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# NOURSE

# News

## Greetings from Whately—

**Welcome to our 2020 Spring Newsletter.** In this edition we cover a number of topics that pertain to growers large and small including:

- Bramble Trellising & Pruning
- Frost Protection Considerations
- Get the Best Price for Your Berries
- New Market Ideas for Your Product
- Strawberry Spring Fungicide Recommendations
- Planting Dates for Plasticulture
- Strategies for Dealing with Heat Stress
- Spotted Wing Drosophila (SWD) Update.

Many of these topic ideas came specifically from all the different growers we met and conversed with during the winter meetings.

### Other highlights from the winter meetings include:

**Increasing strong interest in all small fruit but specifically blueberries.** As part of the Mid-Atlantic Fruit & Vegetable Conference in Hershey, PA, I gave a presentation on new product systems as well as new variety options. These new variety options include 3 blueberry varieties -Blue Ribbon, Top Shelf and Last Call. Based on trial information, including our own trials at Nourse Farms, these varieties show a great deal of potential. We are sold out for spring 2020 and encourage growers to order early (fall 2020) for spring 2021!

**New production systems** – not only at the Hershey conference but many of the conferences included presentations on new production systems. As noted in our Fall 2019 Newsletter, we have added two new products to our propagation and production – strawberry tray plants and long cane raspberry plants. These plants are used to product fruit in glass greenhouses and other structures, using a variety of containers and substrates.

**NASGA “Service with Impact Award”.** I was deeply honored to be the recipient of the 2020 North American Strawberry Growers annual “Service with Impact Award” as presented at this year’s annual conference in San Antonio. It is humbling to be included in the group of past recipients but an honor to be given the award. This honor is given to a person deemed to have made an outstanding contribution to the strawberry industry. At Nourse Farms, we value any contribution we, as a nursery, can make to further not only the strawberry industry but all the industries we serve.

**Here at Nourse Farms we are preparing for the upcoming shipping season.** We understand the critical importance of coordination and on-time delivery. We continue to upgrade our processes for the highest customer service performance for our customers. Your assistance in keeping us informed of your planting situation is important. Thank you for your past business and wishing you the best for the 2020 season.

*Tim Nourse*

### IMPORTANT!

## SHIP DATES

With increasingly variable and inconsistent spring weather, we highly recommend growers delay shipping or place spring orders with an “OPEN” ship date. Calling by Wednesday the week before you need the plants will allow us time to prepare your shipment and get it on its way to you.

**ORDER ONLINE:**  
noursefarms.com

### FOR PHONE ORDERS OR CUSTOMER SERVICE:

(413) 665-2658  
Monday–Friday  
8am to 5pm (EST)

### ORDER BY FAX:

Fill out the enclosed order form and fax to: (413) 665-7888

### ORDER BY MAIL:

Fill out the enclosed order form and mail to: Nourse Farms, 41 River Road, S. Deerfield, MA 01373

### QUESTIONS? FEEL FREE TO E-MAIL US:

Tim Nourse:  
tnourse@noursefarms.com

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# Trellising & Pruning Brambles - The Basics

Trellising, training and pruning brambles are important for long term quality berries and crop productivity. Correct trellising and pruning timing and technique allow for manipulation of cane numbers and growth. This will yield improved fruit quality and size, lower disease susceptibility, ease of harvest and better spraying efficiency.

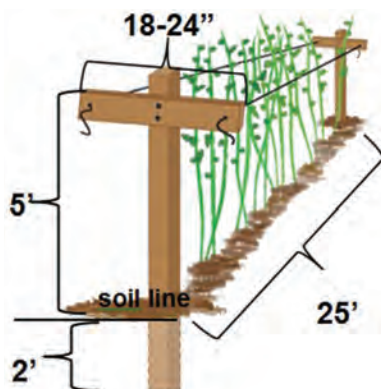
These are the basics. For more advanced trellising and pruning techniques, call us for recommendations.

## GENERAL TRELLISING INFORMATION

We recommend all brambles be supported by a trellis. A trellis keeps canes upright and fruit off the ground, makes picking far easier, reduces wind damage and maintains good aeration throughout the planting which helps with disease and Spotted Wing Drosophila control.

We have been successful using a T-trellis which supports 2 wires 12" apart at 3.5' to 5' above the ground (*see diagram*). Trellises may be temporary to facilitate mowing in the spring. We suggest installing 6'-8' long metal fence posts 1 1/2' - 2' into the soil. Bolt on a 12-18" piece of angle iron to create the horizontal crossbars. Drill hole on each end the angle iron to secure twine. You may also use wood posts and cross bars. The T is made by thru-bolting 12" - 18" two-by fours.

Posts should be spaced 15' - 25' apart along the row. Rows longer than 100' should have pressure-treated 4" x 4" end posts. Monofilament trellis wire should be considered instead of twine.



