# Growing Alpine Strawberries



The following information is based on over 25 years experience growing varieties of Fragaria vesca var. Semperflorens commonly known as alpine strawberries. It is not meant to be a comprehensive guide to growing these plants but rather an overview to be adapted and tested in various localities. It is advised that anyone wishing to grow these plants familiarize themselves with local guidelines for growing strawberries available in most areas through the local county extension office. Alpines likely will not be mentioned in these publications but they are strawberries and have requirements and needs similar to garden varieties of strawberries.

## ALPINE STRAWBERRIES

We'll offer a few introductory notes about alpine strawberries. Alpine strawberries are known by their scientific name Fragaria vesca. This species is a large and varied species that occurs in many parts of the world. Most of the varieties that we sell and grow are cultivars or varieties that have been cultivated and selected for many years.

One of the things that most people are not aware of about alpine strawberries is that these "wild types" were the ONLY strawberries available to man prior to the plant breeding that produced the large strawberries that we see in grocery and produce stores.

There are generally two growing types of alpine strawberries, those that are clump forming or non-runnering types and those that produce runners.

The non-runnering types tend to be day-neutral ever-bearing types. This means that day length does not influence the setting of flower buds. They tend to bloom in cycles from spring to fall. In a greenhouse environment, they can be grown and cropped for extended periods of time. The non-runnering types are available in red, white and yellow fruiting varieties. Planting multiple varieties will generally "even out" this cyclical nature of production.

The non-runnering types increase their size by producing underground stolons. We have grown large plants in containers such as half barrels that have hundreds of these stolons which can be divided to produce more plants. These divisions will be true to the "mother plant" just as a runner is true to its "mother" for the runnering types. When we mention the division process below this is for these non-runnering types. A note here: If you notice a "new" or different plant or even a different colored fruit in a container or within a larger mature plant, this is most likely a

"volunteer" plant from berries that were not picked and whose seeds sprouted to produce a new plant.

The runnering types of alpines tend to be June-bearing type varieties. They are not day-neutral. Fruiting and harvest occur in early spring and the harvest period is 3 or so weeks. The crops from these types of alpines can be relatively large. We are aware of red and white fruiting varieties of this type. Propagation can be accomplished for this group by seed or by rooting the runners.

## SEED AND SEEDING

### Storage

Seed should be refrigerated to prolong life. It is advised to freeze the seed below 32F for 3-4 weeks prior to seeding to improve germination. All seed sold by The Strawberry Store, LLC has been preconditioned under these conditions and then refrigerated. It is not usually necessary to refreeze the seed but may be needed under certain situations (i.e. if the seed has been exposed to prolonged periods of warm temperatures).

Seeds should be stored in paper envelopes or resealable plastic bags to keep the seeds dry.

Seed age effects germination. Old seeds may have a very low percentage of germination. Freezing may improve germination but it could also kill very old weak seeds. Most strawberry seed is good for at least two years from the time it was saved or harvested. I have sown seeds as old as 6 years successfully. It was successful in getting seeds to germinate but the percentage germination was not something to brag about.

### Germination

Seeds are tested for germination prior to the spring season, usually in November. These tests are designed to give optimal growing conditions. These same conditions are outlined below though some of the techniques used for germination testing may vary from those outlined. Germination percentages vary for each variety and for the age of seed and for different seed lots. A germination percentage of 60% is commercially acceptable. One rarely gets 100% germination even in well-designed germination tests.

It is recommended that sterile soilless media be used to reduce soil diseases and other pests that may attack seedlings. The size of cell or pot used is dependent on the preferences of the grower. The size of germinating container may necessitate varying techniques to maintain the conditions outlined. It is NOT recommended to sow seeds in the garden because conditions will most often

not be controllable. It is also NOT recommended that seeds be sown in expanded peat pellets which tend to dry out and may cause death of emerging seedlings.

I'm often asked how to sow such tiny seeds. There are commercial seeders available that can get quite expensive. I don't have the patience to use vacuum seeders. A simple vibrating seeder has worked for me for over 20 years. For small numbers of seeds a folded paper or postcard can be tapped to sow the seeds accurately with a little practice. Static can make it difficult to sow seeds of this size. Note: when a lot of seeding is done it may be more than worthwhile to use a metal surface to reduce static charges and make the process a little less frustrating.

## Conditions

The following conditions are essential to successful germination.

