known as Senjan, Munga, or Drumstick, is as much in demand as a vegetable as it is for medicinal use. That is why Moringa is considered a crop that gives cash and commercial benefits. Drumstick cultivation has both vegetable and horticultural advantages, as it yields at least four times a year. This tree yields for five-seven years. Moringa cultivation gives very good returns compared to the cost. It also requires less irrigation and maintenance. That is why the interest of farmers across the country in moringa cultivation is increasing rapidly. Also, the demand for dried Moringa leaves in the market is increasing every year. This is the point where farmers can earn good profits by cultivating Moringa in their fields.

IMPROVED VARIETIES OF MORINGA-

Improved varieties of Moringa are developed by Agricultural Universities, Research Centers, ICAR Research Centers, etc. keeping in mind the production capacity, ripening period, quality, etc., which are profitable. Following are the improved varieties which give more production-

- P K M- 1
- P K M- 2
- P K M- 3
- ODC

CLIMATE AND SOIL

Moringa can be easily cultivated even in dry and hot climate. The optimum temperature for plant growth is 25 to 30 °C. But this plant can bear fruit in 10-50 degree Celsius temperature. But more sunlight and hot climate is considered suitable. Moringa cultivation does not require any specific soil type, it thrives in a varied range of soils. It grows well in sandy soil, clayey soil, acidic soil, and black soil. Also, it can tolerate salinity up to 21 mili Mohs/cm and pH 5 to 8.

PLANTING TIME

Moringa can be planted at any time of the year, leaving the season of excessive rain and extreme cold. Moringa plants are grown from seed. Plants grown from seeds are of good quality.

MANURES AND FERTILIZERS

Organic manures and fertilizers should be used in asparagus cultivation, organic fertilizers such as-

- **Vermicompost-** provides a dressing element and nutrition for the plants,
- **Neem cake-** kills insects present in the soil,
- **Gypsum powder-** helps keep the soil loose and friable,
- **Trichoderma Powder (Fungicide)-** useful in killing harmful fungi present in the soil.

PLANTING OF MORINGA

For cultivation of moringa leaves, 6.5 kg seed for 1 acre is required. For leaves, seeds are planted at a short distance, the distance from plant to plant is 1.5 feet and the distance from line to line is 1.5 feet. So, about 20,000 plants can be planted in 1 acre. It is necessary to treat the seeds before planting them.

SEED TREATMENT

The seeds of moringa are hard on outside, so the seeds are treated before planting them. Treating seeds have two benefits- first is that its germination percentage increases and second is that seeds get pathogen free. To treat the seeds organically, take a 10 liter vessel, pour 5 liters of water in it, add 2 liters of desi cow urine and 100g of Trichoderma powder in it. Mix all these ingredients well, then put the seeds in it and let the seeds soaked in mixture for about 5 to 6 hours. Take out the seeds after 6 hours and put them in a cotton cloth, tie a knot and hang the potli overnight or for atleast 12 hours. Sprinkle water on this potli frequently. Take out the seeds and seeds are ready for sowing.

SOWING

Direct Sowing: For the cultivation of moringa leaves, seeds are planted at 2 feet x 3 feet spacing. The plant to plant distance is 2 feet and row to row distance is 3 feet. In this way, the seed are sown in small pits made by hand or with the help of spade and are covered with soil. After planting the seeds in the entire field, irrigation should be arranged immediately. Water must not stagnate in the soil near the seeds for one and a half week to ensure good germination. Once the plants emerge out of the seeds nearly 15 days after sowing, second irrigation is required. After this, irrigation has to be done according to the land and climate of your area. Moringa cultivation generally does not require much water.

Creating a Nursery: Farmers can make a raised bed of 3 meters x 3 meters, and sow the treated seeds on that bed at a distance of 2 x 2 inches. Plants in nurseries are grown for seeds for six to seven weeks. Once the plants reach a height of 1-1.5 feet, they are planted in the main field. Irrigation is applied immediately after transplanting.

PEST AND DISEASES & WILD/ DOMASTIC ANIMALS

Moringa can suffer from diseases and pests and also its a good food for wild as well as domestic animals. Insects cause more damage to the branches and leaves of plants. Insects that harm moringa plant are moringa hairy caterpillar, moringa budworm, leaf eating caterpillar, pod borer fly and bark eating caterpillar, etc. Farmer can contact our organization for the control and prevention of this pest.