## Primocane-Bearing (Fall-Bearing/Everbearing) Red & Yellow Raspberries

### Varieties

*Polana, Joan J, Polka, Himbo-Top, BP-1, Caroline, Heritage, Double Gold, Anne*

## Trellising

Installation is usually done sometime in July after 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.

## Pruning

The main crop is borne in the late summer and all on the tips of canes that emerge in the spring and grow throughout the summer. Most fall-bearers will produce the best crop if canes are cut down each year and only allowed to fruit in the fall. For fall production only, prune or mow all the canes to the ground in late winter/early spring, this is especially beneficial in colder areas. Be sure to cut the canes as closely as possible to the soil surface, leaving little or no stub above the ground. Timing is also very important. Carbohydrates move from plant leaves into the crown in autumn, and from the crown to the buds in early spring. If canes are cut before all the carbohydrates reach the crown in autumn, the new canes may not be as vigorous the following year. Canes can also be cut too late, after carbohydrates have moved to the buds. From December - February, most carbohydrates are in the crown, so this is the ideal time to cut canes. In order to develop two crops, the planting must be pruned as summer bearing varieties. When allowed to stand through the 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 Raspberries

### Varieties

*Prelude, Boyne, Killarney, Nova, Latham, AAC Eden, Encore*

## Trellising

Some taller-growing varieties, such as Nova and Prelude, might benefit from a T-trellis with two horizontal crossbars - one at 3' - 3.5' and one at 4.5' - 5'. Removing leaves from lower 18" - 24" will allow better air circulation, while increasing light penetration for new primocane growth.

## Pruning

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. In late fall, cut canes down to 4.5' - 5' to manage the picking height.

## Florican-Bearing (Summer-Bearing) Black & Purple Raspberries

### Varieties

*Bristol, Jewel, Mac Black, Royalty*

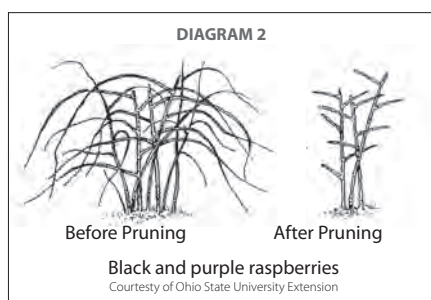
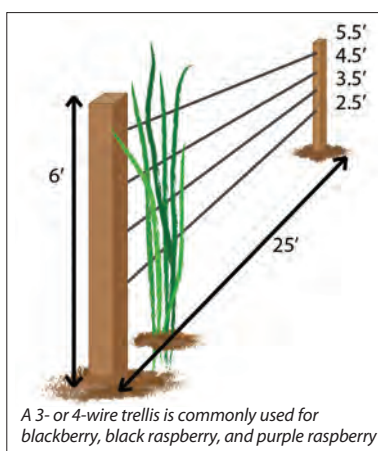
### Trellising

Black and Purple raspberries are best trained to a 2 or 3 wire trellis with the support of a 4"x4" every 25 feet (see diagram). Attach the main canes to the wire with a clip or a slightly loose zip or twist tie.

### Pruning

Black and Purple raspberries break buds from their crown or base and send out few, if any, suckers. Prune plants to 4 – 6 canes per hill. These plants respond well

to tipping, where the first year canes, primocanes, 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 should be pruned to 6" – 8" in the late fall. Pinching back laterals can help increase berry size and increase winter hardiness.



## Florican-Bearing (Summer-Bearing) Blackberries

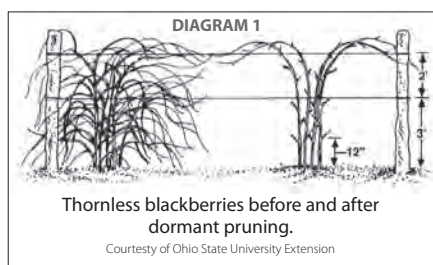
### Varieties

*Natchez, Caddo, Ouachita, Triple Crown, Chester*

### Trellising

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 like black raspberries are best trained to a 2 or 3 wire trellis with the support of a 4"x4" every 25 feet (refer people to diagram under black raspberries). Attach the main canes to the wire with a clip or a slightly loose zip or twist tie.

Sometimes thornless blackberries are managed in a "staked-hill" system. 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

Tip 1st-year canes when they reach a 5' – 6' height in midsummer or 6" over the top wire. Tipping stops terminal growth and establishes fruiting laterals. Thin the remaining canes (primocanes) to 6 – 8 canes per running yard of row or per hill. Laterals should be cut back to 6" – 8" in late fall. Fruiting canes should be cut to the ground as soon as possible after harvest has completed. Primocanes overwinter and develop fruit the following season.

