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PLANTING AND SUCCESS GUIDE

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PLANTING!**

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NOURSE

Growers of the Finest Berry Plants Since 1932

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Eight important elements for growing plants successfully

Read this guide before you plant! It contains critical information about how to care for your new plants from the time they arrive at your doorstep, and how to best prepare the planting area. Keep the booklet handy because there are many details about how to care for your plants for years to come. If you are not ready, or your planting area has not been prepared as your shipping date approaches, we will be happy to postpone shipment. You must call at least 4 business days before the scheduled shipping date printed on your order confirmation. Call us or your local extension office if you have planning, preparation or planting questions.

- 1. A sunny, weed-free location:** Plants should have a minimum of 6-8 hours of sunlight exposure. Early morning sun is preferred. Thoroughly weed before planting and use appropriate weeding techniques to keep the planting area weed free.
- 2. Rotation of land:** Avoid planting strawberries or brambles in soils where previous crops have included strawberries, brambles, potatoes, tomatoes, eggplants or peppers. These crops may harbor soil pathogens such as *Verticillium* and *Phytophthora* and nematodes which may affect your new plants.
- 3. Well-drained soil:** All small fruits, asparagus, and rhubarb grow well in a wide variety of soils. However, the soil should have at least 2%-3% organic matter for best growth and if the soil is not well-drained, planting in raised beds may be necessary.
- 4. Site Preparation:** It is best to have the site prepared and ready for planting prior to receipt of your plants, so that you can plant them upon arrival.
- 5. Plant early in the spring:** Plant as early as possible in the spring, after the soil has warmed to about 45°F. Natural spring rains are an excellent aid in getting your plants off to the best start and warmer soil encourages the plants to grow. Fall planting of small fruit plants is not recommended for the majority of the Northeast and Midwest.
- 6. Soil pH:** Nutrient and pH requirements are not the same for all plants. You should have your soil tested before planting to know your soil pH and fertility. Contact your local Cooperative Extension office for information on taking soil samples, and for assistance in interpreting test results. Specify the crop that you plan to grow.
- 7. Soil depth and compression:** With any planting method, these two factors are critical. Plants will fail to flourish or fail to grow if planted too deep or too shallow and if soil is not pressed firmly around the roots.
- 8. Irrigation:** It is critical to water plants well when you transplant and throughout the establishment period. Water regularly through the growing season, being sure the plants receive approximately 1"-3" of water each week depending on soil and weather conditions. Irrigate 1-3 times per week rather than every day. Please note: If you are planting in raised beds, overhead irrigation is not sufficient for maintaining proper moisture. Drip irrigation is imperative and healthier for your plants.

Receiving Instructions

Thank you for ordering your quality plant stock from Nourse Farms! Check your plants immediately upon receiving them. If you have any questions or problems, please call right away. **Before you plant, please read the related sections of this planting guide.**

- **Planting should be done as soon as possible after you have received your plants.** We will always work with you to get your plants to you when your local weather and soil conditions are suitable for planting. For those reading this booklet prior to shipping, if your local conditions are not suitable, please call as soon as possible to delay shipment - at least 4 business days before your scheduled ship date.
- A light frost or snow will not hurt your dormant plants, but your soil should be around 45°F when you plant to spur development.
- Frost could damage or kill your new 'Tissue-Culture' or 'TC' plants. **There are special instructions on page 19 for Tissue-Culture plants,** either green or dormant.
- If you cannot plant on the day of delivery, small orders can go in the crisper of your refrigerator. Large orders should go into a cooler set at 28-32°F. **DO NOT FREEZE!**
- With the exception of asparagus roots, if you cannot plant right away, it is important to keep roots moist, not soaked, and cool without temperature fluctuations, until you can plant. When your plants arrive, check the roots for moisture. Lightly sprinkle them with water if needed, close the bag or box. **KEEP ASPARAGUS ROOTS DRY!**
- **Do not store more than seven days,** the sooner you plant the more successful your planting will be!
- Fall planting of small fruit plants is not recommended for the majority of the Northeast and Midwest.



Dormant red and yellow raspberry



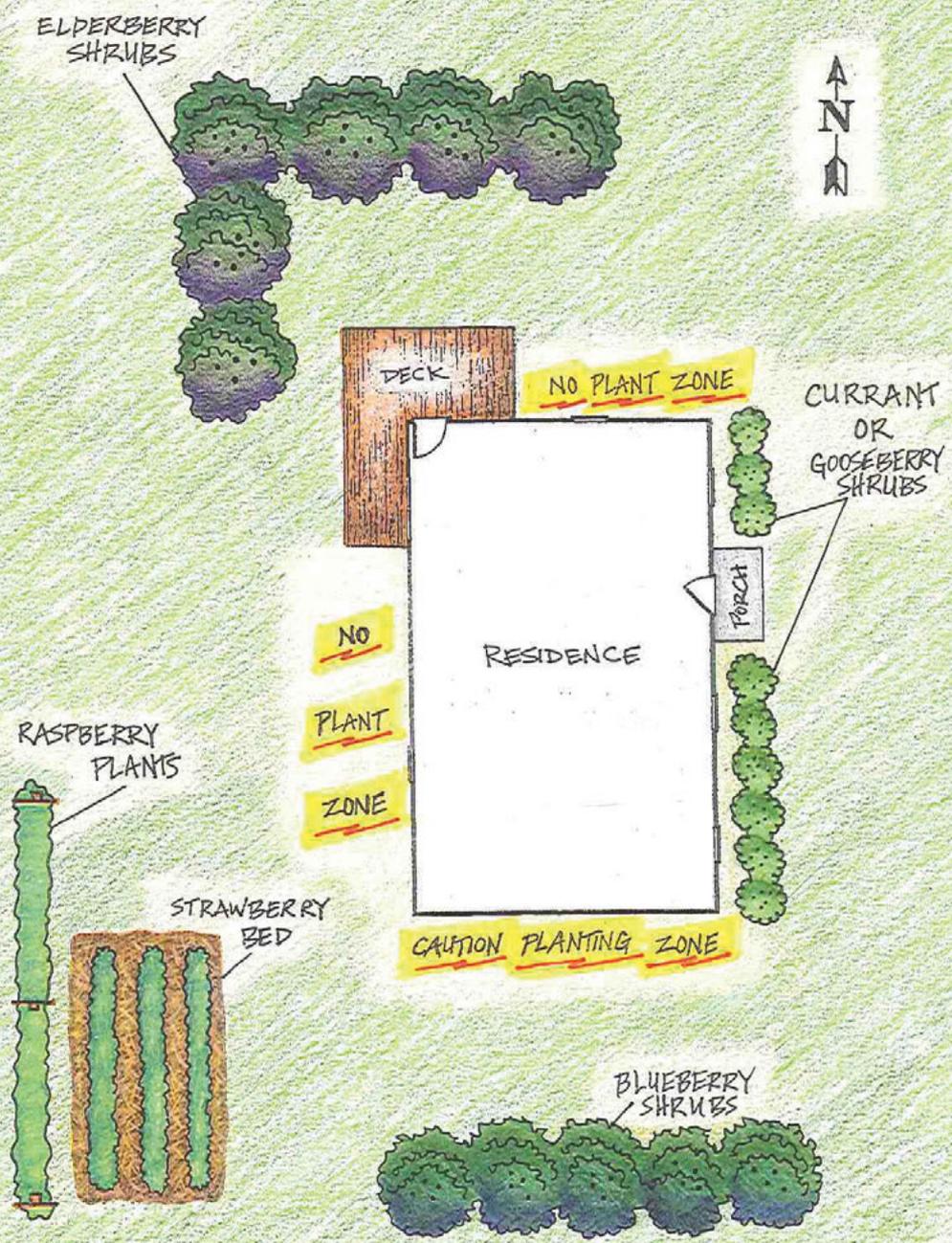
Dormant bare-root strawberry



Dormant (TC) plug

Viterra Agri-gel™ is a product we use when planting to help maintain moisture and establish plants with little stress. We have been using this product for several years with excellent results, and carry Viterra Agri-gel™ in our accessories product line.





Locally Grown Starts at Home!

How to add beauty, interest, and an abundant supply of delicious and colorful fruit to your landscape.

Growing berries is not just a way of assuring an abundance of fresh, delicious and colorful fruit; it's also an easy way to add beauty and interest to your landscape. Since each variety of plant has its own distinct growth habit, the benefit of planting berries offers both aesthetic and practical rewards.

