



## HOPS VINE

A sun loving plant, make sure you choose a spot in full sunlight for most if not all of the day. Support must be present for these to climb. The soil should be well worked and kept weed free. Plant after threat of frost has passed. Plant the long root 2 cm (1 in) deep (parallel to surface), buds pointing up. First year plants need frequent light waterings. Fertilize regularly with Rose & Strawberry 10-52-17 up until mid-July. When vines reach about 30 cm (1 ft) prune back to just 3 strong vines and make sure they grow up provided support. They reach their ultimate height of 5-7 m (15-25 ft) by early July. They then start producing sidearms which will bear the flowers, do your best to prevent sidearms from becoming too tangled. Vines produce both male and female flowers. The female develop the hops cone only. The plant is basically establishing its root system the first year, so not too much flower production can be expected. As this is a very dense foliage plant watch closely for signs of mildew and treat quickly with Safers Defender Fungicide.

Basic Requirements: Plenty of space. Since healthy hop plants can grow up to 1 ft in a day, space is definitely an element to consider before planting a hop yard.

**Site selection:** The ideal hop yard must have direct sunlight, easy access to water, and plenty of room for vertical growth. Space along fences, garages, or property lines hold potential as hop yards. Hop vines also need a strong support system to grow successfully; tall poles and strong twine are commonly used to support the growing vines. Growers should avoid sites with electrical wires nearby because of potential problems caused by sprawling vines.

**Soil:** The soil must be loamy and well drained with a pH of 6.5-8.0. Because hops use large quantities of water and nutrients, the soil needs fertilizers rich in potassium, phosphates, and nitrogen. Home growers can use manure compost and commercial fertilizer for this purpose.

**Care and Feeding:** Like any young plant, too much water may cause more harm than good. During their first year, young hops have a minimal root system and require frequent short waterings. Mulching the soil surface with organic matter is a great method for conserving moisture and helps control weeds. After the first season the plant is established, and less-frequent deep watering such as drip irrigation works well. Don't expect much growth or many flowers during the first year because the plant is establishing its root system. Instead, look forward to the second year when hops are full grown and produce healthy crops of fragrant flowers.

When the hop vines are about 1 ft long, select two or three strong vines and wrap them clockwise around a support system. The support system can be a trellis, tall pole, or strong twine. Hops mainly grow vertically, but lateral sidearms extend off the main vine. The main concern is to support the vines and prevent the sidearms from tangling.

### DISEASES AND PESTS

Downy mildew (*Pseudoperonospora humuli*) is the main culprit of unhealthy hops. The mildew appears in the spring when the new shoots begin to grow. While some shoots are healthy, others will look brittle or spiky. Once the shoot develops into a spike, it will no longer grow. Other characteristics to look for are curled underleaves with a silvery upper surface and black underside. Infected leaves must be removed because they are a source of infection for the rest of the vine.

Downy mildew needs moisture to germinate, making sprinkle irrigation a bad idea when your vines show mildew infection. Drip irrigation is a better source of watering because the foliage remains dry and the water goes right to the roots where it is needed. The chances of downy mildew infecting your plants will be less if you strip the bottom 3 ft of the vines; these bottom leaves produce no cones, so your harvest will be unaffected. Keeping the vines clear of weeds and leaves will prevent moisture from becoming trapped against the plants.



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Downy mildew can be controlled by spraying a fungicide containing such as copper spray or natria.

**Wilt (*Verticillium wilt*)** is another disease that damages hops. Characteristics to watch for are leaves with a dull green tissue alternating with yellow bands. Again, you remove the infected leaves to prevent wilt from spreading. The fungicides used against downy mildew can also be used to fight wilt.

**Various bugs and worms** inhabit hop yards. Some are beneficial, others can cause great distress. The translucent pale-green bug known as the hop aphid (*Phorodon humuli*) is the most common and dangerous pest because it can destroy a whole hop yard. Fortunately, aphids are easily seen on leaves' undersides; they reproduce so quickly, they'd be hard to miss. They appear in cool weather and, once hatched, will spread to all parts of the vine. Although aphids are easy to kill, tall vines and abundant leaves are difficult to spray effectively.

Organic insecticides such as insecticidal soap work well against aphids.

**Spider mites (*Tetranychus urticae*)**. Spider mites are barely visible to the naked eye, but their arrival is easily detected. Fine white webs under leaves and small freckle-like spots on the upper leaf surface are sure signs of spider mites, as are defoliation and red, rust-colored cones. Because the mites like the sunlight, they tend to infect the top of a vine and work their way down. If you suspect mites to be the problem, inspect the parts of the vine closest to the sun. Many of the sprays used on aphids are effective against spider mites, too.

## Harvest

How do you know when it is time to pick your hops and reap the rewards? It is best to determine the readiness for picking by feel and smell. If the cone is too green, it feels slightly damp to the touch and has a softness to its scales. If you squeeze the cone, it will stay compressed in your hand. A ready cone will feel papery and light. It will feel drier than a green cone, and some varieties take a lighter tone as they mature. If your hands quickly take up the smell and are slightly sticky due to the yellow powdery lupulin, that cone is ready for harvest.

The cones must be properly dried to optimize their qualities during storage. Although hops can be used fresh, the results will be unpredictable. Hops are 70% moisture when ripe, but only 10% when dried to the equivalent of commercial hops. Drying hops enables you to accurately predict and control their use in recipe formulations. This can be done in a food dehydrator, homemade hop dryer, or well-vented oven.