1. Soil should be moist at all times during the germination period. This period can take as long as two months but usually initiates in 8 days and most germination is complete within 30 days of sowing. Soil moisture can be maintained with capillary matting, wick systems, humidity domes, or other similar systems or combinations of these methods.
2. Temperature is critical to germination. The acceptable temperature range is 60 – 75F. The lower range is suggested for night temperature and the higher end of the range for maximum daytime temperatures. Seeds will germinate outside this range but germination may not be complete or may be delayed or accelerated. Higher temperatures will promote germination but may also reduce germination and cause drying conditions that will threaten the continuing growth of the seedlings. Note: the temperatures referred to above is the soil temperature, not the air temperature which may be significantly different.
3. Light is essential for optimal germination. Seed should be surface sown and if covered, covered very lightly with medium. I like to use white "play sand" that can be purchased at garden center to lightly cover the seeds. The intention is to use the sand to hold down the media and parts of the media that seeds may be attracted to. The sand keeps the seeds in contact with the media and the color of the sand can be used to easily determine by color variation whether the media is wet or dry.

The number of seeds per cell or container is a matter of preference. With rare seeds it is probably best to sow one seed per unit. If one is aiming for at least one plant per unit it is recommended to sow 2-3 or more seeds per unit. This is also dependent on the germination test results. With low

germinating seed or old seed it may take more than 3 seeds per cell to get 100% of the units with at least one seedling.

One last thought about germination. Inevitably a complaint or two comes in each season about very poor or no germination. We do not guarantee germination because the seed is tested before the season and because we are constantly germinating seeds from the same seed lots that we sell. If there is a problem with a seed lot we are most likely the ones to discover it before it even gets out to the public. In extremely rare cases we have experienced reduced germination and have received a report or two of reduced germination from customers. In this case we replace the seed at no cost. Frequently we get inquiries from those who have purchased seed from other companies. Most other companies selling F. vesca seed are not growing it themselves to any extent and their sales volume is such that they don't move a lot of seed and seed may get old.

## Pests

We have experienced a number of pests during the germination period. This is primarily because we use the same area to continuously germinate seeds. The primary pest has been fungus gnats. There are organic and mechanical methods to control this pest.

Because the media must be kept moist for long periods of time to successfully germinate seeds, algae may grow on the surface of the media. We have not found algae to be a problem in and of itself but algal growth does influence fungus gnat growth and does attract fungus gnats.

Root rot can also become a devastating problem in environments that are moist and cool for long periods of time. Winter sowing is an especially difficult time for root rots because the media does not dry out for weeks at a time. We have added heat cables to our germination beds and have been using castings tea as a frequent drench. These steps are controlling the problem but have not totally eliminated the problem. One can never let down their guard when it comes to this problem. Even with the best management practices it can wipe out a crop in a matter of days.

Seedling diseases such a damping off can be a problem, especially when non-sterile media is used. We advise prevention of diseases rather than trying to control diseases. Cleaning of equipment and containers is essential to controlling diseases.

Aphids can be a problem on young seedlings. It can be difficult to introduce certain predators for this pest, especially in winter. Most of the predators need warmer conditions than we have during the winter. In addition, some of the predators are difficult to contain in an area and may fly off to

other more attractive areas. We rely on preventative techniques almost solely. When aphids are not controlled by these methods we use an organic pesticide.

Spider mites can be a problem during the germination process, especially for summer or early fall crops. We rely on preventative methods but sometimes have to resort to organic pesticide programs and/or predator releases.

We have noticed that there are a few varieties that are particularly susceptible and possibly attractive to certain pests. With experience, these varieties can be used as "indicators" of a particular problem or might serve as effective "trap crops".

## GROWING ON

Once most seedlings have germinated humidity domes should be removed. If left on too long the high humidity can lead to seedling diseases. When seedlings suddenly wilt and die, seedling disease is the likely cause.

The seedlings should be allowed to grow in their cells/containers until they are root-bound enough to remove without the root ball falling apart. The time to reach this stage varies with many factors including the growing conditions and the size of cell/container.

Fertilization is needed especially in soilless media that has no initial fertilizer charge. Since we follow organic guidelines we do not use any inorganic fertilizers. We have found that mixing one part worm castings to 9 parts of soilless mix works very well for growing in plug trays. We supplement this with a castings tea that we brew. This tea has shown itself to help reduce pests and provides nutrition. We will discuss this in a separate publication.

Once the rootball can be removed from the cell/container, the plants can be transplanted to larger containers or to the garden. We do not recommend that small plants be planted directly in the garden. This is because at the recommended final spacing it is too much work and too time consuming to weed the area. We recommend that plants be up-potted one or more times to larger containers before moving to the garden bed.

Fertilization of larger plants requires more nutrition than castings tea can provide. We still use it for a variety of reasons but have found that a fertilizer made by The Espoma Company call Holly-Tone works very well for alpine strawberries. We mix it with the soil when transplanting and then use it as a top-dressing in-season. We do not make specific recommendations about this fertilizer and only mention it as one of many possible choices.

We get frequent questions about use of compost. Compost can be an important ingredient in a soil mix for growing alpine strawberries. Without an analysis it is virtually impossible to devise or recommend a compost mix.