- Cane plantings such as blackberries and raspberries will climb fences and trellises and become a lovely ornamental hedge; they will also burst with color in the spring just before bearing their fruit.
- Blueberry bushes, excellent for beginners, develop into 4'-6' tall shrubs that turn a brilliant red in the fall. Some varieties have golden or orange fall foliage!
- Currants and gooseberries provide an excellent low border, and gooseberries thorns will keep out unwanted pests. Strawberries make a perfect ground cover. Planting a few varieties will produce berries all season long.
- Elderberry bushes are fast growing and hardy. They typically grow quite large and full with clusters of tiny white flowers in late spring followed by clusters of berries in late summer.
- The **No Planting Zone** is a guideline for all of our plants. Planting in areas that see little or no sun will lead to plants that will struggle to survive. If plants do survive, the small crop produced will have a lot of disease risk.
- The **Caution Zone** is a place where plants will struggle during high heat months. Because of extra protection from wind and cooler temperatures, plants and fruit can get an overdose of sun and heat.



Avoid Common Planting Mistakes

- Plants will fail to flourish if roots are too deep or too shallow.
- Take care that soil is packed firmly around the plant roots.
- Do not plant near wild plants, or near plants whose origins are unknown.
- Maintain adequate soil moisture through the plant establishment period and the growing season.
- **Water well 1-3 times a week, not every day.**
- Avoid fertilizer burn. Wait until plants are established before applying fertilizer.
- We advise you to plant all the roots of the plant - cutting roots decreases support for new growth.
- All of our plants prefer full sun and will not thrive in shady locations. A half day of sun or more is necessary for the healthiest plants and to help ripen your berries.
- For balanced nutrition, we recommend 10-10-10 or an equivalent 'complete' or 'balanced' fertilizer formulation for all of our plants, except blueberry plants which need 17-6-6 or ammonium sulfate.
- Always consider equipment access when planning your plant and row spacing.

Strawberries

- Avoid planting strawberries in soils where previous crops have included strawberries, brambles, potatoes, tomatoes, eggplants or peppers. These crops may harbor soil pathogens that may negatively affect your new plants.
- Do not mulch using materials like decayed or wet leaves that tend to mat and can smother plants.
- Do not renovate day-neutral strawberries.

Brambles

- Caution should be taken to prevent the roots from being planted too deeply.
- Plant green, tissue-culture plants only after danger of frost has passed.
- You may mulch lightly the planting year, but beware, new growth must be able to develop easily from the roots! Do not mulch brambles beyond the first year. See details in the raspberry section on page 13.
- Do not mow summer-bearing raspberries; they fruit on 2 year-old (over-wintered) canes. You only prune out the canes which bore fruit during the previous growing season.

Asparagus

- Be careful not to damage emerging spears when cutting below the soil surface during harvest.
- Asparagus requires very sweet soil—be sure that soil pH is at 7.2 or higher.
- Do not mix compost with the soil until plants are growing. Use compost as an amendment, mixing it thoroughly with soil.
- **Do not soak prior to planting.**

Blueberries

- Blueberries require an acidic soil with a pH between 4.5-4.8. **A pH of 5.0 or higher is too high!**
- Often, soil must be acidified; amend the soil with elemental sulfur. **Caution: Excessive sulfur can be toxic! Do a soil test and apply the proper amount of sulfur. Don't guess. See details on page 24.**
- Do not apply fertilizer close to your planting date. *Blueberries can be adversely affected by potassium chloride. Do not use fertilizer that contains it.* We do not recommend aluminum sulfate for fertilizing or acidifying. Use sulfur to acidify the soil and 17-6-6 or ammonium sulfate to fertilize.
- Do not use leaves or excessive sawdust as mulch. These materials can limit or prevent rains from reaching the soil and plant roots.



Additional Resources

You have local resources wherever you are, and no one knows your area's planting needs better than a local! Local extension offices often publish their research on web sites and in pamphlets. Check with your local extension office for any recommended publications that may help you with planting in your region.

A complete USDA listing of extension offices is located online at:
www.csrees.usda.gov/Extension/index.html

Or write to request information:
United States Department of Agriculture
Cooperative State Research, Education, and Extension Service
1400 Independence Avenue SW, Stop 2201
Washington, DC 20250-2201

Below is a brief list of regional extension services that specialize in berry research; for a more extensive list, please check out our list of *Commercial and Home Garden Resources and Links* online at www.noursefarms.com.

NORTHEAST

Cornell University's Berry Resources and Pest Management Guidelines
gardening.cornell.edu

MIDWEST

Ohio State University
ohioline.osu.edu/lines/fruit.html

MID ATLANTIC

Pennsylvania State University Small Scale Fruit Production
extension.psu.edu/gardening/fphg

SOUTH

Southern Region Small Fruit Consortium
smallfruits.org

WEST COAST

University of California Agricultural Natural Resources
ucanr.edu

TROUBLESHOOTING

Cornell Berry Diagnostic Tool – If your berry plants look sick
fruit.cornell.edu/berrytool/index.html



STRAWBERRIES

ATTENTION!

Avoid planting strawberries in soils where previous crops have included strawberries, brambles, potatoes, tomatoes, eggplants or peppers. These crops may harbor soil pathogens, which will affect the health and performance of your new plants.

AT-A-GLANCE

pH:
6.5 - 6.8

Spacing:
12"-18" in the row
3'-4' between rows



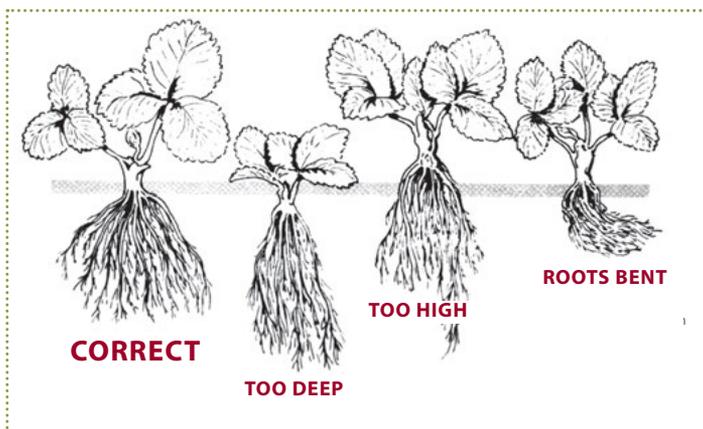
Planting

Plant as soon as possible in the spring, after the soil has warmed. Planting at the correct depth is very important. Dig a hole deeply enough that you are able to lower the plant into the ground without bending the roots. Set plants in the ground with the roots straight down. Make certain that the plants are set with the middle of the crown level with the top of the soil. We advise not to cut any of the roots off your plants.

Take care that soil is pressed firmly, but not hard-packed around the plant roots. Be sure not

cover the crown. Check the soil level within a week or so, as the soil will likely settle.

Avoid covering crowns with soil while you hoe, weed, and cultivate throughout the season.



Irrigation

Water thoroughly after planting and maintain good moisture throughout the season. Strawberries do best when they get 1"-2" of rainfall or equivalent irrigation each week, depending on soil type. If irrigation is not available, select a site with good water-holding capacity, but avoid wet soils. Strawberries do poorly under drought conditions.

Fertilization/Soil Preparation

Applying fertilizer near the planting date leads to burning of plant leaves and roots. Being too generous with fertilizer will also be detrimental. You may thoroughly incorporate 1 lb. of 10-10-10 per 100 sq. feet into the soil 2-3 weeks prior to planting. Otherwise, delay application to 6 weeks after planting or until plants are well established. Apply ½ lb 10-10-10 per 100 sq. feet at the end of July and again in early September to feed the fruit bud development for next year's crop. Thoroughly water in fertilizer after each application.

Weed Control & Mulching

Prepare your site prior to planting. Remove weeds throughout the growing season. After planting, weekly cultivation removes weeds when they are small so they do not have a chance to compete with your plants. A scuffle hoe works well for this type of work. Strawberry roots are shallow. Be careful not to damage the roots while you are removing weeds. Check with your local agricultural extension before using chemicals.



Proper mulching aids in weed control, while keeping fruit clean, conserving moisture, and adding humus to the soil. Mulch with a loose, acid-free and weed-free material such as salt hay or straw. Leaves are not recommended. They can mat, smothering plants and can harbor pests.

Preparing for Winter

Mulching is necessary in most northern states for winter protection of the crowns. Quick freezing and thawing can cause serious crown damage which may not only affect yield, but plant survival. An adequate layer of mulch mitigates fluctuating temperatures. Apply at least 4" of salt hay or straw after plants have started to go dormant or after 6-10 hard frosts. Remove mulch in early spring before new growth starts. You can move the mulch to the aisles to keep weeds at bay and keep mud from splashing onto the fruit. You must cover the plants with straw again if cold temperatures are forecasted. A frost blanket or row cover can provide some degree of protection in the spring also. They must be removed by the time plants begin to bloom.

