

## **Day Neutral Strawberries: Off-Season Opportunities**

David T. Handley, Vegetable and Small Fruits Specialist  
University of Maine Cooperative Extension  
Highmoor Farm, P.O. Box 179, Monmouth, Maine 04259  
(207) 933-2100

Day neutral strawberry production offers New England growers an opportunity to market fresh strawberry fruit during the late summer and fall when market demand is high and supply, especially local supply, tends to be low. Although day neutral plants don't produce a concentrated fruit set like their June-bearing counterparts, which limits their attractiveness for the pick-your-own market, they will continually set fruit over several to many weeks, stretching out the harvest season well into the fall, and providing a high value specialty item for roadside stand, farm market and restaurant sales. Growing these plants differs considerably from growing typical June-bearing strawberries in the classic matted row system. Day neutral plants are often grown as an annual crop, and are typically grown on raised beds with plastic mulch and very high planting densities. As result, the establishment costs and labor commitment tend to be quite high, and prices charged for the fruit must reflect this in order to return a reasonable profit.

### **Site Selection & Preparation**

Selecting an appropriate planting site is critical to the success of the planting. While strawberries can tolerate a variety of soil types, they grow best in a well-drained, deep sandy loam, rich in organic matter. Do not plant strawberries in an area where tomatoes, potatoes, peppers, or eggplant have been grown in the past four years. These crops carry a root rot (*Verticillium*) which also attacks strawberries. Do not plant strawberries into recently plowed grass or sod areas. This can lead to devastating weed problems and damage by white grubs, a common turf pest, which will feed upon strawberry roots. Finally, choose a site where there is ready access to a water supply. Irrigation is important for good plant establishment and to maintain plant growth and fruit quality during dry periods. Strawberries prefer a soil pH of 5.8 to 6.2. Soil testing information is available at your Cooperative Extension office. If the organic matter level of the soil is low (less than 2%) and/or perennial weeds are a problem, a cover crop such as buckwheat, Sudan grass or oats can be sown and plowed into the soil the year before planting. Applications of compost can also be used to increase organic matter. Fertilizer can be applied and worked into the soil prior to planting, or banded into the soil prior to applying plastic mulch and planting. Rates should be determined through soil tests taken the previous fall. In general, a rate of approximately 100 lbs. of nitrogen, 50 lbs. of phosphorus (P<sub>2</sub>O<sub>5</sub>) and 50 lbs. of potassium (K<sub>2</sub>O) should be incorporated into the soil prior to planting (e.g. 600 pounds/acre of 20-10-10 or its equivalent).

Beds for day neutral strawberries should be prepared as early in the spring as possible, or beds may be pre-made during the fall before planting. Raised bed heights and widths vary depending on the type of equipment and amount of land available. In general, beds should be four to twelve inches high with a one and 1 ½ inch crown sloping from the center of the bed down to the edges to promote the shedding of water off of the bed surface. Bed width depends on how many rows of plants will be established on each bed, ranging from 18 inches (one plant row) to 46 inches (three to four plant rows). In New England, growers have generally found the one or two plant

rows per bed are easiest to manage and use a bed width of 18 to 42 inches. Having a smooth, well-packed, well-shaped bed will greatly improve the fit and performance of the plastic mulch on the bed, because good mulch to soil contact improves the ability of the mulch to warm the soil, and to shed water. Beds will form best when the soil is moist and friable. Trickle or drip irrigation lines are typically installed during bed forming at about a 4 inch depth in the bed, with either one or two lines, depending on how many plant rows there will be on a bed. They should be placed to a few inches to the side of the plant rows to prevent being punctured during the planting process. The plastic mulch should be laid tightly over the beds immediately following bed forming. Black plastic is most commonly used to promote soil warming and to provide weed control. White plastic is sometimes used where summer temperatures can get very high and fruit tends to break down on the hot black plastic. However, white mulch keeps soil temperatures cooler and may delay plant growth. To ease the planting process, the mulch is often marked with small holes or dimples after it is laid to show where to put the plants. This can be done by fixing bolts or cleats to a wheel spaced such that they will leave a dimple at the appropriate spacing on the plastic (10 to 14 inches apart within the row). The wheel is attached to a frame and handle which can be pulled over the plastic so that the dimples will form a line at the correct row spacing and on the bed.