### Considerations- Rotating Cross Arm Trellis

Here at Nourse Farms, we have great success growing Florican-bearing blackberries on the Rotating Cross Arm (RCA) Trellis, made by Trellis Growing Systems. This trellis, and the pruning and training technique that goes along with it, gives growers the ability to lay their canes down and be covered to increase winter hardiness. This system can also reduce sunscald by forcing blossoms onto one side of the trellis, where the fruit can be protected by the foliage.

The training method for the RCA trellis involves training your primocanes to a low horizontal wire, 18" high, and tipping when canes reach 5' or the next plant. Laterals are then trained vertically, much in the way that primocanes are traditionally trained. In the fall the posts are rotated down to lay on the ground and are then covered with a heavy floating row cover. In spring, the row cover is removed and the posts are rotated up.

To prevent sunscald, just prior to bloom the posts are rotated so they are parallel with the ground. This causes the blossoms to emerge on the upper side of the trellis. Once bloom has begun, the trellis can be returned to its standard position, leaving all of the blossoms on the shade side of the trellis and thus protecting them from direct sun exposure and reducing sunscald. This technique also increases picking efficacy as rows can be effectively picked from one side.

## Primocane-Bearing (Fall-Bearing/Everbearing) Blackberries

### Varieties

*Prime Ark 45, Prime Ark Freedom*

### Trellising

See Trellising under Florican-Bearing (Summer-Bearing) Blackberries.

### Pruning

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 (laterals).


*Continued on page 11*



# FIVE POINTS TO PREPARE


**GET READY FOR THE SEASON!**

## CONSIDER YOUR PLANTING DATE FOR PLASTICULTURE STRAWBERRIES

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- The planting date for plasticulture strawberries is sensitive to your geographic area.
  - The target is to develop 3 to 4 branch crowns by the end of the growing season.
  - Planting too early will cause the development of too many branch crowns resulting in smaller berry size. Shorter productive lifecycle.
  - If you are considering a new plasticulture planting of strawberries, please contact us to pinpoint the best planting time for your area.
  - If you are currently planting on plastic, we suggest you evaluate your branch crown development. If you are seeing more than 4 branch crowns, consider delaying your planting; if you see only 1 or 2 branch crowns, consider planting earlier.
  - In evaluating your branch crown situation, take into consideration the quality of the growing season. Variation in growing conditions can affect results.

**Please contact us if we can assist you in any of these areas.**


## GETTING THE BEST PRICE FOR YOUR BERRIES



Marketing and pricing fruit are as important as selecting the best varieties and using the best management practices. Growers are conservative in setting prices even with substantial evidence

that consumers perceive berries to have a good value, providing an opportunity to adjust to higher pricing. As you review pricing for 2020, increasing prices is supported by the increased cost of producing these crops. One clear marketing message all growers should be promoting is the health benefits of berries. Scientists have found berries to have some of the highest antioxidant levels of any fresh fruits (measured as ORAC), with kale and spinach being the only vegetables with ORAC values as high as fresh, delicious berries. To enhance your marketing, email Anne Kowaleck at [akowaleck@noursefarms.com](mailto:akowaleck@noursefarms.com) for excellent fact sheets you can share regarding the health benefits of berries.

## BEAT THE HEAT



The summer of 2019 was one of the hottest on record in the northern U.S. with stretches of time with daytime temperatures in the 90's. On top of a very moderate winter, its not unlikely to see these same type of temperature stretches this growing season.

### **Impact of hot temperatures:**

- High air temperatures may result in very high leaf temperatures resulting in sunburn and scorching. Sunscald of fruit will increase, especially where leaves wilt and reduce fruit cover.
- High heat will affect pollen production, often reducing viable pollen numbers. Reduced pollination can result in smaller fruit or misshapen fruit.
- High soil temperatures, particularly when growing on black plastic where surface temperatures can exceed 150°F, can damage surface roots, limiting water and nutrient uptake. This is particularly a problem in young plants that have limited shading of the plastic.

### **Options for moderating the impact of high temperatures:**

- In areas with consistently high temperatures, consider using white plastic in place of black plastic. Growers have also seen a moderation of soil temperature with the use of a clean straw mulch in addition to and on top of plastic.
- Water-based (evaporative) cooling can be used to reduce temperatures. Low water volume sprinklers and drip irrigation systems have been successfully used during hot daytime periods for plant cooling. Timing is also a consideration as by turning on your drip irrigation early in the day, soil under black plastic mulch will remain cooler longer during the day.
- On some crops, shading with the use of shade cloth (20-30%) applied during the hottest periods of the day and when the plant is most sensitive to heat (fruit development) has shown benefits.

- Experimentation is being done with the use of radiation blocks and reflective materials for reflecting away some solar radiation. Radiation block materials are sprayed on plants during high temperature periods. It's too soon to tell if the use of these materials is consistently effective.