June-Bearing Strawberries (Such as Jewel and Darselect)

Establishment Year

Pinch off all the flower buds in the first year of growth. This allows plants to put energy into becoming established and in turn, yield a larger crop the first bearing year. It will also encourage runner production and support winter survival. Fill in the rows by allowing 2 or 3 daughters (runners) to take root on each side of the mother plant. Evenly space the plantlets in the bed, lightly pressing them into the soil to make sure there is good soil contact around their roots. Cut off any additional runners that form during the season. Over-crowded beds will produce small berries and can have more disease problems. Customers with limited spacing and interest in planting a double row, should refer to our commercial Plasticulture Guide for management practices.

Succeeding Years and Renovation

A process called 'renovation' is performed on June-bearing strawberry beds immediately after the harvest. This helps to keep plants healthy and productive over the years.

- **Do not renovate in the establishment year.**

STRAWBERRIES

- As soon as all the berries have been harvested, mow off the leaves or clip them to about 3" tall. Use your lawn mower set at the highest setting and collect the clippings in the mower bag or rake them off to help reduce disease. Take care not to cut or injure the crowns!
- Rototill the edges of the beds to narrow the bed width to 12"-18".
- Reduce crowding in the bed. Remove some plants, leaving 3-5" between remaining plants. Try to retain strong runner plants and remove the mother plants when they are 3-4 years old.
- We recommend application of 1½ lbs of 10-10-10 per 100 sq. feet at renovation, watering it in thoroughly. Side dress again in late July and early September, as in the establishment year. Thoroughly water in fertilizer after each application.
- Complete the renovation process with a good watering to get new growth off to a good start. Continue to maintain adequate moisture through the remainder of the growing season.



Everbearing/Day-Neutral Strawberries (Such as Evie-2 and Seascape)

Establishment Year

- Day-neutral varieties can be planted in a single row with 12" between plants. Alternatively, arrange a staggered double row in a 12"-18" wide bed with 12" between plants. Maintain 42" aisles.
- We suggest ½ lb.-1 lb. of 10-10-10 fertilizer per 100 sq. ft. be worked into the soil at least 2-3 weeks before planting. Otherwise wait 8-10 weeks before fertilizing.
- Pinch off all the flowers for 3 weeks after setting out your plants.
- We recommend that you remove all the runners during the first year. This will allow the plants to become well established. You can let the plants develop fruit midsummer through October.
- **Do not renovate day-neutral or everbearing strawberries.**
- Four weeks after planting, side-dress with 1lb. 10-10-10 fertilizer per 100 sq. ft. After 8 weeks, begin weekly or biweekly application of a soluble fertilizer like Miracle-Gro or Jacks Classic to maintain strong growth and fruit production.



Notes: Hot weather will impact strawberry production. With day-neutrals, the impact can be tempered with good watering practices. The cooler temperatures of autumn will bring a return of berry size and yield.

You can expect a bed of day-neutral plants to be productive for 1-2 years.

NATURAL ALBINO® PINEBERRY



Considered one of the best pineberries available, the Natural Albino® Pineberry is larger in size and yield, dramatic in color, sweeter in flavor and has excellent winter hardiness. Because it is not self-fertile, you must interplant another variety.

AT-A-GLANCE

pH: 6.5 - 6.8

Spacing:

12"-15" in row
3' between rows

US Plant Patent #24332

Planting

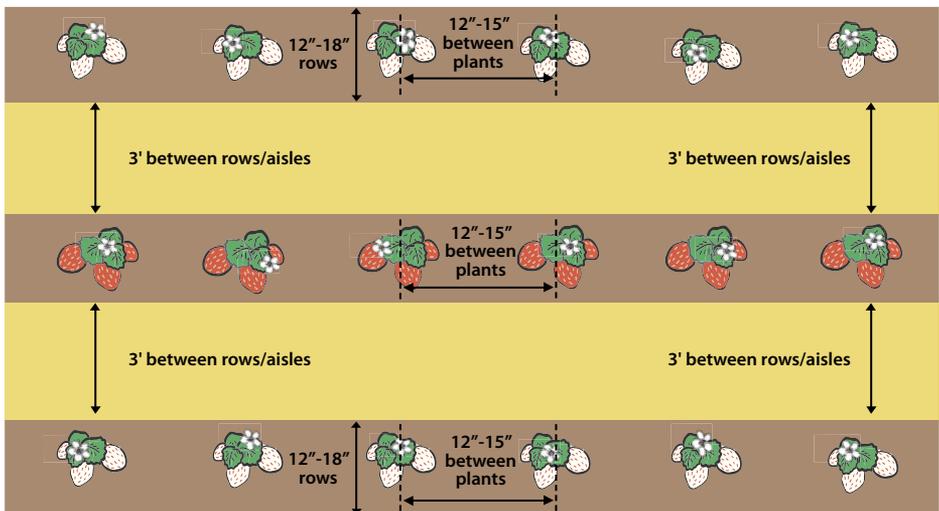
Optimum planting strategies are still being established for this new and unique strawberry variety. Current recommendations follow.

Space your new strawberry plants 12"-15" apart along the row. Alternate the two varieties; every other plant or every other row must be a red-fruited variety.

Plants will produce runners which you will arrange in the bed to fill in the row. Retain 2-3 daughters for each mother plant. As the daughters develop their own roots, cut the stem (stolon) between it and the original plant and press the daughter into the soil so the roots are covered, but the crown is above ground.

At the end of the season, plants should be no closer than about 5" from each other throughout the bed. Remove or relocate additional runners as they develop so the strawberry bed doesn't get overcrowded.

Aside from plant spacing, follow instructions for June-bearing strawberry plants. This includes pinching off all flower blossoms of these dormant, bare-root plants in the planting year.





BRAMBLES

RASPBERRIES, BLACKBERRIES, & TISSUE CULTURE PLANTS

AT-A-GLANCE

pH: 6.5 - 6.8

In-row spacing:

18"-24" Red & yellow raspberries

20"-24" Black raspberries

3'-4' Blackberries

Between rows:

8'-12' depending on machinery

ATTENTION!

Avoid planting brambles in soils where previous crops have included brambles, strawberries, potatoes, tomatoes, eggplants or peppers. These crops may harbor soil pathogens, which will negatively affect your new plants.

Planting

The soil should have at least 2%-3% organic matter for best growth and if the soil is not well-drained, raise the soil height of the planting rows or build raised beds. Plant as soon as possible in the spring, after the soil has warmed. Planting too early, in cool, damp soil can delay development or cause roots to rot. **Do not fertilize at planting.** Planting at the correct depth is important. Your planting rows should be measured and maintained at no more than a 12"-14" width.

For **Tissue-Culture plug plants** ("TC" on your packing slip and order confirmation) go to page 19 for planting instructions.

When planting **dormant, bare-root plants**, dig a trench approximately 3"-4" deep. You may need to customize the hole depth using a trowel to accommodate the varying sizes of individual plant roots. Lay the roots horizontally along the trench making sure roots will trail along the row approximately 1-1½" below the soil surface. Cover roots rather quickly so they don't dry out during the planting process, which can happen quickly on a warm or breezy day. **Caution: If set too deeply, they will not easily send up new canes from the roots as they must.**

Tips

- We suggest soaking the plants for up to 2 hours prior to planting, keeping the plants in the pail of water as you plant. **Do not soak plants more than 2 hours.**
- Take care while planting to keep roots at a 1-1.5" depth to allow easy sucker development from the roots.
- Use of a product such as Agri-gel™ will help support the plants through short dry spells.

Planting Year

New growth on raspberries may not appear for 5-6 weeks. **The cane portion of the plant may never leaf out; expect most, if not all, new growth to come from the roots.** If you want to check for root development after 6-7 weeks, dig very gently, 2"-3" away from the cane. Be careful not to damage delicate new sprouts that have not yet broken the soil surface. If the plants are not leafing out or sprouting new growth from the roots after 7-8 weeks, call us.



Dormant red and yellow raspberry



Blackberry and Black Raspberry

Irrigation

Water thoroughly after planting and maintain good soil moisture until plants are well established. The plants should then receive 1"-3" of rainfall or the equivalent each week throughout the season depending on soil and weather conditions. Do not water every day – one to three times per week is sufficient.

Fertilization

You may thoroughly incorporate a light amount of fertilizer at least 2 weeks prior to planting. Do not fertilize when planting, wait until new transplants are well established. For optimum growth and production, home gardeners should apply ½ - ¾ lb. of 10-10-10 fertilizer per 100 sq. ft. each spring and an additional 1 lb. of 10-10-10 per 100 sq. ft. in mid-summer. Fertilize no later than July 1st. Late fertilization generates tender new growth which will be more susceptible to winter injury.

Commercial growers should use 500 lbs. of 10-10-10 per acre or make applications according to soil and or foliar tests. Additional applications may be necessary according to weather and/or leaching conditions.

Please consult your local extension service for chemical control recommendations.

Weed Control & Mulching

Regular cultivation around plants is necessary during the growing season. Because raspberry root systems are shallow, be careful not to cultivate more than an inch deep. Mulching lightly with straw during establishment can help control weeds and help the soil retain moisture. A heavy or deep layer of mulch will impede the growth of new canes which need to develop every year. Do not mulch brambles beyond the first year.

