Tomatillo

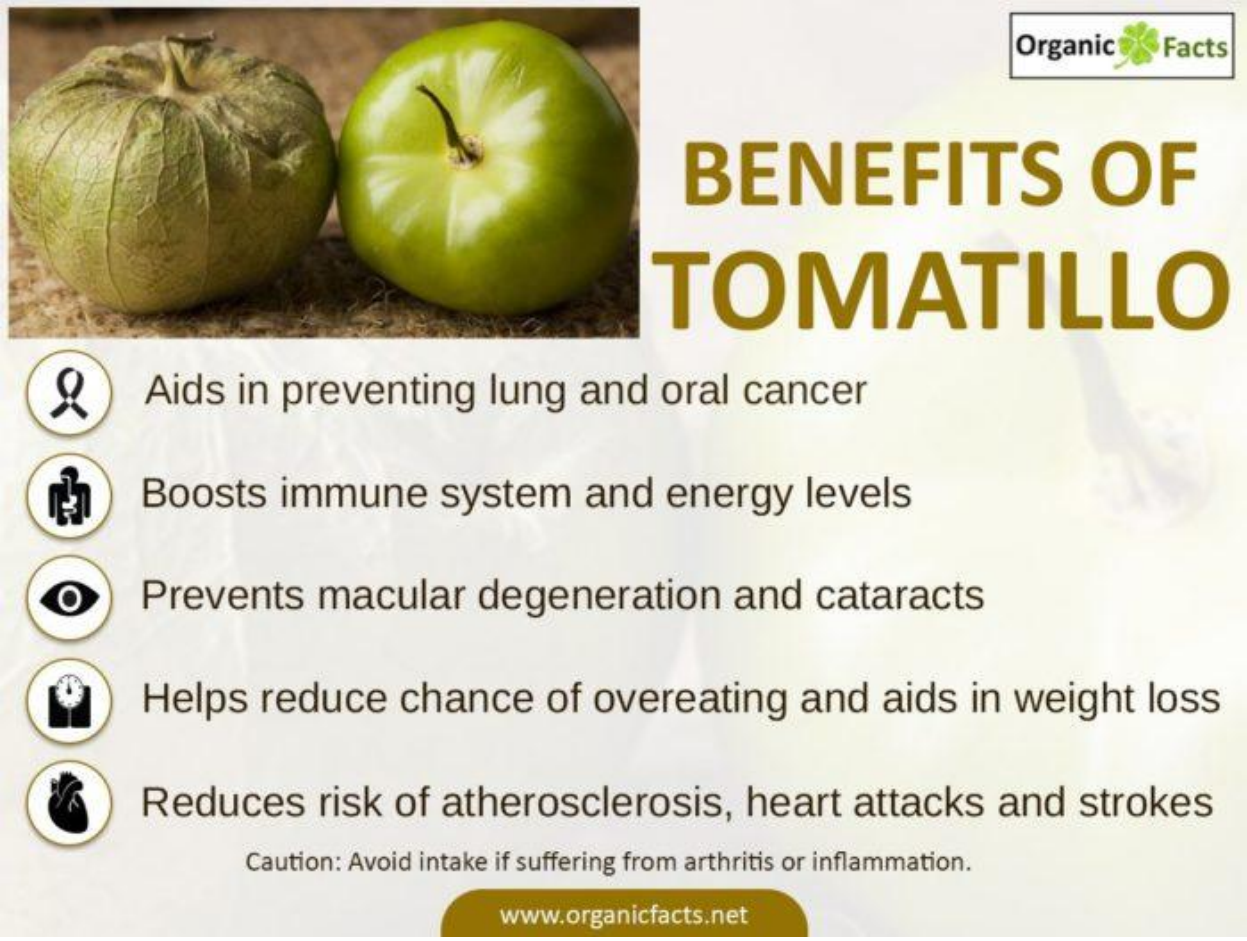
The **tomatillo** (*Physalis philadelphica*), also known as the Mexican husk tomato, is a plant of the **nightshade** family bearing small, spherical and green or green-purple fruit of the same name.

Tomatillos originated in **Mexico** and were cultivated in the pre-Columbian era. A staple of **Mexican cuisine**, they are eaten raw or cooked in a variety of dishes, particularly salsa verde.

Advantage & Uses of Tomatillo

With a combination of vitamins & minerals that include fiber,potassium,vit-A,C & K, niacin, manganese, the B-carotene zeazanthin &lutein,plus iron,magnesium phosphorus & copper.

Uses Its ha great uses for making salsa, chutney,sauce etc.



Soil & Climate

Many soil types are used for tomatillo production. Sandy soils are preferred for the earliest plantings because they warm more

rapidly in the spring. Heavier soils can be quite productive, provided they are well drained and care-fully irrigated.Tomatillos do best in soils with a pH between 5.8 and 7. Tomatillos are a warm-season crop.