## ALTERNATIVE MARKET IDEAS FOR YOUR PRODUCTS

# 4

Profitably growing berries involves not only work done in the field but marketing and distribution. Growers can be challenged in moving all their berries on slower days during the week such as Monday–Thursday and/or during peak harvest levels. A variety of non-traditional outlets for berries have developed recently that can eliminate this problem for some

growers. In addition, a market is starting to emerge for portions of the plant other than the berries themselves – full plants, branches and leaves. Some popular outlets we have seen:

1. **Craft Breweries** – according to the Brewers Association, there are over 6,300 craft breweries in the U.S., up from just 2,000 in 2013. At Nourse Farms, we have had good success selling raspberries in bulk at a competitive price. To find micro or craft breweries in your area, go to [brewersassociation.org](http://brewersassociation.org) which has an excellent search tool for finding breweries near you.
2. **Wineries** – with almost 7,000 wineries, a great resource to identify wineries in your area can be found at [wineriesbystate.com](http://wineriesbystate.com).
3. **Restaurants** – based in part on the “Farm to Table” concept, another popular outlet for berries is the restaurant industry. Chefs, particularly in higher end restaurants, have a great appreciation for local berries and are willing to pay a premium, especially for day-neutral strawberries, fall-bearing raspberries and blackberries as well as June-bearing strawberry king berries. A great way to meet and develop relationships with restaurants is through your local chamber of commerce and business organizations.
4. **Florists** – believe it or not, it's not just the berries that grab people's attention. We are seeing more and more interest in the use of portions of small fruit plants in bouquets and centerpieces, particularly during wedding season. Leaves and portions of the cane (with or without the berries), add a new, different and modern look and texture that is becoming very popular, particularly with millennials. Varieties to consider – Chester Blackberry, Eden Red Raspberry, Bluegold Blueberry and Anne Yellow Raspberry.

## SPOTTED WING DROSOPHILA (SWD) UPDATE

# 5

Spotted Wing Drosophila (SWD) continues to pose a challenge to growers, with the pressure building as the season progresses. Those of us on the east coast and in the midwest, with hot summer temperatures and wet conditions from time to time, will experience the most pressure. Moisture breaks down the insecticides and the heat increase the rate of reproduction of the SWD.

### Particular crops most impacted include:

- Late Season June Bearing Strawberries
- Late Season Floricane/Summer Bearing Red Raspberries
- Mid – Late Season Blueberries
- Day-Neutral Strawberries
- Primocane/Fall Bearing Raspberries

### SWD Basics:

1. Monitor with traps to know when present.
2. Timing of insecticide sprays begins with color. Pesticide coverage is critical. During the day, the SWD hide in the foliage canopy. For maximum control, the application needs to thoroughly penetrate the canopy – especially important for brambles. Rotation of compounds is an important tool for best control and managing resistance. For specifics on possible controls and options for organic growers, contact your local cooperative extension office.
3. Cultural controls are a key part of SWD management. This includes:
  - a. Exclusion netting & baiting SWD. Some organic growers, in particular, have had success with mass trapping of SWD, as well as the use of exclusion netting.
  - b. Pruning brambles has become an important part of SWD control. Narrowing rows and thinking out excess canes is an important tool in controlling SWD. Removing foliage from lower canopy increases penetration of insecticides and reduces habitat.
  - c. SWD has been found to inhabit wooded borders. Treating borders can help reduce pressure. Keeping field perimeters free of weeds will also reduce habitat.
  - d. It's critical to harvest all ripe fruit and remove cull fruit from the field every time you pick. Harvested fruit for sale should immediately go into refrigeration.
4. Make use of the many great SWD websites. Including: [extension.umass.edu/fruitadvisor/spotted-wing-drosophila](http://extension.umass.edu/fruitadvisor/spotted-wing-drosophila) [www.canr.msu.edu/ipm/invasive\\_species/spotted\\_wing\\_drosophila](http://www.canr.msu.edu/ipm/invasive_species/spotted_wing_drosophila) [whatcom.wsu.edu/ipm/manual/rasp/spotted\\_wing.html](http://whatcom.wsu.edu/ipm/manual/rasp/spotted_wing.html)



# Frost Protection Flexible Hose systems



With Netafim Meganet Sprinklers and Flexnet distribution manifold Strawberry growers are able to get uniform frost protection without the headache and limited field access of aluminum pipe.