*Apple Raspberry Crisp*

*4 large apples
3 teaspoons lemon juice
1 cup flour
3/4 cup brown sugar
2 cups fresh raspberries*

*1 teaspoon grated lemon rind
1/2 teaspoon salt
5 tablespoons butter*

DIRECTIONS

Peel and slice apples into a 9x9 inch baking pan. Spread berries over apples; sprinkle fruits with lemon juice and grated rind. Combine flour, brown sugar, salt and butter. Stir half of flour mixture into fruit; pour remaining flour mixture on top. Bake at 400 degrees for 35-40 minutes or until apples are done. Serve with cream or ice cream.

BRAMBLES

RASPBERRIES, BLACKBERRIES, & TISSUE CULTURE PLANTS

Trellising

We suggest all brambles be supported by a trellis. A trellis keeps canes upright and fruit off the ground, makes picking much easier, and maintains good aeration throughout the planting which helps with disease control.

Primocane-Bearing (Fall-Bearing/Everbearing) Red and Yellow Raspberries

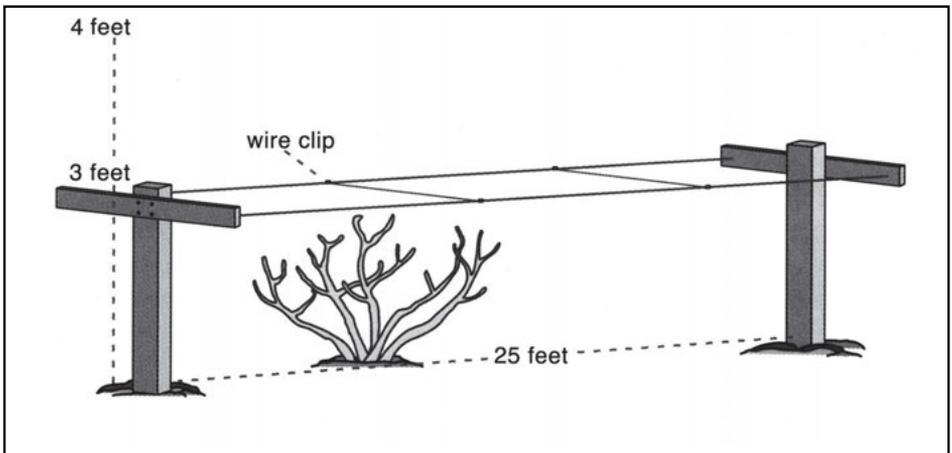
A "T" trellis (see diagram 1, below) works well with raspberry plants. Trellises may be temporary to facilitate mowing in the spring. We suggest 6'-long metal fence posts, and using a 3 lb. hammer to install the posts 1½'-2' into the soil. Bolt on a 12" - 18" pieces of angle iron to create the horizontal crossbars. Drill holes on each end of the angle iron to secure twine. You may also use wood posts and crossbars. Posts should be spaced 15'-25' apart along the row. Installation is usually done sometime in July after the raspberries produce their first flowers. Poly twine works well and comes in many sizes, we recommend #450 1-ply. We remove twine and posts after plants have seen 2 freezes.

Florican-Bearing (Summer-Bearing) Red, Yellow and Purple Raspberries

We have been successful using a T-bar trellis (see diagram 2, below) which supports 2 wires 12" apart at 3' to 4' above the ground. Some taller-growing varieties, such as Nova and Prelude, might benefit from a T-trellis with two T-bars — one at 3' and one at 4'.

Rows longer than 100' should have pressure-treated 4" x 4" end posts and a pressure treated 2" x 4" or a metal fence post every 25 feet. The T is made by thru-bolting 12"-18" two-by-fours. Monofilament trellis line should be considered instead of twine. Self-locking clamps are used to hold the wire to the end post or it can be tied. We use reusable nursery clips to attach each cane to the wire. Canes may be loosely secured with twine.

DIAGRAM 1. T-Trellis



BRAMBLES

RASPBERRIES, BLACKBERRIES, & TISSUE CULTURE PLANTS



BRAMBLES

RASPBERRIES, BLACKBERRIES, & TISSUE CULTURE PLANTS

Blackberries and Black Raspberries

A trellis or staking is highly recommended for semi-erect or trailing blackberries in order to keep fruit clean, maximize air circulation, and minimize cane breakage. Blackberries and black raspberries are best trained to a 2- or 3-wire trellis with the support of a 4" x 4" every 25 ft. (See diagram 2, right.) Attach the main canes to the wire with a clip or a slightly loose twist tie.

DIAGRAM 2. 4-Wire Trellis

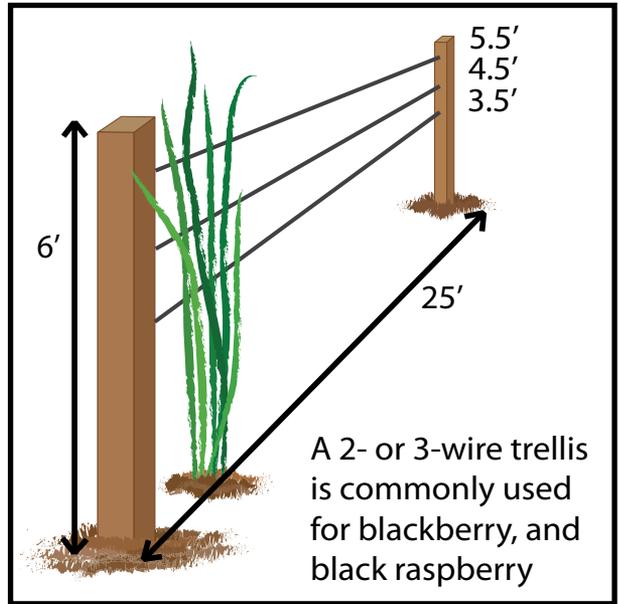
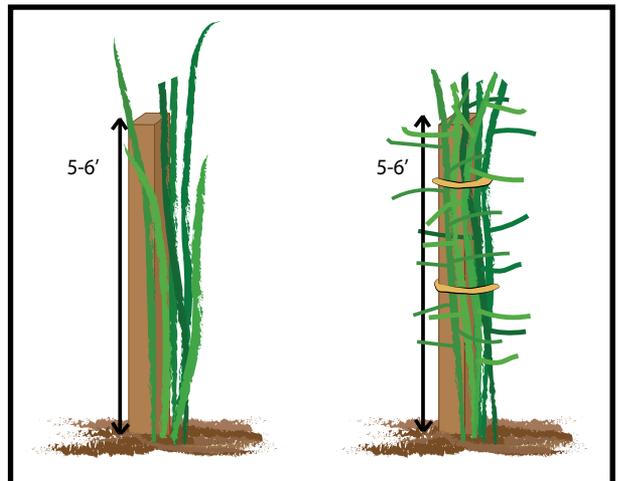


DIAGRAM 3. Staked Hill System

Sometimes thornless blackberries are managed in a "staked-hill" system. (See diagram 3, right.) Set 5'-6" tall, 2" diameter stakes approximately 1' deep and 5'-8' apart in all directions. Set a plant 1' away from each stake. Secure the primocanes loosely in 2-3 places along the height of the stake. This is an easy to maintain system and can be an attractive addition to the home garden landscape.



Pruning

Primocane-Bearing (Fall-Bearing/Everbearing) Red and Yellow Raspberries

These varieties can produce two crops. The largest is borne in the late summer and fall on the tips of canes that emerge in the spring and grow throughout the summer. Many ever-bearers will produce the best crop if not allowed to fruit in early summer on the over-wintered canes. Some varieties will grow a productive summer crop in addition to a plentiful late season crop.

For fall production only, prune or mow all the canes to the ground in early winter, wait until early spring (especially beneficial in colder areas). Be sure to cut the canes as closely as possible to the soil surface. Leave little or no stub above the ground. New, strong canes that emerge in the spring will bear an abundant fall crop.

In order to develop two crops, the planting must be pruned as summer bearing varieties. When allowed to stand through winter, a second crop is produced early the following summer, lower on those over-wintered canes. After harvesting the summer crop, cut the over-wintered canes to the ground, leaving the new primocanes to produce the fall crop.

Florican-Bearing (Summer-Bearing) Red and Yellow Raspberries

These varieties carry one crop of berries during the summer on over-wintered canes. For best yields, immediately after harvest, cut the canes that carried fruit as close to the ground as possible. Thin remaining new growth to 6-8 strong, healthy canes per running foot of row.

Florican-Bearing (Summer-Bearing) Black and Purple Raspberries

Black and purple raspberries develop primocanes from their crown region or base and send out few, if any, suckers. Prune plants to 4-6 canes per hill. Both of these types of raspberry plants respond well to a process called tipping, whereby the 1-year-old canes are pinched back (remove about 2") as they reach a height of 5'-6' through July and August. This practice encourages fruiting lateral branches to break from the main cane and also keeps plant height in check. Laterals can also be pruned to 6"-8" in the fall. Pinching back laterals can help increase berry size and increase winter hardiness.



BRAMBLES

RASPBERRIES, BLACKBERRIES, & TISSUE CULTURE PLANTS

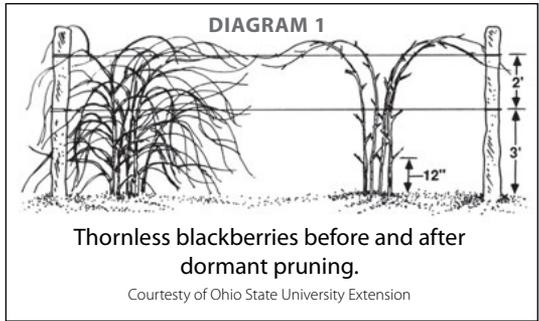
Floricane-Bearing (Summer-Bearing) Blackberries

Tip 1st-year canes as they reach a 5'-6' height in mid summer; pinch or cut the tips about 4"-6" over the top wire. Thin the remaining canes (primocanes) to 6-8 canes per running yard of row. If grown in a hedgerow, thin canes to 6-8 canes per hill removing the weakest or broken canes first. Laterals should be cut back to 6"-8" in late fall. Canes that fruited can be cut to the ground any time after they have been harvested. Primocanes overwinter and develop fruit the following season.

Thornless blackberries growing in the staked management system are pruned at the height of the stake. Follow additional pruning instructions above.

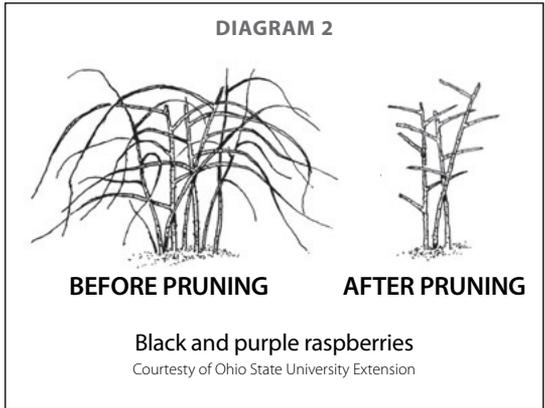
Primocane-Bearing (Fall-Bearing/Everbearing) Blackberries

Primocane blackberries respond very favorably to tipping. As the primocanes reach 12"-15" in height, break or cut $\frac{3}{4}$ " - 1" off the tip to force the cane into branching. A second tipping should be performed as the branches reach 30", again breaking or cutting $\frac{3}{4}$ "-1" off the tips. The tips are tender and may be pinched between your thumbnail and a finger or use pruning shears. This process stimulates earlier fruit development, increases yield and also keeps plant height in check for easier management and harvest.



Primocane-Bearing (Fall-Bearing/ Everbearing) Niwot Black Raspberries

Tipping or tip pruning is a highly recommended option for primocane-bearing black raspberries. As the new primocanes reach 3' pinch or cut the tips to force branches to develop. Tipping will delay, but prolong the harvest, increase yield and reduce arching of the canes and tip rooting. Pruning later in the season decreases the amount of time the plant will have to develop branches. Leaving the primocanes unpruned will allow earlier ripening than the tip-pruning option; however, the canes will become tall and arching and will develop fewer berries.



Care and Handling of Tissue Culture Bramble Plants

Our 'Tissue-Culture' (TC) plants may be green or dormant. Having been put through a chilling and hardening off period, dormant TC plants will likely have no leaves. Green TC plants come directly out of our greenhouse, will have a few green leaves and will be very sensitive to frost.

Warning: Only plant green tissue-culture plants after danger of frost has passed.

Receiving Green Tissue Culture (TC) Plants

Upon receiving your plants:

1. Open the box and open the plastic liner.
2. Check the moisture – cells should be moist before planting.
3. Proceed with planting.

If not planted immediately:

1. Do not store in refrigeration.
2. Cut the box top off and cut holes in the bottom of the box.
3. Maintain good moisture, but don't over water – the plastic liner can hold moisture.
4. Hold in a cool, well-lit area.
5. Proceed with planting only after danger of frost has passed.

Receiving Dormant Tissue Culture (TC) Plants

These are not highly sensitive to frost damage and can be planted at the same time as dormant, bare-root stock when soils have warmed to about 45°F. Dormant TC plants can be held at 30°-32°F until planted.

Planting

- Cover the soil plug with ½"-1" of soil, using the same spacing as bare-root plants.
- Fertilize TC plants the same as bare-rooted plants, using ½ lb.-¾ lb. 10-10-10 per 100 sq. ft. incorporated at least 2-3 weeks prior to planting or wait until plants are well established and then side-dress with 10-10-10 to maintain vigorous growth.
- Irrigate well after planting. Maintain good moisture levels until the plants are well established or for 4-6 weeks.
- Use care when applying herbicide on TC plants. We have had good results using 4 lbs. per acre of Devrinol 50W. In our experience, other herbicides will damage these plants.

Note: Foliar applications of soluble fertilizer have proven successful in establishing green plug plants. Two or three applications every 3-4 days using 5-7 lbs. per acre of actual Nitrogen will provide enough nutrient to establish the plants quickly. You may use any soluble fertilizer that you would use on houseplants (such as Calcium Nitrate or Miracle-Gro™). Once plants are established, side dress as usual. (See page 13.)



Green Blackberry TC plug

If you have any questions regarding handling, planting or caring for tissue culture plants, please contact us at (413) 665-2658 or info@noursefarms.com.

ASPARAGUS

Asparagus— A long term investment!

*A well prepared, well
cared for asparagus bed
can be productive for
ten years or more!*

AT-A-GLANCE

pH: : 7.2 or higher

In-row spacing, green:
12"-14" between plants

In-row spacing, purple:
6"- 8" for purple varieties
Between rows: 3'



Planting

Choose a permanent location with well-drained soil, in full sun. **Don't plant too early in the spring because frost will kill new shoots.**

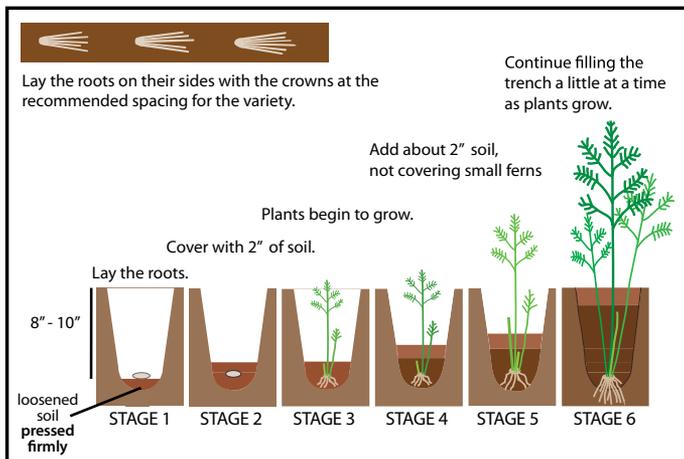
It is best if you prepare the site a year in advance. Remove all perennial weeds. Have a test done to be sure the soil is in the correct pH range and that it contains high levels of phosphorous. An application of lime may be needed to adjust the pH. If the phosphorous level is low, we recommend bone meal (½ lb. per 10' row) or super phosphate. Spread phosphorous and lime thoroughly at the bottom of the 8" deep planting furrow. For heavier, clay-like soils, 6"-8" deep furrows are recommended. Planting crowns too shallowly encourages early spear emergence, higher probability of frost injury and greater possibility of winter kill of crowns. In the early spring, at least 2-3 weeks prior to planting, incorporate 5 lbs. of 10-10-10 per 100 sq. ft. If you have not fertilized 2-3 weeks before your planting day, side-dress several weeks later when the plants are growing well.

Roots are planted horizontally, parallel to the bottom of the trench and the soil surface, not vertically like strawberry plants. Lay roots along the bottom of the furrow and cover with 2-3" of soil. (See diagram below, stages 1-2.) Do not add fertilizer or compost until plants are well established. (See diagram below.) Irrigate well after planting.

As the spears grow up and expand into fern, gradually fill the trench with soil. (See stages 4-6.) You may mix up to 50% well-aged compost into the soil or add 1 lb. 10-10-10 or equivalent balanced fertilizer into the soil as you fill the trench. Within six weeks, the furrow should be completely filled. (See diagram, stage 6.) Using this method helps to limit weed development. You may wait until all the ferns are growing above the trench and fill the trench at one time.

Irrigation

Plants need a well-drained site. Maintaining moisture during the establishment year is very important. Lighter soils may require more frequent watering than heavier soils, which retain moisture better.



Fertilization

Establishment year: Do not add compost or fertilizer until plants are growing. After plants have started to grow, fertilize during the period the trench is being filled. You may mix up to 50% well-aged compost into the soil or add 1 lb. 10-10-10 or equivalent, balanced fertilizer into the soil as you fill the trench. Side-dress in early August with 1 lb. of 10-10-10 per 100 sq. ft. (or equivalent) and lightly work into the top 2" of soil.

Succeeding years: Use 2 lbs. 10-10-10 per 100 sq. ft. in early spring and again following harvest. To maintain optimum soil condition, test your soil pH every 3-4 years and amend as necessary. Broadcast lime, bone meal, and super phosphate according to soil test results and recommendations, keeping the pH above 7.2.

Weed Control & Mulching

During the harvest period, manually pull weeds so emerging spears are not injured. Ferns will die back naturally in the fall. Mulching the dried ferns with a mower in the spring will reduce weed pressure. Check with local extension before using chemical products. If tilling the soil during the rest of the growing season, only till ½"-1" of the soil surface. Deep tilling can damage your crowns and bring weed seeds up to the surface.

Bed Maintenance

Control weeds all season and irrigate as needed. Be on the lookout for asparagus beetles and their larvae, aphids and the asparagus miner. These insects can cause serious damage to an established bed. For chemical weed and pest control recommendations, contact your local Cooperative Extension office.

Do not remove or cut any ferns during the growing season. Cut the old ferns down to ground level in the early spring before new spears begin to emerge.

Harvesting Spears

Research shows that you can begin to harvest asparagus the year after establishment. Cut or snap all 5"-8" spears that appear for a period of 7-10 days. Make sure you cut or snap stalks close to the soil surface, not leaving stubs. Stubs can be potential entry points for pests and diseases. Be careful not to damage emerging spears when cutting spears below the soil surface. When spears begin to get spindly, stop harvesting for the season and allow all new spears to develop into ferns to feed the crown. The second season, you can harvest all the spears that appear for a period of 3-4 weeks. By the third year, you can harvest for the full season, which is usually 6-8 weeks long.

Tips

(With a little care you should enjoy an asparagus bed for many years!)

- If frosted, tips become brown. Remove the spear immediately to prevent further setback of the planting.
- During harvest, asparagus roots need about 2"-3" of water per week. Do not let the soil get too dry.
- It is best to incorporate bone meal or super phosphate into the soil at the bottom of the planting trench.
- Asparagus grows tall with a fern-like foliage which could make an attractive garden border or backdrop.

HORSERADISH

ATTENTION!

The size and diameter of the horseradish root does not determine the ultimate size of the plant.

AT-A-GLANCE

pH: 6.2 - 6.7

In-row spacing:
10"-12"

Between rows: 3'



Planting

Plant horseradish in a well-prepared, weed free bed. Give this hardy perennial plenty of space in your garden bed as it spreads readily. Place the root piece at a 45° angle in the soil with the flat (larger) end up and the slanted end down. The flat end should be 1"-2" below the soil surface. Five to ten plants are usually sufficient for a home garden.

Irrigation

Keep soil moist throughout the establishment period. Irrigate through the growing season, but take care not to overwater.

Fertilization

Horseradish does not need a lot of fertilization, fertilize in spring with 5 lbs. of 10-10-10 per 100 sq. ft.

Weed Control & Mulching

Regular, manual weeding is recommended. Consult a local extension before using chemical products.

Harvesting

It is best if you don't harvest the 1st year to allow the plants to get well established. In subsequent years, you may harvest horseradish roots anytime from midsummer on, but for the best flavor, wait until late fall or until after the first frosts when the leaves have died back. Dig or loosen the soil around the roots and pull them out of the soil. Take the large, main root and as much of the secondary root system as possible. Wash and dry the roots. Use the largest pieces for your recipe. Save the smaller, side roots that are 3/4" in diameter and about 8" or longer for planting. They will provide your next year's crop. If not harvested, the roots will need to be divided every year or two.



Bottom/slanted cut



Top/flat cut

Horseradish is a vigorous grower! With a small amount of attention, it will flourish in almost any garden setting. They may take over your garden. Be careful not to plant too close to your favorite flowers.

Here is an easy recipe to try:

Wash, peel, and dice horseradish roots. Place them in a grinder or blender with a small amount of water and a couple of ice cubes. Cover tightly and grind until desired consistency is reached. Vinegar or lemon juice stops the enzyme process that gives horseradish its bite. Add 2-3 tablespoons of vinegar or lemon juice and 1/2 teaspoon of salt per cup of horseradish sauce. Add immediately for a mild sauce; wait up to 3 minutes for a hot sauce. Store in a covered glass jar in the refrigerator or the freezer.

(Adapted from a University of Illinois Extension Bulletin.)

You can also add a little grated horseradish root to yogurt, mayonnaise, sour cream, cream cheese, salad dressings, BBQ sauce, mustard, etc. to make dips, spreads and marinades.

R H U B A R B



AT-A-GLANCE

pH: 6.0 - 6.8

In-row spacing: 3'

Between rows: 5' - 6'

Rhubarb (Pie plant) is easy to grow and makes a wonderful addition to strawberry pie and as the base for many jellies, desserts, sauces, and condiments.

Planting

Do not fertilize close to planting time or during the first season. Plant in the early spring, in well-prepared, weed-free soil. Good drainage is absolutely necessary. If you have heavy or slowly-draining soil, you must plant rhubarb in raised beds. Set divisions in the ground so the buds are positioned $\frac{1}{2}$ " below the soil surface, pointing up. You will find the buds nestled in a protective layer of dark papery husks. When planting, be sure there are no air pockets beneath the division and press the soil firmly around and over the division to eliminate air pockets. Be careful, not to break the buds.

Warning! The only edible portion of rhubarb is its stalks. **DO NOT EAT THE LEAVES** – they are poisonous.

Fertilization

Fertilizer requirements are best determined by a soil test, but a general recommendation is to add an inch or so of well-aged compost early each spring or 1-1.5 lbs. 10-10-10 fertilizer per 100 sq. ft. It would be best to divide that amount of fertilizer into 2-3 applications during the spring and summer with the first application before new growth starts. Check your pH and fertility every 2-3 years.

Harvesting

Do not harvest rhubarb the first year. Harvest lightly (a few stalks per plant) the second year. The third year you may harvest stalks that are 1" and larger in diameter for a period of 6-8 weeks. As stems get shorter and thinner, stop harvesting for the season. Leave remaining stalks to make food for the crown and next year's production. Harvest by holding the stalk near the base and use a pulling and twisting motion to snap the stalk at the base. You may opt to use a sharp knife to cut stalks. Cut as close to the base as possible without damaging the crown. Remove the leaf and the base of the stalk before storing. Only harvest about $\frac{1}{3}$ - $\frac{1}{2}$ of the stalks at one time from each plant. Though some harvesting in the fall is acceptable, rhubarb is typically harvested from early May to early June.

Maintenance

Seed stalks that develop should be snapped off immediately.

To maintain stalk size and productivity, divide plants after 4-5 years. Dig when plants are dormant, in early spring and take care not to damage the buds while cutting or replanting. Divide the roots of the most vigorous plants into pieces about 2" wide being sure each piece has good bud development. Use these to establish your new bed. Follow the planting instructions above.

BLUEBERRIES

ATTENTION!

Blueberries must have a soil pH between 4.5 and 4.8. Have your soil tested. If the pH level is outside the specified range, begin amending it right away. Excessive amounts of sulfur can be toxic to your plants.

AT-A-GLANCE

pH: 4.5 - 4.8

In-row spacing:
4' - 5'

Between rows:
10' - 12'



Blueberries are a tasty and nutritious fruit, borne on a plant beautiful enough to grow as an ornamental. A well-prepared site, planted properly, will pay dividends of a lifetime of fruit. They are easy to grow and relatively pest-free.

Soil pH

The term pH refers to the acidity or alkalinity of soil. The pH level is important to know because it affects a plant's ability to obtain nutrients from the soil and each type of plant has different soil pH requirements. Soil pH should be between 4.5 and 4.8 for blueberry plants. A pH of 5.0 is too high!

For best results when planting blueberries, amend pH levels **before** planting. However, by following our planting instructions, you can establish plants successfully without prior pH adjustments. Addition of sulfur is often necessary to adjust the pH. Regular garden sulfur is the best material to use to reduce pH. Amend soil with sulfur, **not** ammonium sulfate. It is important to test the soil's pH level so you are able to amend it properly. Consult your local Cooperative Extension service for advice on how to test your soil. (See page 26 for our detailed recommendation.)

Caution: Excess sulfur, resulting in a pH that is too low, can be toxic! Do a soil test and apply the proper amount of sulfur. Do not guess.

Planting

Do not apply fertilizer at planting. Be sure to cover the top of the plug with 1/2" - 1" of topsoil - don't plant too deeply. Don't allow the roots to dry out during the planting process.

Aged wood chips can be mixed into the soil prior to planting. Wood chips aerate the soil, increasing drainage and root penetration. This method is good for all types of soil, but most beneficial in heavier, silt loam or clay loam soils. Put a 2"-3" deep layer of wood chips over your planting row and incorporate it thoroughly into the top 6"-8" of soil. Mix in the required amount of sulfur as determined by your soil test. Then you're ready to plant.

If you use peat moss, thoroughly mix 40% peat with 60% soil making sure the peat is thoroughly saturated with water before mixing. Place this mixture under and around each plant. Make sure the peat/soil mix is thoroughly covered with 1/2"-1" of plain soil after backfilling the hole. This practice is to benefit the first 60-90 days of root development for strong plant establishment. Any peat not covered with soil will quickly wick moisture away from the plant and cause the roots to dry out rapidly.

Tip: Instead of removing sod, measure a 2"-4' wide strip the length of your required row and apply Roundup™ to the row when the grass is 4"-6" tall.

Warning: Shavings or sawdust with manure has too much nitrogen for first-year plants.

Irrigation

Because of a very shallow, fibrous root system, frequent watering is required. Maintain moisture, and do not allow roots to dry out. Water 1-3 times per week, not every day. Drip irrigation placed beneath the mulch layer is healthiest and most efficient method. Water is applied directly to the root zone where it is needed, while keeping moisture off the plants, thereby reducing disease pressure.

Fertilization

First Year: Wait 4 - 6 weeks after planting before fertilizing to avoid burning the roots. Apply 1 oz. ammonium sulfate in a circular band around each plant.

Subsequent Years: Apply 2 oz. per plant at bloom time, and again a month later.

Home gardeners may use fertilizers available at local garden centers that are formulated for blueberry plants. Do not apply fertilizer in late summer or early fall. Late-season fertilizing could lead to new, tender growth which is susceptible to winter injury and may lead to entry points for disease.

Warning: Do not use fertilizer that contains potassium chloride, blueberries can be adversely affected. We also do not recommend aluminum sulfate.

Weed Control & Mulching

Maintain a 3" - 4" layer of aged wood chips as mulch to support water retention. Avoid treated or colored wood chips or mulch. Do not use Cedar or Black Walnut chips. Also avoid using leaves, or an excessive amount of sawdust, as both can mat down and prevent moisture from reaching the plant's roots. Regular, manual weeding will be necessary. We highly recommend using drip irrigation placed under the mulch.

Pruning

Remove all flowers during the first year-do not allow berries to develop. For the first 3 years, no pruning is needed unless you discover broken, damaged or diseased branches. After the first three years, blueberries should be pruned annually during the dormant period. Your goal is to have approximately 12 canes per plant. Older, heavy branches in the center should be removed to allow air and sunlight to penetrate. Remove lower, weak and damaged branches and branches less than 6 inches long. These branches will never fruit and can serve as an entrance point for disease.

New wood produces the largest fruit. Canes should be a mix of different ages and any canes over 2" in diameter should be removed. For detailed pruning information, we highly recommend Oregon State University's how-to video: A Grower's Guide to Pruning High bush Blueberries, available from Nourse Farms. Rutgers University also publishes a Blueberry Bulletin, which is very informative.





How to amend your soil for the healthiest, most productive blueberry plants

Contact your local Cooperative Extension (see page 7.) for additional advice on the proper procedure and materials for testing and lowering the soil pH, using amendments such as sulfur, sawdust, aged wood chips, old leaves or finished compost. A combination of the above materials gives the best results.

Use the table below to determine how much sulfur to apply.

Note: The amount of sulfur to be incorporated varies according to the soil type: sand (light), loam (medium), clay (heavy), as well as the present pH level of your soil.

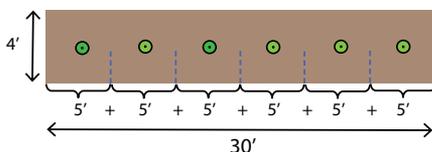
Optimum pH value for growing blueberry plants is 4.5

PRESENT SOIL pH	Amount of Sulfur in Pounds per 100 Square Feet Required to Lower Soil pH for Blueberries		
	SAND	LOAM	CLAY
4.5	0.0	0.0	0.0
5.0	0.4	1.2	1.4
5.5	0.8	2.4	2.6
6.0	1.2	3.5	3.7
6.5	1.5	4.6	4.8
7.0	1.9	5.8	6.0
7.5	2.3	6.9	7.1

Source: Midwest Small Fruit Pest Management Handbook, Bulletin 680

Formula: Square feet (row length x row width) divided by 100, multiplied by the recommended number of lbs. per sq. ft. equals how many lbs. you need for your planting area.

Example: If your soil pH test result is 6.5 and you are planting in a loam soil, it will require 4.6 lbs. of sulfur per 100 sq. ft. The area for 6 plants spaced 5' apart, in a 4'-wide row, is 120 sq. ft. The 120 sq.ft. ÷ 100 = 1.2 and 1.2 x 4.6 = 5.52 lbs.



row width x row length = square feet

$$4' \times 30' = 120 \text{ sq. ft.}$$

Blueberry Trouble-Shooting

Yellow leaves on blueberries can be quickly corrected with a foliar application of one tablespoon iron chelate per gallon of water sprayed over the leaves. You should see greener leaves in a few days. Often, the underlying problem is that the soil pH is too high. Have your soil tested and make required amendments. You should see 12"-18" of new growth each year. If not, check your soil pH and/or use a little more fertilizer. Be sure your plants are receiving enough water, especially during dry spells.



CURRANTS & GOOSEBERRIES

AT-A-GLANCE

pH: 6.0 - 6.5

Red, white, and pink currants & gooseberries

In-row spacing: 3' - 4'

Between rows: 6' - 8'

Black currants:

In-row spacing: 4' - 5'

Between rows: 8' - 12'

Greatly appreciated for generations in Europe for their adaptability as plants and their versatility as food, currants and gooseberries, known collectively as Ribes, are growing in popularity in this country.

Currants and gooseberries are small fruits that were well known in this country earlier in the last century and have recently been making a comeback. These are ideal fruits for regions with a minimum of 1000 hours of winter chilling (zones 3-6). They are round shrubs that grow at least 3'-4' tall and wide, depending on variety. Black currants typically grow larger. Expect to harvest currants and gooseberries during late June and July. Plants that are well cared for may fruit well for 10-15 years.

Restrictions

Today's currant and gooseberry varieties, and the varieties Nourse Farms carries, have been bred for resistance to White Pine Blister Rust disease. Check with your local Cooperative Extension office or Department of Agriculture for any restrictions on growing Ribes in your area. **NOTE: We cannot ship these plants to Massachusetts residents without a permit. Some Massachusetts towns do not allow Ribes of any variety. We can ship out-of-state.**

Planting

Choose a sunny location, but avoid southern exposure and southern facing slopes since intense sun may injure the plants. Currants and gooseberry plants will tolerate partial shade. Plant currants and gooseberries in good, well-draining soil which contains at least 2-3% organic matter. Planting on a slight slope will facilitate air circulation. Dormant, bare-root plants should be set slightly deeper than they were in the nursery. Plant them ½"-1" deeper than they were in the nursery. If you receive a plant with shoots taller than 10", prune the whole plant to a 6"-7" height, to encourage roots and new shoots to grow. If you receive a plant with a single, short segment of cane (a plug), loosen the roots a little on the sides and bottom before planting. Cover the plug with ½" of soil and do not prune.

Generally, currants and gooseberries (except a few black currants) are self-fertile and pollenization by another variety is not required. Across a larger number of plants, yields may be measurably larger when planting multiple varieties because cross-pollination can result in slightly larger berries and thereby, a larger harvest. Planting two or more varieties of black currant is recommended for the best pollination.

Plant spacing depends on the growth habit of the variety, site conditions, soil fertility, and equipment size. Generally, gooseberry and non-black currants are spaced 3'-4' apart in a row with 6'-8' between rows. If space is limited, you may grow the plants in cordon form and position them closer together. Black currants are larger and more vigorous; plant 4'-5' apart in the row with 8'-12' between rows. Closer spacing is acceptable for growing in hedgerows. Avoid planting too densely because adequate air circulation is critical for suppression of foliar disease.

Irrigation

Maintain adequate soil moisture through the season, especially immediately following transplant. Plants should receive approximately 1"-2" of rainfall or the equivalent each week depending on soil

and weather conditions. Planting on a slope facilitates water drainage. If you use overhead irrigation, irrigate early in the day so the plant may dry early in the day. Drip irrigation is the most efficient irrigation method and healthiest for the plants. Both practices help impede diseases. Note: Gooseberry will sunburn more easily if soil gets too dry.

Fertilization

None is needed during the planting year. In following years, apply 5 oz. of 10-10-10 per plant. Apply the fertilizer in the spring, or apply half the amount (2½ oz.) in the spring and apply the 2½ oz. balance in mid to late summer. Don't fertilize in the fall. Currants and gooseberry plants respond well to organic amendments.

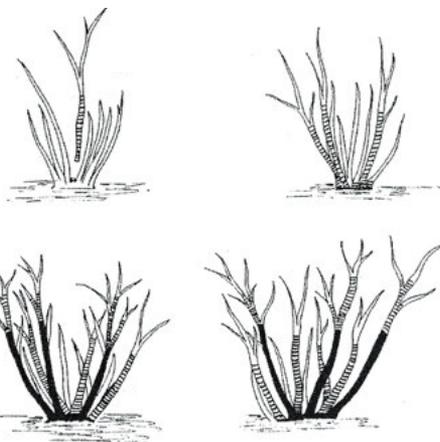
Weed Control & Mulching

Shallow cultivation by scuffle hoe or regular manual weeding is necessary. Use of mulch helps inhibit weeds. Straw or wood chips can be applied at a 2"-4" depth. Avoid treated or colored wood chips and mulch. Do not use Cedar or Black Walnut chips. Avoid using leaves, or an excessive amount of sawdust, as both can mat and prevent moisture from reaching the plant's roots. Contact your local extension office before using any chemical products for weed control.

Red, white, and pink currants & gooseberries

Pruning

Currant and gooseberry plants are typically grown as free-standing, multi-stemmed shrubs. They should be pruned during the late winter or early spring while they are dormant. Remove unwanted canes as closely to the ground as possible. Always treat or prune out damaged or diseased canes or branches right away by cutting immediately above a side branch, above a strong bud or at ground level. Some pruning may be done during the growing season to remove crossing and rubbing branches, remove drooping branches and keep the plant from becoming too dense. You may also prune Ribes as single-trunk shrubs or in cordon forms, but much more time and effort must be put into pruning and there is some risk since plants rely on a single stem. Cordons require a trellis or other support.



Free-Standing Shrub

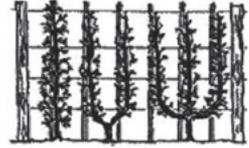
This is probably the easiest form to maintain. Most fruit is produced on short spurs on 2- and 3-year-old canes and at the base of last year's lateral growth, so your objective is to keep 6-8 strong, healthy canes going into the growing season; 3-4 each of 1-, 2-, and 3-year-old canes. Remove canes that congest the center of the plant as well as drooping canes that lie on or close to the ground. You may prune a few laterals if the plant becomes too dense during the growing season.

Always treat or prune damaged or diseased canes or branches right away.

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Currants, Gooseberries, and Jostaberries: A Guide for Growers, Marketers, and Researchers in North America

Cordon

Growing currants or gooseberry plants in a cordon form is common, especially if you don't have a lot of space for gardening. Commercial growers often use this method for additional benefits. Cordon growing will improve air circulation, berry size, and spray coverage while making harvesting easier, especially with thorny gooseberries. Plants are pruned so they have 1-3 strong, vertical branches which are trained to grow flat against a trellis. (See diagram, right.) Other cordon forms may be created to suit a home garden space. If you are considering cordon training, contact us or your local extension office for more information.



Black Currants

Planting

As soon as your new plants are in the ground, prune each cane so that two buds show just above the soil. Do not leave any branches to bear fruit because this will delay plant development. If you received a rooted cutting or a 'plug' plant, prune so 2 buds are above ground and do not prune again for 2 years except low, horizontal growth.

As mentioned previously, planting two or more varieties of black currant is recommended for the best pollination. Black currants are larger and more vigorous; plant 4'-5' apart in the row with 8"-12' between rows.



Pruning

Like other currant plants, black currant plants are typically grown as free-standing, multi-stemmed shrubs. They should be pruned during the late winter or early spring while they are dormant.

Black currants do not produce fruit like the red and white currants. They produce best on 1- and 2-year-old wood, so vigorous 1-year-old shoots and 2- to 3-year-old canes with healthy 1-year-old shoots, are most productive. Annual pruning removes older growth and stimulates new growth. Your objective is to have 8-12 strong, healthy canes per plant, approximately half being 1-year-old canes.

Remove unwanted canes as closely to the ground as possible. Always treat or prune out damaged or diseased canes or branches right away by cutting immediately above a side branch, above a strong bud or at ground level. Some pruning may be done during the growing season to remove crossing and rubbing branches, remove drooping branches and keep the plant from becoming too dense.

Typically, black currants are commercially grown in hedgerows and/or pruned and cropped in alternate year systems. Contact us your local Extension Office for more details.

Don't let currant and gooseberry plants become too dense because it fosters leaf disease.

ELDERBERRIES

The elderberry makes a great wine or jam and is prized for its medicinal qualities. The flowers can also be used to make syrup and other recipes.

AT-A-GLANCE

pH: 6.0 - 6.8

In-row spacing:
3' - 6'

Between rows:
10' - 12'



Elderberries are very easy to grow and good for you due to a very high anthocyanin content. Berries are popular for their unique flavor in pies, sauces, jellies, and jams. Occasionally, they are used in winemaking and you can even find recipes for the blossoms! Elderberry shrubs have lovely foliage and large, creamy-white flower clusters, which make them great in the landscape as ornamental plants or as hedgerows. While they can reach 12', they well-tolerate pruning to maintain a smaller size for a modest home landscape. Samyl and Samdal are very productive varieties, and have additional qualities that make them excellent choices for commercial growers.

Planting

Plant at same depth as grown in the nursery, all roots should be well covered.

Irrigation

Elderberries are not drought tolerant. It is important to keep soil moist throughout the establishment period. From flowering through harvest, be certain the plants receive 1" of water per week. More water may be necessary if the soil is more sandy and during periods of very hot weather. Drip irrigation healthiest and most efficient method.

Fertilization

No fertilizer should be applied in the planting year. In succeeding springs, spread 1 cup 10-10-10 around each plant. Apply manure or compost only after plants begin to grow.

Weed Control & Mulching

Thorough manual weeding is necessary, but do not cultivate deeply. Roots are fibrous, shallow and easily injured. Use a combination of hand weeding (when weeds are small), mowing and mulching. Compost or straw mulch can help. Once established, a thick planting will generally suppress weeds on its own.

Harvest

Berries are generally harvested in late summer. Harvest entire clusters from the shrub. Use the fruit as soon as possible or keep it cool for later use. Strip the berries from the cluster for use.

Pruning

New canes usually reach full height in one season and develop lateral branches in the second. Flowers and fruit develop on the tips of the current season's growth, so the best fruit production happens on second-year canes with good lateral branching. Older wood tends to become



weak and loses productivity. Prune in early spring, while the plants are dormant. Remove all weak, broken, 4-year-old, and dead canes as close to the ground as possible. Your goal should be to have an equal number of canes between one and three years old.

Tips

Though elderberry plants are generally free of pests, birds absolutely love elderberry and an unprotected bush can be stripped clean as soon as berries reach their dark color! Netting seems to be the best protection.

ADDITIONAL RECIPES



Blueberry Muffins

1¾ cups flour

3 tsp baking powder

½ tsp salt

¼ cup margarine

½ cup sugar

1 egg

¾ cup milk

1 tsp vanilla

1 cup frozen blueberries

DIRECTIONS

Preheat oven to 400F. In a large bowl, put the first three ingredients (flour, baking powder and salt) and stir. In a second bowl, squish the butter and sugar together (we used our fingers) until they are mixed. Beat in the egg, milk and vanilla until it's quite smooth. Pour into the first bowl. Stir until it's just mixed (it will still be a bit lumpy). Don't stir too much. Fold your blueberries gently into the batter (try not to crush them). Grease your muffin tin (or spray with Pam). Fill about ¾ full. Bake for 25 minutes until just nicely brown. Makes 12 to 16 muffins



Strawberry-Rhubarb Jam

2 lbs strawberries, (4 cups mashed)

2 lbs rhubarb (8 cups 1/2" pieces)

6 cups sugar

DIRECTIONS

Wash fruit. Cut rhubarb into 1/2" pieces. Cover rhubarb with 1/2 the sugar and let stand 1-2 hrs. Crush berries and mix with remaining sugar and combine with rhubarb. Place mix over low heat until sugar is dissolved, then boil rapidly, stirring frequently to prevent burning. Cook until thick. Pour into sterilized jars to within 1/4" of the top. Cap, and screw band firmly tight. Process in boiling water bath 10 min. Yield: 10 8 oz jars



41 River Rd. • South Deerfield, MA 01373

phone: (413) 665-2658

fax: (413) 665-7888

email: info@noursefarms.com

noursefarms.com



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