Varieties

There are several varieties of tomatillos, with a variety of tastes and traits.

(They ripen to be the following colors: green, yellow, and purple.

The Pineapple tomatillo, for instance, is yellow and has hints of pineapple flavor.

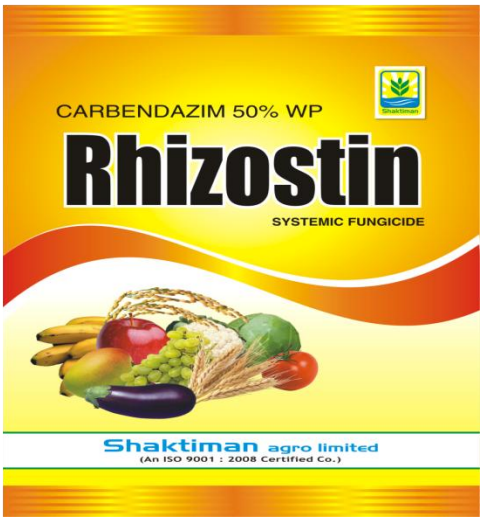
Rio Grande Verde is very large, and green.

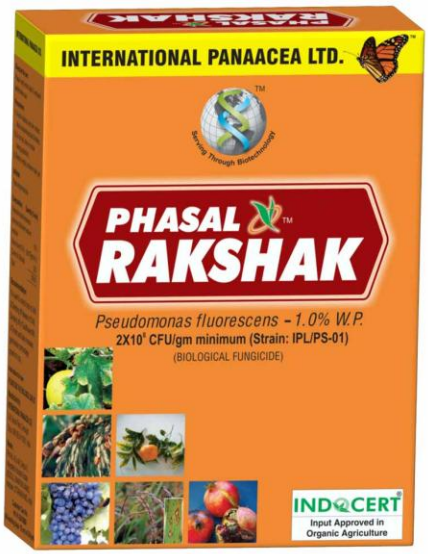
- Amarillo
- Cisinero
- Everona Large Green
- Gigant
- Green Husk
- Mexican Strain
- Mt Pima
- Pineapple
- Purple
- Purple Coban
- Purple De Milpa
- Rio Grande Verd

Seed rate : 300-350 g / ha

Seed treatment

Treat the seeds with Trichoderma viride 4 g or Pseudomonas fluorescens 10 g or Carbendazim 2 g per kg of seeds 24 hours before sowing. Just before sowing, treat the seeds with Azospirillum @ 40 g / 400 g of seeds. Sow in lines at 10 cm apart in raised nursery beds and cover with sand.





NURSERY RAISING

Transplants are an excellent way to establish and tomatillo plantings.Beginning with healthy and vigoroustransplants is the key to a successful crop.Vegetable seedlings are very sensitive to seedling diseases and must be protected.Use of solarization todisinfest the nursery bed is highly recommended as solarization kills many of the diseases of lettuce seedlings as well as weeds.


Nursery bed preparation:

1.Construct raised seedbeds of 1 m wide where no eggplant, potato, or tomato have been grown for at least 3 years.

2.Incorporate 5 kg/m2of good compost into the bed.

3.If possible solarize the planting bed to kill diseases

4.Form shallow furrows with a stick. One ha of tomatillo will require 200 to 250 g of good seed.

5.Sow seed and cover lightly with soil.

6.Pat firmly with a rake, mulch and then water

7.Do not use fresh manure on a seed bed as it burns seedlings

8.After seedlings emerge push mulch off the seedlines to allow sunlight.

9.Young seedlings require sufficient water. One week before transplanting, reduce water to harden seedlings.

10.Tomatillo seedlings will be ready with 3 to 5 true leaves (15-25 cm high).

PLANTING

The tomatillo is an annual and has the same cultural requirements as the tomatillo. Tomatillos grow best in full sunlight and moist, fertile soils.They are somewhat drought tolerant once established. Tomatillos are usually started indoors and then transplanted outdoors after the danger of frost is past. They can be direct seeded outdoors, but because of their long growing season, they will not be as productive. Start seedlings indoors 6 to 8 weeks before the intended outdoor planting date. Before planting, harden off the transplants outdoors for a few days. Initially place the plants in a shady, protected location and

then gradually expose them to longer periods of sun. Bring the plants inside or put in a cold frame if frost is forecast.