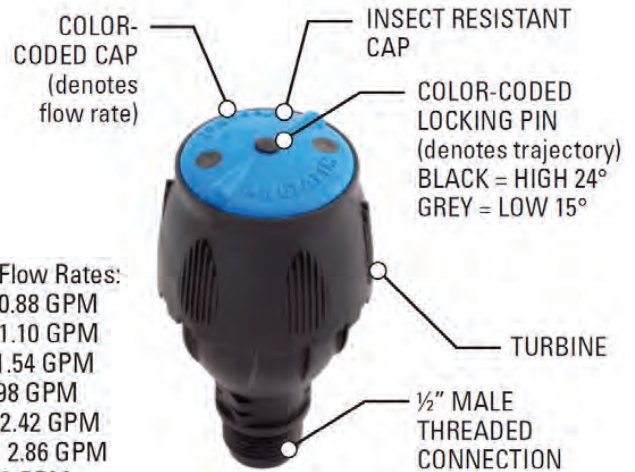
## MEGANET™

### ROTATING SPRINKLER WITH EXCELLENT UNIFORMITY UP TO 40' DIAMETER WETTED AREA

The Meganet sprinkler is a balanced sprinkler with two equal water jets. Meganet fight the wind with large droplet size and excellent distribution uniformity. The sprinkler is held up with a fiberglass stake, allowing for easy install and removal. Each sprinkler head has its own basket filter to prevent clogging. Color coded caps for flow rate identification



Meganet sprinklers for strawberries are spaced 24 feet in row, and 30 foot between laterals. Using 72" spaced Flexnet every 4<sup>th</sup> hole gets a sprinkler; the remaining holes are plugged. Air vents are added at the end of each lateral. This system provides over 90% uniform distribution of water utilizing the Blue Meganet Sprinkler. A minimum flow of 72 gallons per minute to an acre is required to build adequate ice for frost protection on strawberries.



Seven Nominal Flow Rates:  
 Yellow Nozzle - 0.88 GPM  
 Purple Nozzle - 1.10 GPM  
 Green Nozzle - 1.54 GPM  
 Blue Nozzle - 1.98 GPM  
 Brown Nozzle - 2.42 GPM  
 Orange Nozzle - 2.86 GPM  
 Red Nozzle - 3.30 GPM



 **Brookdale  
Farm Supplies**

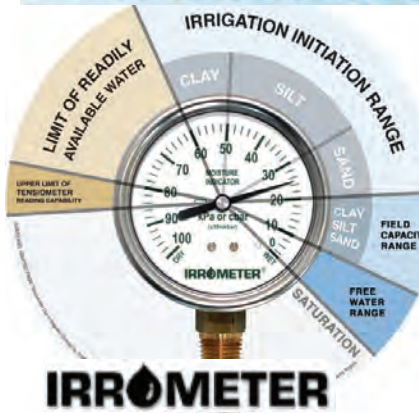


SCAN ME

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 Hollis, NH 03049  
 603-465-2240



## Soil Moisture Sensor



Strawberry soil moisture management is critical for plant establishment and fruit size. Drought stress of strawberry plants result in smaller leaf area on plants and small early ripening fruit. A general rule of thumb is to not let soil moisture fall below 50% of field capacity. Soil moisture measurements for strawberries should be taken at 6" and 12" depth to determine available moisture to the root zone of the plant. Either Tensiometers or electric conductance sensors can measure soil moisture. Strawberries require as much as 18 inches of water over a 200 day growing period. That is the equivalent of 20 gallons of water per plant. Overhead frost protection can also apply excess water and flush nutrients from the root zone. Drip irrigation is the preferred irrigation method for strawberries applying moisture directly to the root zone. Utilizing soil moisture measurements daily ensures a consistent and successful approach to grow strawberries. Contact Brookdale Farm Supplies for appropriate soil moisture measuring equipment for field application.

## FLEXNET™ FLEXIBLE PIPE

Flexnet is a flexible distribution manifold system with 1/2" female threaded connections at various spacings, most commonly 36" or 72". Flexnet comes in a range of sizes from 2" to 8" and weighs about 30% of comparable layflat pipe. Flexnet can be used for meganet sprinklers and as a distribution manifold for drip. This feature makes Flexnet a multipurpose manifold system for strawberry production. Meganet sprinklers connect with tubes thread into this hose for a leak free fast assembly. Fittings for Flexnet include Drip elbows and tees, a heavy wall barb fitting, plugs for the holes not being used, air vents for end of the line, and flexible sprinkler stands.



 **Brookdale  
Farm Supplies**  
RT 130 Hollis NH

# TORO

# Ag

## The Best Drip Tape For Strawberries

1. Better uniformity – even in hilly terrain\*
2. Clog resistance
3. Increased profitability through higher yields and lower system cost†
4. Exceptionally better value versus pressure-compensating drip tapes
5. Longer lengths of run\*



# Strawberry Frost Protection Tips

Due to the fact that strawberry plants grow close to the soil, and given they blossom earlier than many other crops, they are at risk for spring frost and freeze damage.

## FROSTS AND FREEZES ARE DIFFERENT EVENTS:

- **Frosts** occur on a clear night with little wind. With no cloud cover, heat within the field is lost to the atmosphere.
- **Freezes** are usually events with higher wind speeds (above 10 mph) and temperatures below 32°F.
- **Freezes** are caused by moving air masses, while **frosts** are based on radiation.