A special note about planting depth: Strawberries in general are sensitive to planting depth. They should not be transplanted deeper they were originally. Keep in mind that if you use one inch of mulch you should plant the plant 1" higher than the current soil surface. Deep planting leads to many problems including crown rots.

## Container Growing

I have grown alpine strawberries for over 20 years in containers ranging in size from tiny cells in plug trays to half barrels. They can be successfully grown in nearly any container with a little extra care. When growing in containers or the garden we recommend drip irrigation. We also recommend a mulch be used to conserve moisture and provide a quick drying surface to reduce fruit diseases.

We do NOT recommend planting alpine strawberries in strawberry jars if you are growing them for fruit production. I can show you a very dramatic picture of a one year old plant in a 14" bulb pan and the same age plant in a strawberry jar. The plants look like they were started six months apart. The plant in the bulb pan has nice sized fruit white the plants in the strawberry pots are small, more like the first fruit seen on young plants.

Bulb pans were mentioned above. This is not our recommended pot size. It works for us under our conditions. The point is that the larger the container the more potential production the plant has. We won't get into details here but keep this in mind even in your garden plantings.

Containers should be light colored, white if possible. Strawberries like to have their roots cool and are cool-season plants. Black or dark containers will superheat the media. I have seen many plants just die for no apparent reason in the summer. Most of these were in black nursery containers.

## Garden Planting

We recommend final spacing in the garden to be 16 – 18" between plants. The key word here is 'final' spacing. With this spacing plants will touch and rows will appear to be one continuous row when the plants are mature.

## Pollination

If one intends to grow plants indoors, pollination is an issue. Hand pollination may be required which we will not get into here.

In the heat of the summer pollen is not active. That's why production decreases during extended hot periods. Plants that are well cared for will continue to bloom but there may be little or no fruit set during these times. If you are growing in containers you can do something about this by moving the plants to a cooler environment. In the field, addition of shade systems can be helpful but may not be enough to improve pollination.

## Exposure

For optimal production alpine strawberries require 6 hours of full sun per day. They will tolerate shade but the more shade they receive the more production will be adversely affected. Shade in the summer can be an advantage to some extent and may or may not affect production since production decreases with increasing temperatures anyhow.

Propagation

Seed and division are the two main methods of propagation of non-runnering (clumping) varieties. With runnering varieties, rooting the runners is the preferred method.

If you intend to propagate with seed, make sure to isolate the varieties so that there will be no cross pollination. Also be aware of wild plants in the vicinity that could pollinate with your plants. If plants cross-pollinate the seedlings produced will not be similar to the parents. If you're a plant breeder this is a good thing. If you want to increase your planting of tried and tested varieties this is not a good idea. In fact, seed produced in a cross between non-runnering varieties could produce plants that produce runners.

Division can be a quick way to produce more plants. We divided a two-year old plant in a half barrel a few years ago and got over 100 divisions. We don't recommend "maximum division" like this unless you have a rare variety or are trying to increase plants very quickly for another reason. These small divisions will be set back significantly and are weakened by the process and more susceptible to environmental changes and/or pests.

We don't recommend dividing plants until they are at least a year old. Division can be done in spring or in fall but be careful. The divided plants need enough time to establish before winter so that they will survive the winter.

Eventually we will publish information and pictures of the division process. Until then there are many available online articles with great pictures of division of perennials.

Hardiness and Winter Protection

Most county extension offices have local recommendations about winter protection of strawberries. This information can be useful and can be used a guidelines for winter protection of alpine strawberries.

In general, many varieties of alpine strawberry are hardy to -30F. We have found that some varieties are more sensitive to cold and may not survive as well as other varieties. We are not sure if this is due to temperature or to fluctuations in temperatures. We advise growers to test limited numbers of plants of different varieties in their areas before planting large commercial areas.

In areas that get cold during the winter a mulch is essential to plant survival. We use wheat straw for winter protection. We know of growers who use pine needles and have heard that large commercial producers of bareroot strawberry plants recommend corn stalks. Corn stalks have an advantage over wheat or oat straw mulches. The main one is that wheat or oats straw has seeds that were not removed during the harvest of the crop. These volunteers should be removed in the spring so they don't compete with the strawberry plants for moisture and nutrients.

## FRUIT PRODUCTION

This is a large area and one to which we are devoting a lot of research time and expense. We will take a quick look at this right now. More information and data will be published in the near future.

Alpine strawberries are portrayed in much of the available literature as cute little border plants. If the plants are crowded together and treated as cute little ornamentals, then that's exactly what they will be. If you give them space and treat them like a crop, you will be rewarded with much more fruit than you might have expected.

