

Establishing a Commercial Vineyard

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Note: This is part of a series of articles related to commercial vineyards in Nebraska.

Preparation for Planting

Planting is best done in early spring after the average last date expected for a hard freeze to occur. Generally, dormant bare-root plants are used, but rooted cuttings and green plants are sometimes employed. Certified, #1 size or better, virus-free planting stock is most desirable. If planting stock has leafy growth, planting should be delayed until after the last frost date will occur. Because many cultivars are in great demand, orders for planting stock should be placed one year in advance of the desired planting date. This is especially true for newly available cultivars such as 'Brianna', 'Prairie Star', 'LaCrescent' and 'Frontenac'.

When the shipment of plants arrive, bare-root dormant planting stock should be inspected immediately for damage or other problems such as mold. Then make sure they are kept moist and store in a cool place (less than 40 degrees F, but above freezing) until ready to plant.

Prior to planting, soak the roots of dormant bare-root plants in water overnight or up to 24 hours. Prune off any broken or excessively long roots and dig a planting hole that will easily accommodate the root system. The roots should be spread out in the hole, covered with soil and firmed well around the roots. Some experts suggest setting the plant to a depth where the first shoot is at ground level, while others suggest planting deeper and/or mounding soil around the base of the plant – both seem to work well in Nebraska soils. It is recommended the plants be watered following planting, even if the soil moisture seems adequate. This aids in settling the soil around the roots, eliminating air pockets and ensuring adequate moisture for the development of the new roots.

The young vine should be given support; often this is accomplished by placing a stout bamboo stake next to each vine and tying the vine to the stake as the vine grows. Alternatively, use of "grow tubes" may help the vine establish a single vertical shoot and protect the developing vine from herbicide and vertebrate pest damage. Ideally, the trellis should be established soon after planting to aid in supporting the developing trunk. Trellis system design is discussed in the University of Nebraska-Lincoln Extension NebFact, "Trellising Systems for Nebraska Vineyards."

Care of Young Vines

Weed control in the year of vineyard establishment is a must. Control of perennial weeds by use of an appropriate herbicide should be achieved in the year prior to planting. Approved pre-and post-emergence herbicides will help with annual weed control (see Nebraska Spray Guide for Grapes and Small Fruits for recommendations). Be sure to read and carefully follow all label directions for any pesticide used, including herbicides.

Young vines may benefit from application of nitrogen fertilizer after growth has commenced. A rate of 20 to 30 pounds of actual nitrogen per acre may be appropriate, depending on inherent soil fertility and organic matter. Placing the fertilizer in a circle of about 20 to 24 inches in radius should work well, or in bands along each side of the row at a similar distance from the plant. Care should be taken to avoid direct contact with the plant because nitrogen fertilizer has a great potential to "burn" the living tissue contacted. Split applications of nitrogen can be applied at monthly intervals, but in no case should they be applied after mid-July to avoid soft growth that will be vulnerable to winter damage.



Pond Measurements

Proper management of your pond requires you know its surface area in acres and its volume. Fish stocking and some chemical applications are done using surface area; however, pond volume is often used to determine the amount of chemicals to be used.

If an Natural Resource Conservation Service (NRCS) conservationist or civil engineer designed and supervised the construction of your pond, that person should be able to provide you with these measurements. Your local USDA Farm Service Agency (FSA) office or online aerial/satellite map such as <http://earthexplorer.usgs.gov> may have an aerial photo of your pond from which the surface area of your pond can be measured. The surface area of an existing pond may also be determined by a survey.

You can determine the surface area by making measurements and using one of the formulas given here.

Rectangular pond:
 Surface acres = length (ft.) x width (ft.) / 43,560

Circular pond:
 Surface acres = (total (ft.) of shoreline)² / 547,390

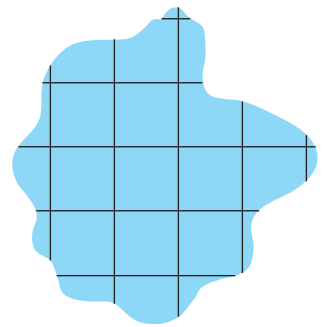
If your pond is rectangular, the surface acreage equals the length in feet times the width in feet, divided by 43,560. You can usually regard an irregular-shaped pond as a rectangle or square and compute the area from straight boundary lines that approximate the actual shorelines.

If your pond is circular, measure the total

distance in feet around the edge of the pond. Multiply this number by itself and divide by 547,390. The result is the surface area in acres. This formula also works for ponds that are almost round. However, if your pond is more egg-shaped than round, this formula will give you a much larger acreage and will introduce errors in other computations.

Next, you will need to determine the average depth of your pond in feet. Make soundings uniformly spaced over your entire pond surface. This can be done from a boat by using a weighted rope marked off in one-foot increments and lowered to the bottom of the pond. Add the measurements and divide by the number of soundings to determine average depth.

Now you have the measurements necessary to determine the volume of your pond in acre-feet. Simply multiply the surface area in acres by the average depth in feet (surface area in acres x average depth in feet = volume in acre-feet). One acre-foot equals 325,850 gallons.



To determine average depth of pond, take soundings at intervals along transects. Average at least 15 such readings.

Tips For Handling Pesticides Safely

Pesticides are designed to kill pests and as such, they should be used, stored and disposed of only as instructed on the container label. Always read and follow the directions on the container label before using the pesticide. Below are some additional tips to remember.

- Use personal protective equipment such as clothing, gloves and a respirator as recommended on the product label.
- Mix fresh spray for each application. Do not save spray mixture for the next application. This is not only unsafe, but the pesticide loses its activity and can also damage the sprayer. Carefully calculate the amount of spray needed so excess does not result and create a disposal problem.
- Do not spray an insecticide during bloom because it is likely to kill pollinating insects such as honeybees.

- Spray carefully and thoroughly to cover all parts of flowers, leaves and fruit until a noticeable amount of water begins to drip from the foliage. Shake the sprayer often while spraying so the chemicals do not settle out.
- In most cases for disease control, apply the pesticide prior to rainfall; however, sprays should not be applied closer than 2-3 hours before rainfall to allow for sufficient drying.
- Pesticides should be stored in a safe location that is cool and dry. Liquids should not be stored where the temperature will drop below 32 degrees F.
- Read and observe the instructions on the container label for the time interval between the last pesticide application and re-entry into orchard or harvest. This interval may vary depending on the pesticide.

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