## CRITICAL TEMPERATURES OF STRAWBERRIES BASED ON STAGE OF DEVELOPMENT (Perry and Poling, 1986)

Stage of Development	Critical Temperature (°F)
Bud emergence	10.0
Tight bud	22.0
Popcorn	26.5
Open blossom	30.0
Fruit	28.0

## USEFUL FROST PROTECTION PRACTICES

1. **Over-head watering:** Over-head watering works based on the principle of latent heat of fusion – as water turns to ice, heat is released. This heat maintains the plant tissue at just above freezing. If the water stops during the night while the temperature is below freezing, the process reverses –heat is removed from the plant tissue and the tissue will freeze. To avoid this, watering must continue until the air temperature rises above 32°F and the ice has melted. Over-head watering may be combined with row covers or used independently and requires a calibrated emitter system to be sure the required water is constantly being provided. It has a proven track record of maintaining the temperature of the flower buds above critical temperatures. On the negative side, it may lead to saturated soils and root diseases; if the water stops at any point when the air temperature is below the 32°F the buds will freeze.
2. **Row covers:** Row covers are spun bonded polypropylene and vary in weight from 0.45 oz to 4 oz. Cloth sheets also work for small areas. Research has shown that using two layers of a 1 oz weight row cover provides somewhat better frost protection than a single layer of 2 oz cover, likely due to air between the layers. Heavier covers (3-4oz) work for frost protection



*Frost damage to blooms and berries.  
Photos courtesy of Ontario Ministry of Agriculture, Food and Rural Affairs*

but restrict light too much and need to be removed as soon as temperatures are above freezing. Avoid placing plastic over the rows unless it is suspended and will not touch the plants. Wherever the plastic touches the plant – leaf, flower – the plant tissues will be killed in freezing temperatures.

3. **Wind machines/Return Stack Heaters:** Wind machines carry initial high expense but on sites that are frost prone this method may pay for itself. A temperature inversion, a weather condition where temperatures increase with altitude causing warm air to overlay cold air at the surface, and wind speeds less than 5 mph are required for this system to be effective. Acreage covered varies by model and the strength of the temperature inversion, generally 1 acre – 20 acres. May be used combined with supplemental heat for large areas, or when the temperature is expected to be down to the low 20s, or with a weak temperature inversion. Return Stack Heaters hold approximately five gallons of fuel with 20-40 heaters needed per acre. They are effective when used alone and combined with wind machines. Light every second or third heater initially and then light the rest. This will allow heat to move through the field without a big burst of heat that may puncture the inversion layer.

## KEY TAKEAWAYS

- Frost injury can cause significant damage to strawberry plants, especially during open blossom but also to unopened buds, if it's cold enough. Strawberry fields are often colder at ground level than the weather forecast suggest.
- Irrigation for frost protection works because heat is released as water freezes. Rates must be adjusted to account for evaporative cooling due to winds and relative humidity. More water is required on windy nights and failure to apply enough water can cause greater damage than no irrigation.
- Dew point is an important factor in determining the optimum time for starting frost protection. Start temperature for frost protection is higher when humidity is low, lower when the humidity is high.
- Each form of frost protection has its pros and cons, so evaluation of systems based on your individual circumstance is important.



# Strawberry Fungicide Program Suggestions

Here are a variety of suggestions based on our experience as well as information gathered from winter conferences and industry contacts. In addition, consult your local cooperative extension office for specific state recommendations.

1. **ALWAYS CHECK THE LABEL** regarding annual application limits, resistance management and labeling for your state. Good websites for that information are [www.CDMS.net](http://www.CDMS.net). or [agrian.com](http://agrian.com).
2. **RESISTANCE MANAGEMENT IS CRITICAL FOR MAINTAINING CHEMICAL EFFECTIVENESS.** Avoid making sequential applications of the same class fungicides. Information on fungicide class distinctions can be found at <http://frac.info> and look for 2020 FRAC code list. We have also included FRAC codes with specific fungicides in this article.
3. **USE CAPTAN OR THIRAM WITH VARIOUS FUNGICIDES**, whenever possible, for broad-spectrum control and resistance management. *PLEASE NOTE: Mixing Captan with any oil-based material will cause leaf phytotoxicity. This would include other fungicides or insecticides.*
4. **OXIDATE HAS PROVEN TO BE AN EFFECTIVE BROAD-SPECTRUM FUNGICIDE** control and is labeled for organic growers.
5. **A NEW PREVENTATIVE BIOFUNGICIDE** from Bioworks, BotryStop has potential to fit into both organic and conventional spray programs. We have started testing this product at Nourse Farms and initial results are encouraging. For additional information see the Bioworks website at [www.bioworks.com](http://www.bioworks.com).
6. **CHECK AND CALIBRATE SPRAYER.** Choose tips and application rates (gallons per acre) based on coverage needed, which can change based on growing canopy. If you don't have good spray coverage – you won't have good control. Adjuvants can assist with coverage.

