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UNIVERSITY OF ALASKA FAIRBANKS
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Growing Annual Strawberries in Alaska

Introduction

Strawberries are a desirable addition to many home gardens and also provide opportunities for commercial production. The moderate temperatures of Alaska summers support the development of good-quality strawberry plants and yields. In addition, there are relatively few severe pests and diseases encountered on strawberries in Alaska.

Site Preparation and Production Systems

Strawberries prefer a well-drained soil. There are many types of soils in Alaska that can support good growth and production of strawberries. Boggy or clay-based soils should be avoided due to compaction, limited pore space and poor drainage.

A raised bed covered with plastic mulch works well for growing strawberries. Various types of plastic mulch are available although black plastic is most often used. Other types of mulch include IRT (infrared transmitting), metallic, or white-on-black plastics. Additional information on the use of plastic mulches can be found in the UAF Cooperative Extension Service publication FGV-00647 "Plastic Mulch, Row Covers and Low Tunnels for Vegetable Production in Alaska."

The various plastic mulches allow for heating of the soil, control of weeds and reduced moisture loss. An organic mulch can also be used such as straw or pine needles instead of plastic. In a multi-year system, planting directly into the soil without raised beds is often more conducive to overwintering and survival of strawberry plants through the winter.

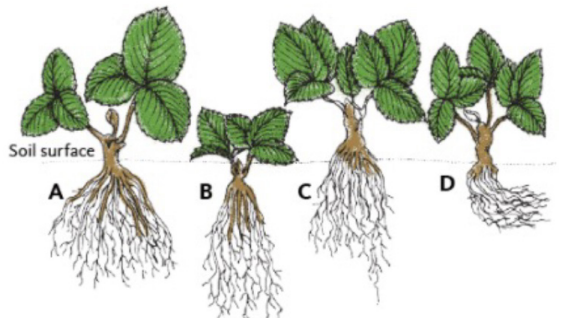
A technique for growing high-yielding strawberries with plastic mulch and row covers (low tunnels) was developed in the 1980s at the Agricultural and Forestry Experiment Station in Fairbanks. June bearing strawberries (explained below) are planted in a raised bed using a clear plastic low tunnel supported with wire hoops. To allow for ventilation, two pieces of plastic are used and secured with soil on each side of the bed. The two pieces are pulled up, fastened at the top of the wire hoops with cloth pins to form a low tunnel. The design allows for ventilation or protection by opening, lowering or raising the plastic sides through the summer. Alternatively, a lightweight frost cloth material (a woven or spun-bonded fabric such as reemay or agribon) may be used instead of clear polyethylene plastic to create the low tunnels in this system.

Strawberry Plants

Strawberry plants are often available in the spring at your local greenhouse, plant nursery or other outlets. Plants can also be ordered online from reputable propagators such as Indiana Berry & Plant Co., Plymouth, Indiana; Nourse Farm, South Deerfield, Massachusetts; NorCal Nursery, Red Bluff, California; or other commercial companies.

Plants ordered online are shipped as rooted plantlets without soil (bare rooted) and need to be transplanted as soon as possible or within a few days. To keep bare rooted plants for a longer time period requires storage in a cooler. If the plants arrive a couple of weeks prior to planting, they can be put upright in a plastic tote with roots covered in moist peat moss or soil for green up. Keep the plants in a warm place (68-70°F), such as a greenhouse, and make sure to water as needed. This treatment allows the plant to get an earlier start when transplanted into the garden or field.

Plants should be spaced between 12 to 18 inches along the row for good air circulation. Good air movement around the plants tends to reduce fungal diseases. Dig a sufficiently deep hole to accommodate the roots. The crown of the plant should be at the soil level.



A - proper planting depth; B - the crown is too deep; C - the crown is too high; D - the roots are bent and too close to the soil surface.

Strawberry Varieties

Strawberry varieties are divided into June-bearing, ever-bearing and day-neutral types. The June-bearing varieties set flowers under shorter day lengths and subsequently produce a large yield in late June or early July. Ever-bearing strawberries produce early and late during the summer for two major crops. Day-neutral types initiate flowers and set fruit throughout the season as long as temperatures don't get too high or low.

