

for their propensity for producing new and exotic varieties. There is always the chance that your sowing could produce a handsome new variety, or equally, an ugly runt fit only for the compost heap. Be ruthless, keep only the best specimens. The Victorians kept, and named every monster they created. Thankfully most of these no longer survive. It is also worth bearing in mind that if you sow spores from a particular cultivar of fern they will not reliably come true to their original form and should not be labelled as such unless they conform to the type description.

If you sow a lot of packets at once you risk cross-contamination. This can yield hybrids, but can also allow an aggressive species such as *Dryopteris filix-mas* to swamp out the more desirable and intended species. You can induce hybridisation by sowing 2 compatible species together in the same pot.

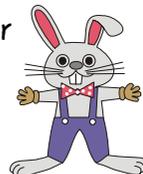
Fern prothalli are very tolerant of neglect. If you don't get round to 'patching' out when they become crowded, just leave them for a year or two and, when you do find time, patch out and away they go. When prothalli are crowded frond development is inhibited. But give them a bit of elbow-room and they're off. If they don't seem to want to produce fronds you could try flooding the surface with tepid water that has been sterilised by boiling. Providing your plastic bag is watertight, you can carefully pour the water down the inside of the bag - taking care not to let it hit, or flow onto, the compost. Allow it to percolate through the compost and cover the surface to a depth of around ½cm. Leave it for a couple of hours and pour off the excess. This will stimulate the male antheridia on the prothalli to release sperm cells which can swim through the covering of water to fertilise the female egg cells in the archegonia, initiating frond development. This stage is equivalent to the 'Flower' in 'normal' plants.

There are few no-no's when spore sowing, but the most important is, never to sow while suffering from a cold or hayfever unless you have enormous self-control or very good timing!

Good luck! And good growing!

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Christopher
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The 'Wright' Way to Grow Ferns From spores

Materials

Soil-less compost sieved to remove lumps.
Clean plastic plant pots - 5cm or 7.5cm square or round.
Plastic bags - large enough to take the pots. We use self-seal types
Kettle full of boiling water.

Shallow tray to hold excess water.
Cling film or pedal bin liner.
'Kitchen roll' to cover the top of the compost in the pots.
Indelible, fade-proof labelling pen.
Sharp-pointed knife or forceps.

How do I obtain my spores?

Fern spores are like dust. But, unlike gold dust, they can usually be obtained cheaply, or even free. On the free side of cheap you could befriend a fern enthusiast who is willing to give you some spores to try. Fern-o-holics are a very friendly and giving bunch, hence the phrase, "With fronds like these, who needs Anemones?". Another way is to collect them from the wild. This is legal providing you do not take a protected species, or collect from a protected site. You could even ask the curator of a botanic garden if you could collect spores from their collection. But please do ask. Fern collectors have had a bad press in the past with their overzealous uprootings. Generally people don't mind letting you have the odd piece of a frond with spores on it (see also "The Wright Way to Collect and Clean Fern Spores").



Dryopteris spore - enlarged

One way to get spores cheaply, sort of, is from the British Pteridological (fern) Society. They run an annual spore distribution of all sorts of weird and wonderful ferns both hardy and tropical. Membership is currently £20.00 (details obtainable from Mike G. Taylor, Westlea, Kyleakin, Isle of Skye IV41 8PH) which entitles you to 20 'free' packets, or 30 if you become a donor yourself.

How do I sow my spores?

Preparation.

Fill the pots with lightly firmed compost to within 1cm of the rim. Cut the kitchen roll to a size large enough to cover the compost and go up the sides of the pots slightly. Place the pots on the tray, fit the papers onto the top of the compost. Boil the kettle and slowly and repeatedly pour the boiling water onto the paper allowing it to flow out of the drainage holes and collect in the tray. Allow about 1 litre for 10 pots. This will sterilise the top few centimetres of compost and the inside of the pot rim. When this is done, cover the pots with cling film or cut-up pedal bin liner and allow to cool.

Take the plastic bags - we use write-on self-seal types, obtainable from hardware shops, freezer suppliers and label them on the outside using the indelible pen. Self-seal bags often have opaque panels for writing on that also act as shading for the newly germinated prothalli. It is a good idea to write the details in pencil on a new plastic label and include this inside the bag as a fail-safe. It is easier to see what the bag contains without opening it there is a label on the outside as well as inside a condensation-filled bag.

Sowing.

Set out a work area with the cooled pots of compost to one side, the labelled bags, the spores in their packets and, if available, a pair of clean forceps.

Cut open the spore packet. Take a pot from under the cling film remove the paper towel from the top of the compost with the forceps; open the spore packet, hold it about 4cm above the compost, tip it up and tap the packet with the forceps to move the spores to the opening. Little puffs of spores will rain down onto the compost. You've probably sown about 1,000 plants.

To avoid over sowing, an alternative way is to tip all the spores onto a square of clean white photocopier paper that is a little larger than the size of the top of the pot. Jiggle the paper to spread the spores and then tip all the excess spores away. Enough spores will be sticking to the paper to give an even sowing. Invert the paper and centre it on top of the pot and tap several times with such as a pencil or the forceps to dislodge the spores. Throw

this paper away to avoid cross-contamination.

With either method you should place the pots into the plastic bags with their plastic labels and seal them as soon as possible to minimise contamination from fungus, or moss spores.

Contamination can still be present from fungus or moss spores mixed in with the fern spores, so don't be surprised if your best sterile technique still fails.

Aftercare.

Keep the spore pots out of direct sunlight, but in good light i.e., by a north, west or east facing window. The best time to sow is in spring with increasing light levels and it is probably best to keep the pots frost free to give them a good start. In a spare bedroom with the radiator turned off is ideal.

After 6 weeks you may see the green haze of fern (or moss!) prothalli. If you sowed too thickly this will quickly form a dense mat.

Allow the prothalli to develop until they either grow small fronds or become too congested. If they are too congested you may need to 'patch out'. This is done by preparing more compost as before in clean pots or small seed trays. Then, using the clean (sterilised in boiling water) knife point or tweezers, remove small patches - up to 1cm- of the prothallus mat and space them out 2-3cm apart on the compost of the new pot. Push the knife point or forceps, complete with 'patch', into the surface, to create a depression and remove, leaving the 'patch' in situ. Press the patch down gently to ensure good contact between the roots and the compost. Label a new bag which is large enough to take this pot/tray, allowing for some headroom, and put it in. As the prothalli now have more room, they should soon develop fronds.

As the plants develop more fronds and gain in strength keep them potted on into sterile compost in pots or trays in bags until they are big enough to be potted up individually. Before potting up allow air into the bags by opening them up a little. Continue opening the bags a little more every week, for about a month, until the bags are fully open. They are now acclimatised to normal humidity levels and can be taken out and grown on.

General notes

One advantage of growing from spores is that ferns are notorious