Harvest Thoughts

Fruit should be picked when fully ripe for best taste and aroma. You should not pick less than ripe fruit unless a storm or other threat is expected to affect the crop. Picking less than fully ripe fruit will affect the quality of the fruit. All alpine fruit readily separates from its calyx when it is ready. We are used to seeing strawberries in the grocery store with their calyx or cap. Pictures of harvested alpines almost never are shown with their calyx.

I frequently get asked how one can tell when white or yellow fruit is ready to harvest. Trial and error is one way to learn this and probably the most memorable. A less than ripe fruit will remind you of store bought strawberries. White and yellow fruit tend to get "plump" when they are ready and will easily separate from the calyx. The seeds on ripe fruit appear to be brownish colored and the fruit feels soft.

The same general information is true of red fruiting varieties with the exception of the seed color. Seed color of red varieties is almost always red and sometimes is a bright red.

Fruit should be chilled immediately upon picking. It begins deteriorating as soon as it's picked. Much of the alpine fruit picked doesn't make it out of the garden where it is eaten fresh. What does make it to the home refrigerator should be kept for no more than a day.

Driving rain can damage ripe fruit. The damage may not be immediately visible but will show up during the post-harvest period and during storage. There is no way to say this delicately, alpine strawberry fruit is extremely perishable.

Picking fruit into small shallow containers will reduce damage. Fruit piled on top of fruit in multiple layers causes damage, especially if it is being transported. A little extra care can pay off with fruit that has less damage and lasts longer in storage. I prefer picking into 4.4 oz half pint containers that have cloth or napkin on the bottom of the container. This same size container is the standard size for sale of the fruit as well.

There have been studies done in Europe on extending the life of fraises des bois during shipment. We will include references to this information in the expanded version of this document.

Pests

There are a number of pests of strawberries that also are pests of alpine strawberries. At harvest time birds are our #1 pest. We grow limited numbers of red fruiting varieties for this reason. Bird netting is a requirement for growing red fruiting varieties.

We have mentioned aphids above. Slugs are also a problem as are ants. Late in the season with rainy weather botrytis can be a problem. We have chosen not to control these pests with pesticides. We destroy fruit infested with pests. This does not eliminate the problem but does reduce it.

## Fruit Color

Red strawberries including alpines are a delicacy for the birds. Bird netting is the only way we know that works in deterring these pests. Birds are in my opinion the #1 pest of strawberries, bar

none. One alternative is to plant white or yellow fruiting varieties since the birds are fooled by the color. I think in their little minds they believe that the fruit is not yet ready. I have seen bird pecks in ripe white or yellow fruit but it is not common in my experience.

Most people prefer red strawberries over white or yellow. Some do not consider white or yellow strawberries to be on a par with red alpines for taste or aroma. To me, depriving the birds of berries is a huge plus for white and yellow fruiting strawberries. As for taste, I think the whites/yellows are sweeter in general than some of the reds. The "novelty value" of white or yellow fruit can have value and even be more valuable to some chefs and consumers.

### Commercial Fruit Storage

We have found limited literature on studies that have been done to prolong fruit freshness. We have not yet tested these methods due to their technical nature and the expense involved. Anyone wishing an introduction to this area can purchase the articles through us.

### Yield

We get frequent questions about yield. We have done several studies and have not yet published the data. We are in the process of compiling and analyzing the data. For a fee we can produce a general summary for the varieties tested. We will say that there is a big, in fact significant difference in yield between varieties.

We did a quick study a couple of years ago to determine the potential for production. Two-year old plants were chosen for several available varieties. All conditions were optimized to the best of our knowledge and ability. One of these varieties, for the spring only, the plant produced over 450 berries which totaled nearly a pound of fruit.

Considerable variation in yield was observed from the selected varieties. A detailed discussion of these studies will be included in the expanded version of this document.

## ALPINE STRAWBERRY CULTIVARS

We are often asked whether our varieties are GMO. None of the alpine varieties that we carry have been hybridized so none to our knowledge have had their genes manipulated. These are open pollinated cultivars which some refer to as heirloom varieties. We do carry some hybrids such as novelty varieties such as those with pink blooms. These are not true F. vesca varieties though some catalogs refer to them as alpines. We make every effort to note this in the variety descriptions.

Varieties that are NOT alpines include: 'Mara des Bois', 'One Time', 'Temptation',

## CLOSING THOUGHTS

Growing alpine strawberries is not difficult but it does require attention to detail. I've heard some say that they are easy to grow while a small number of customers seem to continually have problems. I don't think that starting alpine strawberries from seed is something that a novice grower would find easy. However, it can be a wonderful learning experience for such gardeners. The thoughts mentioned in this publication, as mentioned, are based on years of growing these plants. There is no substitute for experience. Take it a step at a time and enjoy the experience. Above all, enjoy the fruits of your labors – literally. The fruit which was not mentioned in detail is unlike store bought strawberries. It has true wild strawberry flavor and an unforgettable aroma. Bon Appetit!!

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