June-bearing strawberries tend to overwinter more efficiently than ever-bearing or day-neutrals, especially during winters with good snow cover and limited wind. Day-neutrals are the best choice for fresh fruit production throughout the season, as they have a longer fruiting period and often better fruit quality than ever-bearing strawberries. The day-neutral and ever-bearing strawberries are usually recommended to be grown as annuals and replanted each season. June-bearing strawberries may also need to be replanted every year or at least every other or third year.

Many strawberry varieties are available, including several that are suitable for Alaska. The varieties listed below can be expected to perform well and are recommended for Alaska. The selection of an appropriate variety is important and may vary with the Alaska location. Photoperiod can affect the performance of especially June bearers. The variety Honeoye for example, produces high yields in Southcentral Alaska but the natural day lengths are too long in the Interior to support flowering and fruit set.

June-Bearing Strawberries

Toklat

Toklat is a June-bearing perennial strawberry developed at the UAF Agricultural and Forestry Experiment Station that is especially well suited for Interior Alaska. The relatively large berries have a rich sweet flavor and ripen mid-season. Plants are winter hardy and perennial strawberry beds or patches often develop to produce berries year after year.

Allstar

Allstar is vigorous and moderately resistant to powdery mildew. The fruit is medium to large and orange-red in color. The berries are especially well suited to be eaten fresh. In a multi-year system, berry size increases in the second year. Developed at USDA, Beltsville, Maryland.

Cabot

This mid- to late-season variety produces the largest known berries in Alaska. The berries have good flavor, color and firmness. Cabot was released in 1998 from Kentville, Nova Scotia. It is winter hardy with good disease resistance. Plants do not produce many runners and closer planting may be needed to establish a good fruiting bed. Compared to many other varieties, it has a high nitrogen requirement.

Honeoye

Developed in Geneva, New York, more than 30 years ago. It combines winter hardiness with high productivity of firm and large-sized berries. The fruit is easy to pick and the fruiting season is long. Ripens in early July and is self-pollinating. Note that this variety is not recommended north of the Mat-Su region as the natural seasonal day lengths are too long for flower initiation in more northern locations.

Jewel

This variety is good for U-pick and fresh berry shipping as the wedge-shaped fruits are large, firm and of excellent color and quality. The plants have moderate winter hardiness, resistance to most strawberry diseases and self-pollinate. Similar to Honeoye, it was developed in Geneva, New York.

Valley Sunset

This is a variety released in 2009 from Kentville, Nova Scotia, that ripens in mid-August. The fruits are large with good flavor. The yields are good compared to other late-season varieties and the foliage is resistant to most diseases. The fruit is best suited for local fresh markets because of its soft skin and limited keeping quality.

Day-Neutral Strawberries

Albion

Excellent flavor with berries that are red throughout. Released in 2004 from the University of California. The shape is conical and the berries are of top quality and firmness. Capable of providing high yields and large berries when given sufficient amounts of water and nutrients.

Aromas

Developed at the University of California and initiates flowers somewhat later than Seascape (see below). The plants have broad environmental endurance, resistance to mildew and tolerance to spider mites. The plant has an upright growth habit to facilitate harvest and pest control. Flavor is very good and the berries can be eaten fresh, frozen or processed into jam or desserts.

Monterey

Similar to Albion from the breeding program at University of California. Excellent flavor with large berry size and firmness. The robust resistance to most strawberry diseases makes it an ideal choice for organic growers and gardeners.

Portola

The fruit size of Portola is similar to Albion although with a slightly shinier and lighter color. Post-harvest characteristics are also similar to Albion but it appears to have less tolerance for rainy conditions. Fruit flavor is excellent and consistent throughout the season. Portola has good disease resistance.

San Andreas

Released in 2008 and is similar to Albion, Monterey and Portola. High-quality fruit, outstanding flavor, and berries are large and uniform. Produces fewer runners than many other varieties.

Seascape

Released from the University of California in 1992, and can be one of the most productive day-neutral strawberries. The berries are large, firm, and have good flavor when picked ripe from the plant.

Tribute

Tribute was developed at USDA Beltsville, Maryland, and released in 1982. The berries are small to medium, bright red although not as deep in color as Tristar (see below). The internal flesh is firm, sweet and a solid medium red. Widely cultivated in cooler areas of the Western United States and ripens slightly later than Tristar. The plants are resistant to common strawberry diseases, such as powdery mildew, leaf scorch and blight.

