

# New England Carnivorous Plant Society

## Overcoming Winter Dormancy in Seeds

One of the obstacles that have to be overcome when growing temperate plants from seed is winter dormancy. With an understanding of what this is, how it affects germination, and how to break this dormancy, there are easy ways to germinate temperate seeds to grow and expand a collection. Nature can help us with both the understanding and the actual method to overcome winter dormancy.

Winter dormancy is what stops seeds of temperate plants from germinating at the “wrong” time of year. If seeds of some plants germinated in the fall, for example, they might not have time to grow enough to store food, or might not be able to make themselves cold hardy enough to make it through the winter. Typically, seeds that mature in late summer or fall have this winter dormancy requirement. Winter dormancy needs to be overcome in order to germinate these seeds. In some seeds, it may be in the form of a tough seed coat, or chemicals that need to be leached from the seed to allow it to germinate.

Stratification is a process of giving seeds of plants a cold, wet period to overcome winter dormancy. In nature, seeds that germinate late in the year fall to the ground, where they are subjected to periods of cold {winter} and to wet conditions {rain}. Horticulturists have developed several different ways to mimic these conditions, from storage of seeds with damp medium in the refrigerator, to freezing seeds in water. Some of these methods work with some seeds, some don't. The following method has worked with all the temperate seeds I have tried so far, including *Sarracenia*, *Drosera* and *Dionaea*.

# An Easy Way to Stratify Seeds Using Nature

If we follow nature's lead, we can come up with an easy way to stratify seeds, and get great germination rates for temperate seeds, with little work. All it takes is attention to the needs of the seeds before and during germination.

## **Planting Medium**

For most temperate CP seeds, a simple acid medium that holds water well is a peat/sand mix. Anything close to a 50/50 mix works well, and it can be adjusted slightly depending on the particular plant. For example, I like to add a little more sand when I germinate *D. intermedia*, since this often grows in more inorganic media than *D. rotundifolia*, which tends to grow more often in life sphagnum. Make sure the media is well moistened, and mix it completely. I prefer to let the media sit for a few days if possible, to develop some of the acidity and possibly fungus that may help plants germinate. It is important to note that I also use pine needles in the media, but only as a layer at the bottom of the pot. I put a layer of pine needles in the bottom to stop the media from falling out the bottom of the pot, and to help acidify the water and the media itself.

## **Pots for Stratifying and Germination**

Plastic pots are required for this method of stratification. If clay or ceramic pots are used, there is a major danger of the pots flaking or cracking from the alternating cold, freezing and thawing of winter. Only plastic pots should be used for this method!

If you want to germinate large quantities of seeds in one container, you can use up to a 1 or 2 gallon plastic nursery pot. I prefer to use smaller pots, and germinate smaller quantities in each pot. It does help if deep pots are used for this method. I typically use deep "Dura Pots" available from Charlie's Greenhouse and Garden supply, but there are pots available at many garden centers that would work.

## **Outside Covering of Pots**

The method I use takes advantage of Mother Nature and the weather, by leaving the seeds outside till well after the seeds germinate, but care must be taken to protect the seeds and seedlings. There are several ways to do this, but all need to allow for water and sunlight to get to the seeds, and to make sure the seeds do not overheat in the sun, or dry out easily. Good aeration is also necessary to help ward off fungal diseases like damping off. For these reasons, I use what is marketed as “Floating Row Cover” or Remay™ for outdoor vegetable crops. This is a thin, airy white material sold in better garden centers and catalogs, to cover and protect seeds in spring before and during germination. This does the same thing all winter, and has the benefit of not needing to be removed in spring to allow for germination of seeds, making it much easier and foolproof. The only change I make for winter use is that I like to use a double thickness of the floating row cover, to protect the seeds all winter.

## **The Easy Technique for Stratifying Seeds**

First, put some pine needles in the bottom of the pots, and fill them to the rim with the moistened potting media. Tamp the media down so it is firm, and there are no air pockets. Take the seeds that need to be stratified, and spread them on the top of the media in the pot. **DO NOT COVER THE SEEDS WITH MEDIA.** There is no need to cover the seeds, and germination will be better if the seeds are left on the surface. It is necessary, however, to assure that the seeds are in good contact with the media. To assure this, and not move the seeds by touching them, I simply use a spray bottle and cover the top of the pot with a good fine but firm spray, to make good contact. I put the label in the pot, noting the name of the plant, the source of the seeds, and the date potted. I then move to the next pot, and go on till all the seeds are planted in individual pots.

Next, I fit the pots into a larger container that will hold water to about  $\frac{3}{4}$  the depth of the pots I am using. This is the reason I use the deep pots, for the container I put the pots into is a plastic fish box, used in the fish markets. I have found that the markets usually have many many extra of these, and are often willing to part with them for little or

no cost. These containers are freeze damage resistant, so they will last all winter outside, and a hole can be cut into the side to allow for the proper water level. I pre-measure the pots with the container, and make sure that I have 2 holes cut in the sides, to allow the water to reach about  $\frac{3}{4}$  up the side of the pots. The pots I typically use fit snugly into these containers, with 9 to 12 pots fitting almost perfectly. If I have extra room because I do not have enough pots planted with seeds, I simply add pots to make the others snug, and always fill the container with pots. This assures that the pots will not tip over the winter and spill their contents. I usually leave one place for an empty pot, and use this spot for filling the container with water occasionally when needed. Fill the container till water runs out the drainage holes.

Once the container is filled with the pots, I make a frame with bent coat hangers that will hold the row cover above the pots. I like to have the frame hold the cover about 3 to 6 inches above the level of the pots. I have not found that the height is too critical, but I feel the higher cover allows for better air circulation. I stick the coat hanger frames into the pots or the corners of the container holding all the pots.

The floating row cover comes next. Cut the covering so that you can have a double layer over the container, and leave enough for it to hang all the way down to the bottom of the container holding the pots, on the outside of the container. This allows you to secure it around the container, so it will not blow away, but it will allow you to remove it when needed to check the water level.

Some time around January, I put the whole container outside in a sunny southern exposure, where I can remember to occasionally check the water level in the container. Once a week or so, I fill with water till it runs out the drainage holes. If it snows, the container gets covered with snow. If it is sunny, the pots warm up, but the row cover stops them from drying too much. The row cover also protects the seeds from hard rains. I leave the whole thing out in the southern exposure well into spring, just being careful to check the water level more often when the warmer spring weather arrives. Usually, after a few warm days, I start to see some germination if I lift the row cover to check. Always replace the row cover, even after the seeds begin to germinate! The cover acts as a mini greenhouse for the seeds for

the whole first season, protecting them from drying and damage from the elements. After the first season, care for them as you would any other small plants. The longer you keep the row cover on for the first season, the better the protection and growth for that season.

## **Sources of further information**

Much of this method has been taken from the website of the Meadowview Biological Research Station. I have adapted their method to work better for me in a home situation. More information and reading of their techniques, along with lots of great information on *Sarracenia* in general, can be found at the website, <http://www.pitcherplant.org/>

A great source for seeds is the International Carnivorous Plant Society Seed bank, where members can get many different varieties of seeds from around the world for very little money. I think anyone interested in Carnivorous Plants should join the ICPS. Their website is <http://www.carnivorousplants.org/>