

THE BASICS OF PROPAGATION

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Welcome to a session on the fundamentals of plant propagation. You may ask why we are spending a large segment of our time on the basics, when so many here are familiar with them, and indeed, some could write perfectly acceptable textbooks on propagation. The answer is, first, that the topic was frequently called for in the critique sheets which the membership turned in. Second, the virtuoso propagator, like a concert musician, should return regularly to the very fundamentals of his craft, just as the world's greatest pianist starts each day's work with the simple scales on which he began.

All of us, in the pressure of daily work, tend to become absorbed in the narrow details of our special field, and follow by rote a familiar formula for success, often losing sight of the whole picture of what we are trying to do. Occasionally we are surprised and irritated by an unexpected failure with a plant which has long given us no problem. If we pause and mentally retrace the steps we followed leading up to the failure, almost invariably, it was a fundamental condition which was overlooked. Perhaps that spring was unusually warm and early, and following a routine propagation timetable, we took the cuttings when the wood was already too hard. Perhaps we did not realize how dry it had become, and that particular understock was already too low in sap and partially dormant to bud. Perhaps, in the press of other work, we neglected to sow that seed in time for it to experience a long enough period at the temperature necessary to break dormancy and germinate normally.

You all can call to mind the indifferent propagator who never does very well, who stumbles from season to season, sometimes succeeding, sometimes failing, always faintly puzzled as to why, always concluding that he had good "luck", or bad "luck" with each crop. You also know that infinitely rarer individual, the master propagator. A few successes can indeed be merely "good luck," but an almost unbroken series of them is no accident; it is sure evidence of the mind and hand of the master. Such a mind has some of the characteristics of a computer's memory bank. By second nature, it can keep in active reserve a number of variables, each having a direct effect upon all of the others, because the result which we call "success" or "failure" is the product of their complex interaction.

In the rooting of softwood cuttings the variables include the state of juvenility or maturity of the parent plants, the state of

ripeness of the wood, the rooting substrate, the humidity of the propagating area or chamber, the presence of fungi, if any, the rooting hormone used, the intensity of light, and the temperature. In the case of very "easy" cuttings like *Symphoricarpos* little precision is necessary. But there is an unbroken gradation terminating in the extremely difficult ones like certain pines, oaks, and rhododendrons in which neglect of even one factor results in failure. When the grower is propagating a wide range of plants the importance of the computer mind becomes obvious!

A seed is a rudimentary plant in a protective envelope but, here also, there exists a spectrum of germinative complexity ranging from the easiest, like wheat, which will germinate anywhere and anytime, to seeds with elaborate double dormancy mechanisms like tree peonies and lily-of-the-valley which require just the right manipulation for satisfactory germination.

Greenhouse and field grafting, propagation by root cuttings and field budding also show similar ranges from the easy to the very exacting species and clones. The difficult ones require the same grasp of a large number of variables as do the difficult cuttings, plus a considerable degree of manual dexterity as well. One has only to try budding some clones of European white birch to begin to appreciate the virtuosity which is routine at the best Orgeon nurseries.

In all these branches of propagation it is not enough to know what should be done in an ideal cycle. The much more difficult problem is to actually do them, to engage in the advance planning and the meticulous follow-through which makes for a virtually unbroken career of successes. These are the qualities which separate the poor or even the average good propagators from the always rare experts.

The purpose of these remarks is not to discourage the beginners or the moderately successful propagators. It is easier than it sounds if one pays attention to the job at hand. We are fortunate to have a fine group of speakers assembled who will present an overview of the ever-important fundamentals for us today. We are now going to hear from our old friend, Dr. William Snyder, who will be speaking on "Physiology of Rooting."