Tristar

Tristar was developed along with Tribute at Beltsville, Maryland, and released at the same time in 1982. The plants grow to a medium height and are disease resistant. The small- to medium-sized berries are glossy red with bright red internal color. The firmness is good and the flavor excellent.

Fertility

Strawberries need adequate fertilizer and nutrients to produce desirable plants and yields. Independent of the soil type, a soil test is recommended to determine available nutrients and identify those that may be deficient and need to be added. The soil test should be completed to allow time for interpretation and application of nutrients/fertilizers prior to planting.

A soil pH between 6.0 and 6.5 is recommended to optimize nutrient availability. The nutrient amendments are initially tilled or disked into a prepared bed of approximately 4 inches of loose topsoil. Fertilizer can be applied throughout the season in various ways depending on the production system with or without plastic mulch.

Organic fertilizers such as compost, manures or other animal byproducts tend to provide delayed release and a shorter period of nutrient availability. Subsequently, more frequent organic amendment applications are needed with a recommended initial application two to three weeks before planting. The supplier or a local Extension agent can provide additional information.

The use of organic fertilizers tends to improve the soil structure and balance carbon for an optimal microbiome. A hybrid system is often used with organic fertilizers providing a portion of required nutrients while deficiencies are compensated by utilizing commercial fertilizers. If using a fertigation approach through a drip irrigation system, please refer to the UAF Cooperative Extension Service publication FGV-00648 “Drip Irrigation for Alaska Gardens” for the proper procedures.

Irrigation

Strawberries require relatively large amounts of water depending on the soil type. Generally, strawberries need 1 cubic inch (or 0.55 fluid ounces) of water per plant each week. The most critical period to supply sufficient amounts of water is immediately following transplant for at least 14 days. Watering should take place two to three times a week through the season depending on the soil type and weather conditions.

Water can be provided through various types of irrigation systems such as overhead sprinklers or drip tape. Drip irrigation is recommended because it tends to save water. A drip tape with a thickness of 6 to 8 mil is sufficient for use during one season. For extended use over several seasons, a drip tape of 8-15 mil thickness is preferred. A typical flow rate for the drip tape is 0.45 gallons per minute.

Plant Care

Many guidelines for growing strawberries indicate removing the flowers that first appear after planting. This recommendation usually does not apply to annual Alaska production systems. Initial plant growth and establishment rather than berry production is essential during the first year in a multi-year system. Removing developing flowers promotes vegetative growth over flower initiation and berry production. In an annual system, there is not sufficient time to first grow the plants and then have a crop of berries in the same season. Removing flowers in an annual system is likely to only reduce the overall yield.

At harvest, the berries should be put into containers no taller than four inches. Shallow containers allow for good air circulation and less damage to soft berries being crushed at the bottom. Cooling the berries immediately after harvest is important. The storage temperature should be at 33-34°F.

Weed Management

Weeds can be managed through various methods such as planting cover crops in between rows and mowing to provide green manure. Plastic mulch is another commonly used way to reduce weeds. Organic mulches such as straw, pine needles or grass clippings can also be used to control weeds.

Insects and Diseases

Strawberries in Alaska tend to have few pests. The most common to watch for include the strawberry sap beetle, aphids and caterpillars (moth larvae). The sap beetle leaves large holes in the fruit making it unmarketable. Aphids attack the leaves and stems and cause what is usually minor damage to the plant. Caterpillars feeding on leaves result in irregular shaped holes while stems can also be damaged at the soil surface.

Ways to mitigate insect pressure include the use of lightweight frost cloth materials (such as reemay or agribon) and keeping the areas between rows free of weeds. Alternatively a grass or other cover crop can be kept mowed and managed along the beds of strawberries. These methods also discourage rodent infestations.

The most common plant diseases are gray mold (botrytis) and anthracnose rot. To help control these diseases, maintain good plant spacing for air circulation and keeping leaves and flowers dry.

Gray mold is a common disease when it rains during flower and fruit development. Green berries as well as ripe fruit may be infected and develop gray-purple fuzzy mold. Anthracnose rot appears in warm and humid conditions during fruit development. Dark sunken circular areas appear on the berries.

To simplify terminology, trade names of products or equipment may have been used in this publication. No endorsement of products or firms mentioned is intended, nor is criticism implied of those not mentioned.

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