## BLOOM APPLICATIONS

Bloom applications are the critical time to effectively control botrytis, and should begin at 5 - 10% bloom. Because of the importance, a spray schedule of 7 to 10 days is recommended. During excessive wet periods, the schedule might be reduced to a 4 or 5-day schedule. Usually 4 or 5 applications can accomplish the job for the season.

### Bloom Recommendations (FRAC code)

- Switch (9 + 12) + Captan (M4) & Oxidate
- Elevate (17) + Captan (M4) & Oxidate
- Fracture (M3) + Oxidate
- Merivon (7 + 11) + Captan (M4) & Oxidate
- Scala (9) + Captan (M4) & Oxidate
- Inspire Super (3 + 9) + Captan (M4) + Oxidate

## LEATHER ROT CONTROL

For leather rot control during extended wet periods, when frost protection is necessary and especially if leather rot occurred last year, add Ridomil Gold as one of the fungicides in your bloom spray program beginning at first bloom. Straw mulch can greatly assist in minimizing water splashing that can spread leather rot. Growers can also consider a phosphorous acid product.

## AFTER BLOOM APPLICATIONS – GREEN FRUIT THROUGH HARVEST

After flowering, the threat of botrytis infection decreases. Green fruits are not as susceptible to infection. If spray coverage was poor or lacking (including too long an interval) during bloom, infection could result. Also, Anthracnose can be a problem during warm, wet conditions. As infections are often difficult to control once present, a preventative approach may be best, especially if it was present during prior harvests.

### After Bloom Recommendations (FRAC code)

- Switch (9 + 12) + Captan (M4) & Oxidate
- Abound (11) + Captan (M4) & Oxidate
- Elevate (17) + Captan (M4) & Oxidate
- Cabrio (11) + Captan (M4) & Oxidate
- Merivon (7 + 11) + Captan (M4) & Oxidate

If necessary to continue coverage beyond two sprays, alternate the application of the above chemicals with an application of Switch, Elevate, Thiram or Captan.

**NOTE:** There are reports of botrytis resistance to some control products as well as cases of anthracnose resistance to QOI chemicals. If you are seeing reduced control for a particular product, consult your local cooperative extension office.

**IMPORTANT REMINDER:** Refer to the label and your state's particular recommendations, as states have varying regulations regarding timing, rates and allowances for any spray program.

**Organic or ORMI listed fungicides:** Copper products, Oxidate, BotryStop, Aremicarb, Serenade/Sonata.



Hillside Cultivators are very effective for weed control between crop rows and renovating strawberries



Hillside Cultivator  
Telescoping Frame for  
cultivating  
between blueberries or  
raspberries



Uproot weeds very  
close to the edges of  
plastic mulch, ridge  
soil along raised  
beds



The PTO powered Eco Weeders are best for weeding between plants dramatically reducing hand work

# Cultivators for Berries *and* Vegetables



The Hillside Cultivator may also be configured for 2 Rows or as a model without hydraulic adjustment.

- Renovate Strawberries efficiently and economically with optional front mounted disk gangs
- Effectively uproot weeds very close to crop rows or plastic mulch or ridge soil along raised beds with rolling cultivators
- Hillside Cultivator Model CS is constructed with a strong frame, multiple adjustments, and hydraulic control of the distance between cultivator gangs
- Hillside Cultivator Model NH is the economical manually adjusted version

Both models have coil tines mounted between front and rear gangs for fracturing hard soil

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By acceptance of the product, the buyer acknowledges that the limitations and disclaimers herein described are conditions of sale and that they constitute the entire agreement between parties regarding warranty or any other liability.

**ORDERING** Prices valid to May 31, 2020. Use enclosed order form, call or order online. Order early to ensure your first choices and on-time shipping. We make every effort to ship on time. We do not recommend fall planting.

**PATENTED/LICENSED VARIETIES** identified by a \*, cannot be propagated without permission. Royalty or usage fees are included in their prices. Patented varieties are protected by U.S. patent laws and licensed varieties are produced under contract with plant breeders.

**PLANT PICKUP** Orders can be picked up in Whately, MA, mid April through late May, Mon. through Fri., 8am to 4:30pm; Sat., 8am to 1pm. Call for other available times.

**SHIPPING AND HANDLING** charges are additional. Shipping by Ground Service unless otherwise specified. Three business days' notice required for orders with "open" ship dates. We'll make every effort to accommodate shipping on short notice.

#### ORDERS TO HAWAII AND ALASKA

Ships 2nd-day air only. Sorry, no exceptions.

**ORDERS TO MIDWEST OR WEST COAST** Shipped on a Monday or Tuesday. On warm temperature days, shipping is by 3-day service to ensure good condition. Added shipping charges are billed. California, Hawaii, Oregon and Washington must have phytosanitary certificates (\$15.00).