### **Planting and Pre-Harvest Care**

Dormant, day neutral strawberry crowns should be planted in the spring as soon as the beds are prepared. Planting is done by hand using a simple planting tool. A piece of 1/8 inch iron flat bar about 12 inches long is bent at a 90° angle about 4 inches from one end to create a handle. This end is often wrapped in duct tape to provide a soft grip. The opposite end of the bar is notched from the edges to the middle to about a 3/4 inch depth, creating an inverted “V” at that end of the metal. The notched edge is slightly sharpened to ease penetration through the mulch and soil. To plant the crowns, the roots of the plant are laid on the plastic mulch such that about 1/2” of the ends of the roots are over the mark on the mulch for planting. The notched edge of the tool is placed over the mark so that it will “grab” the ends of the roots as the tool is pushed into the soil and draw the plant into the bed. Push the crowns straight down through the mulch with the tool and into the soil so that the soil surface comes to halfway up the crown. Gently pinch the soil around the crown as you withdraw the planting tool. Plants should be spaced 10 to 14 inches apart with a row. Planting in a double row, 24 inches apart, on 42 inch wide beds with 13 inches between plants within the rows will require about 13,400 plants per acre.

All flower blossoms that emerge during the first 4-6 week after planting should be pinched off. This encourages root growth and plant vigor and leads to better yields and fruit quality. Additionally, all runner plants that emerge during the summer should be removed. These interfere with harvest and root in planting holes and along the edge of the plastic, becoming “weeds”. While runner removal is labor intensive, studies have shown it is beneficial to both yield and fruit quality. The new planting should be irrigated after planting and regularly thereafter to insure optimum growth. One to two inches of water per week is ideal. Trickle lines can also be used to deliver soluble fertilizers to the plants. While rates of fertilizer will vary depending on the number of plants per acre, soil type, and variety, about two pounds of actual nitrogen per acre per week applied through the drip lines will typically provide good plant growth.

## **Harvest**

Depending on the planting time, weather and variety, harvest should begin in mid to late August and continue until a hard frost kills any remaining flowers. Fruit can typically be harvested two to three times a week, but the frequency will drop as the temperatures get cooler in the fall.

## **Frost Protection**

Flowers and fruit can be protected from frost in the fall to extend the harvest season. Fabric, "floating" row covers may be placed over the plants during the evenings when frost is predicted and removed for harvest. These lightweight fabrics create a greenhouse effect that will provide three to five degrees of additional temperature protection.

## **Overwintering the Planting**

Day neutral strawberry beds are not usually carried over for a second year. These plants can produce an early spring crop the following year, and fruit again in the summer and fall if carried over, however fruit quality, especially size, is generally much lower in the second year and runner control becomes a major problem. If the beds are to be carried over, winter protection is required in the form of heavy weight rowcovers, applied in the fall when the plants are dormant.

## **Pest Management**

Numerous pests can potentially cause problems in day neutral strawberry plantings. Tarnished plant bugs, spider mites, gray mold and anthracnose are common and potentially devastating pests. Consult local University Extension recommendations for the best management techniques for problems in your area.

## **Varieties**

The most popular day neutral strawberry variety being grown in New England is 'Seascape', which is known for dependable performance and good fruit quality. 'Albion' is also being grown for its high fruit quality, but it is very late ripening. 'Evie-2' is grown for its earliness and high yield, but it is very soft and shy of flavor. 'Tristar' and 'Tribute' are being grown in some areas. They are hardy and disease resistant, but have small fruit size and relatively low yields. Yields from day neutral strawberries vary widely, ranging from 4000 to 12,000 pounds per acre. The differences in production tend to be the result of management. Following good management practices, especially in regards to variety selection, plant stands, nutrient management, water management and pest management will maximize crop yield and prolong the profitable life of the planting.

For more detailed information on strawberry production, see the *Strawberry Production Guide for the Northeast, Midwest and Eastern Canada*, published by the Natural Resource, Agriculture and Engineering Service (NRAES-88), and available through your University Cooperative Extension.