HARVESTING OF MORINGA LEAVES

Moringa leaves are harvested at an interval of three months. In this way, moringa leaves are harvested four times a year. But the first harvest may come in four or five months. Leaves can be harvested as shown in the video. After cutting the branches of moringa, separate small branches and wash those small branches with water. After washing with water, these leaves are kept in the shade or under a shade net for drying. Generally, moringa leaves dry in 3 to 4 days. After drying the leaves, they are filled in sacks for storage or selling in the market.

INTERCROPPING IN MORINGA

Along with moringa, farmers can cultivate vegetables or other medicinal plants that are short in height like stevia, safed musli, ashwagandha, tulsi, black turmeric, and many other crops can be taken as intercrops.

TOTAL COST PER ACRE- 5 YEARS

PARTICULARS	WORK	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	5TH YEAR
Land Preparation	Ploughing, levelling,etc.	5,000	---	---	---	---
Organic Fertilizers	Organic fertilizers, insecticides, growth boosters	20,000	Grower can procure the organic fertilizers, insecticides, growth boosters required from local source/market.			
Seeds	3.5 kg seeds @ Rs. 2500/- per kg	8,750	---	---	---	---
Sowing	Sowing of seeds	5,000	---	---	---	---
Irrigation	Labour for Flood Irrigation	5,000	5,000	5,000	5,000	5,000
Electricity bill	for Irrigation	5,000	5,000	5,000	5,000	5,000
Shade Net	for drying leaves	10,000	---	---	---	---
Weeding	Removing weeds	5,000	5,000	5,000	5,000	5,000
Harvesting	Labour requied to cut branches	10,000	10,000	10,000	10,000	10,000
Packaging	Bags to pack dry leaves	5,000	5,000	5,000	5,000	5,000
Transportaion	Transportation of seed/fertlizers and harvested leaves	10,000	10,000	10,000	10,000	10,000
Total expenditure		**88,750**	**40,000**	**40,000**	**40,000**	**40,000**
Total expenditure (5 years)		**Rs. 248,750/-**				

TOTAL OUTPUT PER ACRE

5 YEARS (DRY LEAVES)

Production	1st year	2nd year	3rd year	4th year	5th year
Net yield (dried leaves)	1000 kg	1500 kg	2500 kg	3500 kg	4000 kg
Buy back price (per kg)	Rs.100/-	Rs.100/-	Rs.100/-	Rs.100/-	Rs.100/-
Net selling price	100,000/-	150,000/-	250,000/-	350,000/-	400,000/-
Gross Sales	**1,250,000/-**				
Total expenditure	**248,750/-**				
Net profit 5 years	**1,001,500/-**				
Net profit per annum	**200,250/-**				

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CROP CULTIVATION GUIDE

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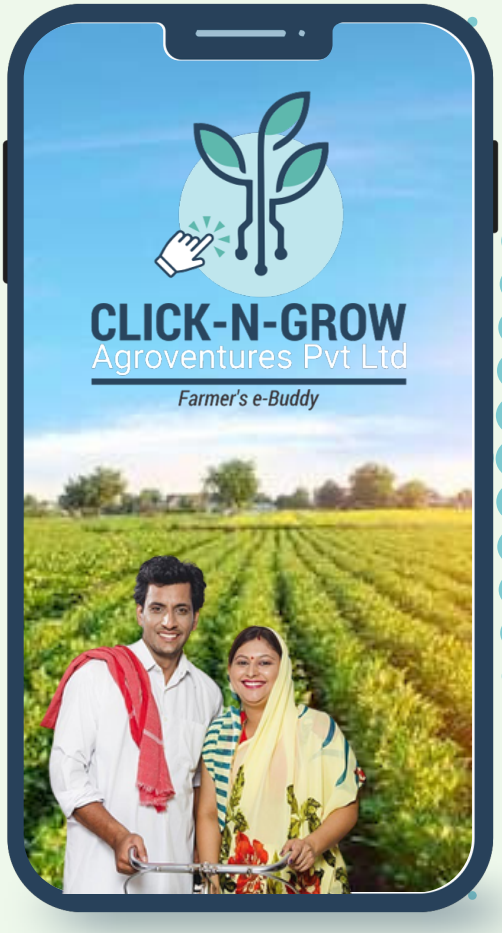

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INTERLINKED FARM SOLUTIONS AT ONE PLACE

Click-N-Grow Agroventures Pvt. Ltd.

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