

Practical Workshop: How to Make a Hormone®

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INTRODUCTION

Pretty good sounding topic, shame to spoil it by talking about a good root system. This is a real back to basics talk. At Elliott's wholesale nursery we have made up our own hormones for the last 21 years, it was an old recipe I found in *Plant Propagation: Principles and Practises* (Hartmann and Kester, 1975) and made myself at various strengths and formulae. I have generally tackled more difficult plant taxa such as rhododendron. Initially I tried to get all sorts of hormones and used them with some degree of luck and/or good management. Some of the first cuttings were leaf bud cuttings of some new American rhododendrons. I used some of my own mixings with these and had some fantastic results, but in hindsight that was probably more to do with environment than it was to do with hormones.

My first propagation house was made from my brother's old parakeet cage which I lifted the roof off and covered with polythene. I then mounted fibrolite boards on top of old sewage pipes with some eight by one around the edges, vermiculite, heat cables, a bit of sand and I had myself a propagation house. Put some sort of mist nozzles in and an electronic leaf from a horticultural supplier I had a state of the art mist system. In the night shelter bit I put in my fibrolite workbench and put a shelf up to put my hormones and fungicides on and hung the poem 'If' by Rudyard Kipling on the wall. I had found this poem in the roof of the family home and it had really taken my fancy. I was latter to find out it was my father's who to this day knows all the words off by heart. This poem is now proudly on display in front of my lovely porcelain urinal at my office.

MY FIRST RESULTS

The year prior to my marvellous propagation house I had made a cold frame, which I had put under the 'Black Doris' plum tree just next to the 'Greengage' plum tree behind my brother's parakeet cage. By the way, my brother is now one of the three people in charge of the Kakapo parrot recovery plan. This was well shaded especially in February when the 'Black Doris' plums were falling splat. In fact the glass did not withstand the full impact of a 'Black Doris' plum from 6 m up leading to recovering with polythene. My parents had upgraded the house windows to the new aluminium which had given me an abundance of old wooden windows. In the bottom of this I had put some sharp sand (crusher dust which set like concrete) to root my first lot of cuttings into. Next was the choice of material to start my nursery. *Chamaecyparis pisifera* 'Boulevard' was one of my first also some *Thuja plicata* 'Old Gold' which I stole from the church on the corner of Merrin street and Avonhead Road in Christchurch. Then it was a rhododendron I had spotted, a particularly nice red one growing in the Ilam Gardens in Christchurch. I was later to find out that it was one of the late Edgar Stead hybrids of the Scarlet King Group. Early one morning I got up and discreetly collected myself 400 cuttings. I put them in my Seradix® 3 (indole-3-butyric acid) (IBA) (Aventis Agriculture, U.S.A.) for hardwood cuttings, watered them by hand every day, and slowly watched them all die except for 4 or 1%. In

that year I probably learnt as much about propagation as in all the years since. The same old 80/20 rule, 80% of plants will root with the same hormone, then as now. Though I know considerably more now, I learnt the basic 80% then.

HORMONES

Indole-3-butyric acid is the 80% of all hormones used. The concentration is the real key and 0.8% Seradix® (IBA) (Aventis Agriculture, U.S.A.) was never going to be enough for some of the more difficult plants I wanted to grow. There are all sorts of various solvents to dissolve the IBA crystals in and I chose isopropyl alcohol as it was cheap and readily available. I purchase the isopropyl alcohol, IBA, and naphthalene acetic acid (NAA) from a local medical supply company and purchased a scale that weighed down to 0.1 g. To produce the hormone stock solution a mixture of 1 g of IBA and 0.5 g of NAA was combined with 20 ml of isopropyl alcohol, shaken vigorously to dissolve the IBA and NAA, and diluted to 100 ml with water. This stock solution gave me a 1% (IBA) solution that is the basis for all my propagation. This stock solution is diluted by either $\frac{1}{2}$ or $\frac{1}{4}$, depending on the type of material being rooted.

I have also mixed 3 g of IBA to 97 g of talc powder to produce a 3% IBA powder. This combination is stirred with a stick and shaken to mix in the crystals. Crude as it may sound I have found this powder to be most satisfactory and it has given me excellent results. I have also tried the hormonal herbicides 2-4-D and a mix of 2-4-5T and IAA; as well as willow water and aspirin, but I found these to be less useful. In addition, I have also tried various organic growth stimulants, and although I have seen some benefit, I still don't think I have the 80% bit even close to perfected enough to move on to the other 20%.

LITERATURE CITED

Hartmann, H.T. and D.F. Kester 1975. *Plant propagation: Principles and practices* (3rd Ed.). Prentice Hall Inc., Englewood Cliffs, New Jersey, U.S.A.