

## Propagation by Spore

Unlike the flowering plants, ferns reproduce from spores which are carried on the fertile fronds of spore-bearing ferns, which are known as sporophytes. These fronds are often distinctly different from non-bearing fronds, and the minute dust-like spore are produced in structures known as sporangia, which are usually grouped in clusters or patterns called sori, felt-like brownish markings on the underside of the frond. I was once asked by someone who should have known better how to treat the plant for this affliction, which he thought were some sort of scale insect.

Each spore develops into a structure known as a prothallus, which bears both male and female organs, which in turn produce the male and female reproductive cells. When conditions are damp enough, the sperm swim to the ovum and fertilise, with the resulting cell growing into a sporophyte, or spore-bearing fern. The fine dust-like spore are carried great distances by wind, which explains the vast distribution of many fern genera.

The following information is based on fern propagation data published by Kew Gardens:-

### Sowing spores

Grow your ferns in a sterilised mixture of equal parts peat and sharp sand, or two parts sphagnum moss peat to one of coarse sand, in an 8-cm pot.

Cover with clear kitchen film

STERILISE A POT with boiling water or 10 percent sodium hypochlorite solution (as above), and fill with the mixture, THEN STERILISE THE MIXTURE by pouring boiling water over the surface. Cover at once with kitchen film, allow to cool completely, then surface-sow the spores thinly.

Re-cover immediately with fresh kitchen film or seal the pot in a new plastic bag. Place in a closed propagator in indirect light. Hardy and cool-temperate ferns germinate at 15-20°C; tropical ferns at 21-27°C.

Keep the pot in a closed propagator at the appropriate temperature in indirect light. After 6-9 months, lift small 'patches' of the green prothalli that have developed on the compost surface.

Within 8-26 weeks, a velvety green haze of young prothalli should appear on the surface of the medium. Sliminess may indicate algal contamination. Some growers recommend discarding such cultures, though often a few ferns survive. If moss grows, weed it out with tweezers; control by watering from below with a 10 percent solution of potassium permanganate.

Set the patches up to 2cm apart in slight depressions in a pot of fresh compost. Spray with sterilised water, cover and place the pot in the same propagating environment as before

In spring after sowing, clumps of young prothalli can be 'patched off' into sterile, soilless seed compost.

Put in a new plastic bag, seal, and grow on in indirect light and closed conditions until tiny, recognisable fronds appear. Alternatively, leave the prothalli in place and apply a quarter-strength balanced liquid fertiliser each month. Patching off can then be delayed until tiny fronds of the adult ferns are clearly visible. They are hardier, easier to handle and better able to withstand disturbance at this stage.

When the young fronds are large enough to handle, pot young ferns into modules or trays of moist, soilless potting compost. Keep in a humid environment and pot on when small fronds develop.

When the young fronds are growing on well, transplant into a tray in soilless compost

Water them in carefully and grow on under a bell jar or a propagator. Once established, harden off by gradually admitting more light and air. When they are 5-8cm pots. Grow on in bright indirect sun and shelter from wind. Provide minimum temperatures appropriate to each species. Most new ferns are large enough to plant out in 2 - 3 years.

### **Cultivation**

Under glass, grow in a potting mixture, made in the following ratio:

Loam: medium grade bark : charcoal : sharp sand : coarse leaf mould = 1 : 1 : 1 : 2 : 3 Grow in bright filtered light with moderate humidity. If possible, move the plants outside in summer. Top dress or pot on in spring.

