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- ▶ Current Issue
- ▶ Archives
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[Table of Contents](#)

### More in this Issue

#### Features

- [Right on Track](#)
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#### North Features

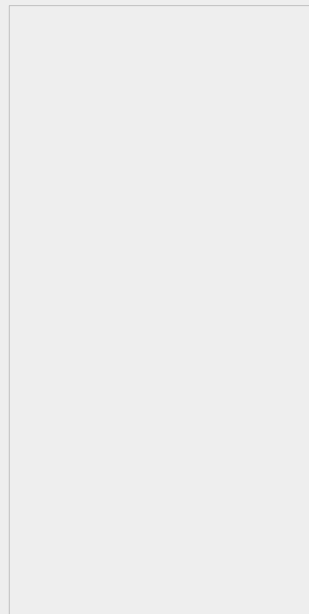
- [Cold Climate Grapes](#)
- [Sweet Production](#)

### NORTH FEATURES

## Cold Climate Grapes

**Grower fills a developing niche market**  
*By Kathleen Hatt*

*PHOTOS BY KATHLEEN HATT, UNLESS OTHERWISE NOTED.*

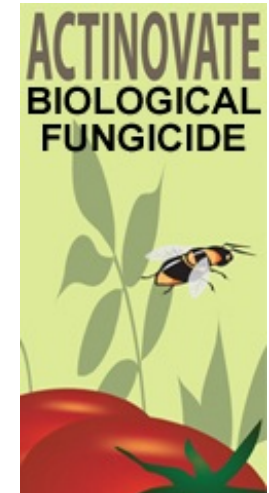


Black rot begins on leaves and progresses to fruit. From a little rot on one berry, the fungus

“If this were any other place in the world, it would be growing grapes,” mused Virginia Carter as she and her husband Paul Kranowski gazed out the living room window of the Walpole, N.H., house they were considering purchasing. Five years later, and despite a cold season of eight months or more and winter temperatures as low as minus 30 degrees, 1,300 grapevines march up, down and across five acres of rolling hills outside their kitchen window. Three years after the vines were planted, the first of Barnett Hill Vineyard’s grapes were harvested.

#### Selecting vines

From a Web search of “cold climate grapes,” Carter discovered there are indeed varieties which will grow in Zone 4B. Many were developed by the University of Minnesota with the help of Elmer Swenson, a man whose life work was hybridizing French-American vines that could withstand temperatures of minus 30 to minus 50 degrees. A variety called Frontenac, for example, is deemed hardy to minus 35 degrees. It is among the 28 varieties Carter has selected for her Walpole Mountain View Winery at Barnett Hill Vineyard. (Four of her original 27 varieties were not successful and have since been replaced by five others.) All the varieties Carter selects





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Forbidden Fruit Orchards

A Century of Service

### Columns

Organic Viticulture

Seed Germination

### Departments

What's New

Control Product Update

progresses to two berries, then five, and later to mummy berries, which must be removed to prevent recurrence of the fungus the following growing season.

must meet these criteria:

- (1) They will not die back in the cold.
- (2) They will ripen between September 15 and October 25.

(3) They are disease-resistant since, Carter would like to grow grapes as organically as possible.

Before committing to growing a particular variety, Carter grows six of its vines, enough to yield a carboy (5-gallon jug) of wine from its fruit.

### Up, down, sideways and across

"Ideally," says Carter, "grapes should be planted north to south on a north-south slope." This arrangement gives each vine optimal exposure to sunlight and to good air circulation.



Sheila Albere and Virginia Carter work together to bottle and seal wine. A capsuler is used to shrink wrap caps onto bottles.

Because soil within a slope is different at the top from soil at the bottom, it is important that it be tested at multiple locations and amended accordingly. Soil tests will determine which nutrients are available to the vine's roots. However, soil tests will not show whether or not the roots are absorbing those nutrients. Only by testing petioles (the slender stems which attach each leaf blade to the vine) can it be determined to what degree nutrients are being absorbed from the soil into the shoot. Since amending the



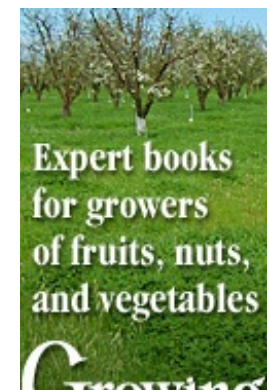
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soil does not mean an automatic increase in the nutrients taken up by the plant, yearly petiole testing is necessary to determine the nutrient status of a vine and thus its health and productivity.



The small, sap-eating insect phylloxera feeds on grape leaves and roots. It produces galls where the feeding took place.



Carter initially ignored the lack of one trace element revealed in an early analysis of the mineral-rich soil at Barnett Hill Vineyard, but her vines did not. The margins of their leaves turned yellow and the plants set no fruit. To remedy the situation, Carter added one quart each of ground and foliar borax to each plant as well as to the soil throughout the rest of the vineyard.

In spring, shoots at Barnett Hill Vineyard are fertilized with Sulpomag (because the soil is deficient in potash) and blood meal (to add nitrogen). Younger shoots receive a second fertilization four weeks after the first. Because grapes have huge taproots ranging from 15 to 30 feet in a mature plant, they can take up their own minerals from the soil. The goal is a yield of 15 pounds of grapes per plant. "Grapes from plants that yield too heavily may not be good grapes," says Carter. "The best grapes grow closest to the trunk."

