

Hormones. Hormodin No. 3 or 1% indolebutyric acid in talcum is satisfactory. This system works so well that we root the cuttings right in peat pots after adding 3 or 4 holes per pot for drainage.

Dormancy period. We found that in order for the cuttings to grow well the following year, they require a dormancy period. We place the well-rooted cuttings in a greenhouse where we try to keep them at a temperature of 32°F during the winter months. They start to grow, about late March or April, as the weather warms up and the days get longer. When the danger of frost is over the rooted cuttings go in containers and continue their growth outside. By following the combination of these old but simple rules, birches can be grown from cuttings.

For years nurserymen have tried to grow a perfect clump of birch. Nothing is more annoying to me than to see a clump of birch with 4 or more seedlings, one a 2 inch caliber pure white, another one ½ inch caliber and reddish brown, and the next a few other sizes and colors in between. