



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

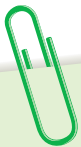
You may thoroughly incorporate a light amount of fertilizer at least 2 weeks prior to planting. Do not fertilize when planting, wait until new transplants are well established. For optimum growth and production, home gardeners should apply $\frac{1}{2}$ - $\frac{3}{4}$ lb. of 10-10-10 fertilizer per 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.

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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

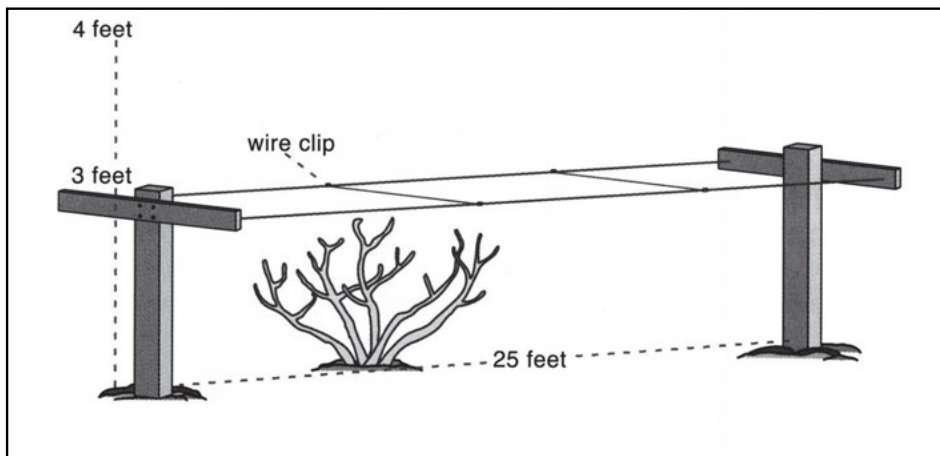
A "T" trellis (see diagram 1, below) works well with raspberry plants. Trellises may be temporary to facilitate mowing in the spring. We suggest 6'-long metal fence posts, and using a 3 lb. hammer to install the posts 1½'-2' into the soil. Bolt on a 12" - 18" pieces of angle iron to create the horizontal 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



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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

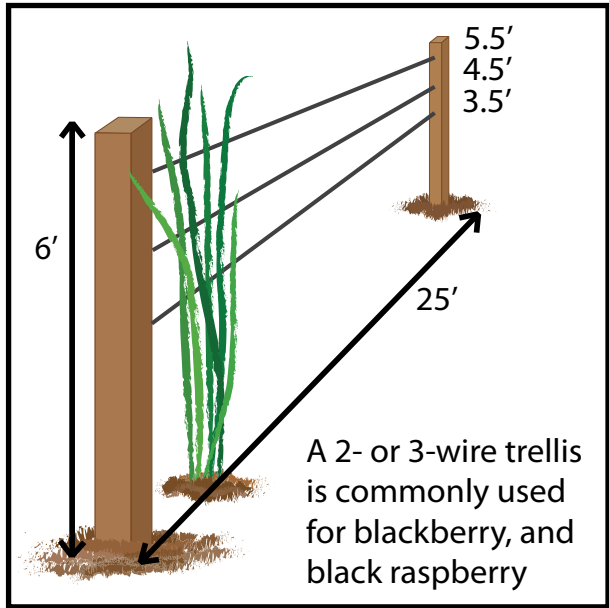
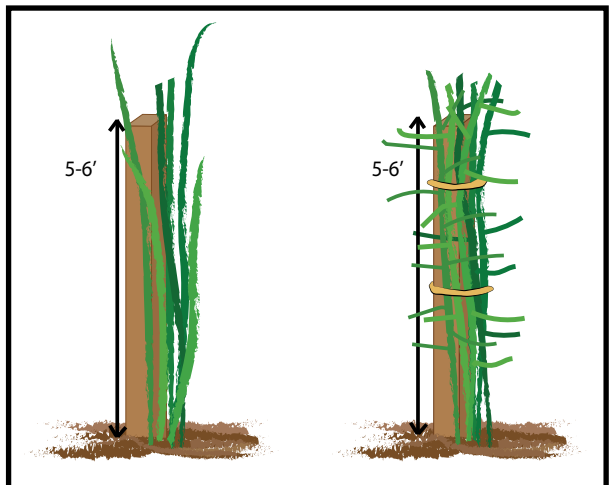


DIAGRAM 3. Staked Hill System

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.



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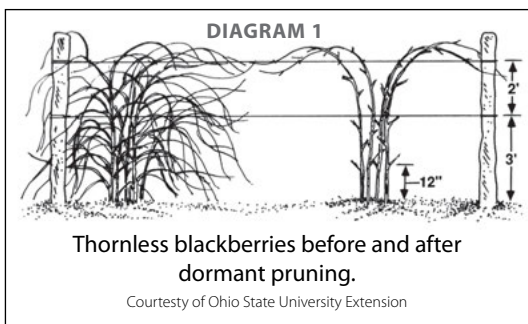
Floricane-Bearing (Summer-Bearing) Blackberries

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.

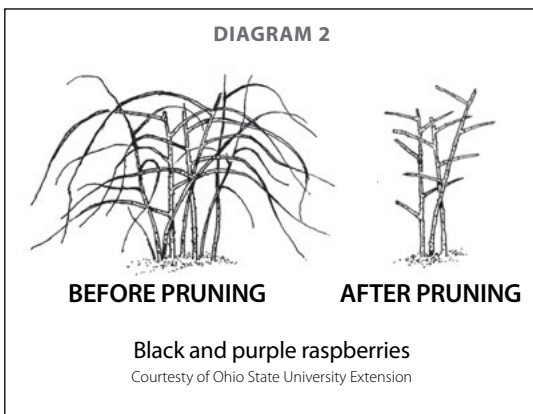
Primocane-Bearing (Fall-Bearing/Everbearing) Blackberries

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.