### Propping the crop

Grapes are true vines and thus need external support. At Barnett Hill Vineyard the French-American hybrid roots are planted 8 feet apart and trained to a vertical shoot positioning system (VSP). Vineyard training systems are selected based on both grape variety and climate, and vertical shoot positioning systems are commonly used in cool climate vineyards. The objective of VSP is to create a narrow layer by training shoots vertically so that there will be good sunlight and airflow in the fruiting zone of the canopy. A properly managed canopy allows the fruit to dry out quickly after rain and also exposes the grapes to sun earlier in the season. Sun exposure encourages grapes to ripen more evenly within each cluster. Mainly for the convenience of workers, the target for the



Wine-making equipment at Walpole Mountain View Winery.



On a hill above the Connecticut River Valley, Virginia Carter's Barnett Hill Vineyard produces grapes for her Walpole Mountain View Winery.



fruiting zone is generally around waist height. No vegetative growth is allowed below the lowest wire.

Carter's VSP begins with 6-foot-tall vertical stakes set 24 feet apart. Five strands of horizontal wires are strung between the stakes. The two bottom wires are set 30 and 36 inches above the ground and support the fruiting buds. Double strands of wire strung at 4, 5 and 6 feet are known as catch wires. As their name implies, catch wires hold the vines Carter and her helpers tuck into position. Tucking vines is among the many time-consuming tasks of growing grapes.

### **Nobody doesn't not like grapes**

Bugs, birds, fungi, bears, raccoons, chipmunks, squirrels, mice, and voles—everyone likes grapes. Deer also like grapes, but they prefer theirs very early in the season when they are but tender young vine shoots. To discourage four-footed visitors, a 6-foot-high, eight-wire electric fence, with a closer wire grid on the bottom 18 inches to exclude small critters, has been installed around the perimeter of the vineyard. Bears are further dissuaded by Irish Spring soap speared atop the fencing. Nets clipped to the top and bottom of the VSP discourage birds, especially turkeys that find grapes hanging at just the right height for them to eat. Two separately penned large-breed dogs also discourage intruders.

Controlling fungi and airborne diseases is quite another matter. While the vines are planted in the optimal orientation to catch the wind that dries the vines after a rain, in some seasons, such as the wet 2009 summer, this is not enough. Black rot, anthracnose, downy and powdery mildew, phomopsis and phylloxera thrive in wet weather. Most of these diseases start with a leaf issue, which then progresses into the fruit. Black rot goes from a little rot on



Roots are planted 8 feet apart and trained to a vertical shoot positioning system (VSP). Vines are tucked between double catch wires.



Wine-making equipment at Walpole Mountain View Winery. Winery owner Virginia Carter hopes other growers' cold climate grapes will be available for purchase and that her winery can operate at optimum capacity.

one berry to a little rot on two, then five and later to mummy berries, which pickers have to remove because mummy berries must not get into the crusher and ultimately into the wine. Mummy berries will also be a source of disease the following growing season.

Among insect pests are Japanese beetles, which dine on young vines, and Asian lady beetles, which prefer the fruit. Just one Asian lady beetle in a gallon of wine can alter its flavor.

Fighting pests and diseases begins in spring with a copper spray applied while the vines are still dormant. This, like the lime-sulfur Carter puts down when the shoots are tiny, is organic. However, lime-sulfur cannot be used on all grape varieties (such as Marechal Foch) because it destroys leaves. In addition, it is not systemic, so rain washes it off. Lime-sulfur does not kill most fungi, but it does make an inhospitable environment for them in spring when the plants' new buds are opening.

Despite the challenges, Carter continues to try to grow grapes as organically as possible, first using environmentally gentle methods to overcome the many fungi and insects that attack the vineyard's vines and fruit.

### A call for more grapes

Unlike the crops most farmers grow, grapes do not mind weeds. Weeds, in fact, help hold moisture in the vines' roots. However, the gravelly soil at Barnett Hill Vineyard prevents too much water from accumulating. Grapevines do not like wet feet. Weeds also do not tend to foster disease. While Carter and her helpers do

weed whack to keep the undesirable plants under control, they do not fret about weeds the way they do about the grape leaves and berries.

What grapes do require, however, is intensive hand labor and a large initial investment. One plant, for instance, may cost more than \$15. Most at Barnett Hill are in the \$2 to \$10 range. Vines are set at approximately 600 plants per acre. While neither a tiller nor harrow is needed (or even desirable), a 1-foot auger is necessary for planting. A simple



posthole digger is inadequate in New Hampshire's rocky soil. A tractor is also a necessity. Carter has a 35 hp John Deere. She also counts among her necessary equipment a sturdy weed trimmer and a good mower. Then, there's the no-income wait—five years from planting vines to tasting wine from the first harvest—but Carter believes there is a market for cold climate grape wine and that the investment and wait are paying off.

In 2008, the 1,300 vines at Barnett Hill Vineyard yielded enough grapes to make almost 1,800 750-milliliter bottles of wine. Bottling took place in Carter's basement, but in 2009 moved to a new winery next to the house. The winery is an energy-efficient building stained a rich wine red and topped with a unique and appropriate weather vane. Wine is made in the basement from grapes crushed and pressed on a nearby concrete pad. The first floor has space for wine tasting and a gift shop, and the loft is used to store empty bottles.

The new Walpole Mountain View Winery has a capacity far greater than needed to process the grapes that can be grown at Barnett Hill Vineyard. Lack of suitable land makes it impossible for Carter to expand her vineyard, but it is her hope that she will soon be able to purchase cold climate grapes from other growers who share her passion for excellence.

*Kathleen Hatt is a freelance writer and editor and a frequent contributor to Growing. She lives in Henniker, N.H.*




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