SPACING

Transplants should be planted 3 feet apart with rows 3 to 6 feet apart

Fertilizer

Tomatilloes respond well to fertilizer applications, particularly phosphorus. A complete fertilizer contains nitrogen (N), phosphorus (P), and potassium (K) (along with other nutrients). A

fertilizer's content specifies these nutrients in this order: N-P-K. To give the young plants a good start, place a handful (1 to 2 ounces) of a complete fertilizer (4-12-4, 5-10-5, or 5-10-10) in a circle 3 inches away from the plant and 3 to 4 inches deep. An additional application of nitrogen about fruit set time, placed in a circle 1 foot away from the plant, helps sustain production. More applications of nitrogen fertilizer are not recommended, as it tends to promote excessive vine growth and delay fruit maturation. Adding organic matter to the soil improves soil quality and may add nutrients

IRRIGATION

Maintain a uniform moisture level during plant and fruit development for best results. It's better to soak the soil thoroughly at intervals of 7 to 10 days than to sprinkle frequently. Inconsistent irrigation can lead to fruit cracking or blossom end rot. A shallow sawdust, peat, or leaf-mold mulch holds soil moisture longer. After mid-September, as the weather cools, it may be possible to water less often. But, for best fruit quality and yield, be sure that the plants do not become drought-stressed. Sprinkling in the late afternoon or

evening may favor development of foliage disease. If possible, use drip irrigation or other systems that don't wet fruit and foliage.

WEED CONTROL

Controlling weeds is a good idea, not only right around your tomatillo plants, but in the vegetable garden in general. Weeds compete with tomatilloes for water and nutrients. If they are large and numerous enough, they may shade or increase the humidity around plants, potentially contributing to foliar diseases. Some pests of tomatillo, such as cutworms and stink bugs, also use weeds for cover. Shallow cultivation right around the plants can be an effective way to remove weeds. Be careful not to damage feeder roots. Cultivation also breaks up any soil "crust," which improves water and air penetration into the soil.

Dark-colored plastic mulches do a very thorough job of suppressing weeds. Organic mulches such as compost or clean straw can also control weeds, but do not spread them around your plants until the soil has warmed up enough. If you apply mulches too soon in the spring, they can keep the soil cooler and

potentially delay plant growth. Make sure that the mulch is free from plant disease, weed seeds, or herbicide residues.

Staking and pruning

The term "vine" is used for many tomatillo plants, but they are not capable of wrapping themselves around a trellis. It is best to support your tomato plants with some sort of trellis to get the vine and fruit off the ground. This prevents fruit rot and damage from slugs and cutworms, increases air circulation, and makes harvesting easier. Trellised and pruned plants

Integrated Pest Management is based on following different components

Mechanical control

Hand picking of larvae: Larvae of cutworm, leaf eating caterpillar are very sluggish, so they can be hand collected and destroyed easily

Trenching the field: Pests like army worm, grasshoppers march from one field to other which can be prevented by trenching in field

Physical control

Burning: Damaged fruits and crop residue should be burn to avoid carry over of pest

Moisture:At optimum moisture there is no infection while at high moisture in field increases infection of pest

Use of light: Light traps are used for many pests like hairy caterpillar, stem borer

Cultural control

- Summer ploughing
- Certified seeds
- Time of sowing
- Judicious and proper application of fertilizer
- Water management
- Crop rotation

Biological control

Utilization of natural enemies of insect like predator parasite and pathogens to manage the pest population

Predator

Lady bird beetle : This insect feeds on aphids

Parasites

Egg parasite: Trichogramma chilonis parasites egg of helicoverpa armigera

Pathogens

Bacteria: *Bacillus thuringiensis* develops disease in many lepidopterous pests.

Virus: Though there are many reports of entomopathogenic viruses Nuclear Polyhedrosi Virus (NPV) and Granulosis Virus (GV) are commonly used in insect pest control.

Fungus: *Beauveria bassiana* is used for control of lepidopterous pests.

Chemical Control

Chemical measures are the most common method of pest management.

Dip the roots of the seedlings for 3 hours in imidacloprid solution

prepared at 1ml/lit before transplanting

Soil application of carbofuran 3G at 30kg/ha 10 days after transplanting is also very effective. Apply neem cake at 250kg/ha at 30 days after transplanting.

HARVESTING AND YIELD

Tomatillos are ready to harvest in 75 to 100 days after transplanting. For best flavor, harvest the fruit when the husk changes from green to tan while the berry is still green. The size of husk and fruit, as well as the fruit color and flavor, varies depending on the cultivar. Fully ripe fruit turns yellow or purple and loses its tangy flavor.

An individual plant may produce 64 to 200 fruits in season.Yield is about Approximately 9 tons per acre .

Generally, fruits are ready to harvest when the husk begins to split and the fruit is bright green; however, fruit color at ripening could vary with the cultivar. Tomatillos are usually hand-harvested several times throughout the growing season, generally at seven- to 14-day intervals.

Husks are generally left intact on fruit sold for fresh market. Over-mature fruit has a very limited market since they are too sweet for most uses. However, these fruit have been used to make pies similar to those prepared with ground cherries (Physalis pruinosa), a close relative to tomatillo.