**CANADIAN & FOREIGN ORDERS** Import permits must be supplied 30 days in advance of shipment. All shipping by special arrangement. Nourse must receive payment in full with U.S. funds prior to shipment. Special fees may apply. Add \$25.00 - \$200.00 for export certification by U.S. Dept. of Agriculture. Payment by credit card or bank transfer minimizes your bank fees.

#### PAYMENT

- Orders \$250 or less must be paid in full within 10 days of placing the order or will be subject to cancellation.
- Orders exceeding \$250 require a deposit of 1/3 within 10 days of placing the order, or are subject to cancellation. Balance must be paid in full prior to shipment. In the case of a pickup, a customer may pay the balance at time of pickup.
- Orders shipping after June 1 must be paid in full by June 1 to reserve the plants, or the order will be subject to cancellation and loss of deposit. Orders shipping after June 1 are not eligible for refund if cancelled.
- Net 30 Terms may be extended for orders greater than \$500 for returning customers only; determined on a per customer basis, based upon a Customer Credit Application, and prior payment history with Nourse Farms.
- Service charges of 1.5% per month are added to past due balances.
- We do not refund amounts less than \$3.00.
- We accept Visa, Master Card, Discover, checks, money orders and cash.

#### TRELLISING & PRUNING ... continued from page 3

A second tipping should be performed as the lateral branches reach 30", again breaking or cutting  $\frac{3}{4}$ " - 1" off tips. This process stimulates earlier fruit development, increases yield and also keeps plant height in check for easier management and harvest.

The main crop is borne in the late summer and all on the tips of canes that emerge in the spring and grow throughout the summer. Most fall-bearers will produce the best crop if canes are cut down each year and only allowed to fruit in the fall. For fall production only, prune or mow all the canes to the ground in late winter/early spring, this is especially beneficial in colder areas. Be sure to cut the canes as closely as possible to the soil surface, leaving little or no stub above the ground. Timing is also very important. Carbohydrates move from plant leaves into the crown in autumn, and from the crown to the buds in early spring. If canes are cut before all the carbohydrates reach the crown in autumn, the new canes may not be vigorous the following year. Canes can be cut too late, after carbohydrates have moved into the bud.

#### Considerations

When growing Primocane-bearing blackberries, southern growers may benefit from a single tipping at 3', leaving the laterals untipped. This will delay harvest compared to untipped canes but advance it compared to double tipped canes while also prolonging the harvest.

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

##### Varieties

Niwot

##### Trellising

See Trellising under Floricane-Bearing (Summer-Bearing) Black Raspberries

##### Pruning

Tipping or tip pruning is highly recommended for primocane-bearing black raspberries. As the new primocanes reach 3', pinch or cut the tips to force branches (laterals) to develop. Tipping will delay, but prolong the harvest, increase yield and reduce the 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; but the canes will become tall and arching and will develop fewer berries.

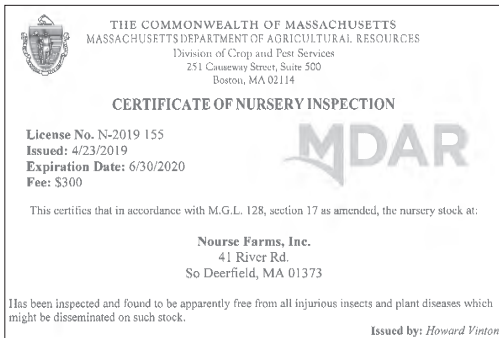
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on appropriate gears and pricing.**



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**ATTENTION! SPRING 2020 SOLD-OUT LIST**

**SOLD-OUT STRAWBERRIES**

Allstar, Chandler, Flavorfest, Galletta, San Andreas, Yambu, Cabot, Mayflower

**WHILE SUPPLIES LAST! STRAWBERRIES**

Annapolis, AC Wendy

**SOLD-OUT RASPBERRIES**

Jewel Black Raspberry, Killarney, Mac Black, Double Gold, Bristol

**WHILE SUPPLIES LAST! RASPBERRIES**

Niwot

**SOLD-OUT BLACKBERRIES**

Ouachita, Natchez, Caddo, Prime Ark Freedom

**SOLD-OUT BLUEBERRIES**

Elliot, Jersey, Blue Ribbon, Darrow, Last Call, Top Shelf, Bluegold

**SOLD-OUT RHUBARB**

MacDonald

**SOLD-OUT RIBES**

Invicta Gooseberry, Tixia Gooseberry, Rovada Red Currant, Jonkheer Van Tetts Red Currant

**SOLD-OUT ASPARAGUS**

Millenium

We continue to see a strong interest in blueberries, particularly the new varieties Top Shelf, Blue Ribbon and Last Call.

We are sold out for this season and recommend ordering these varieties early (Fall 2020) for 2021 planting.

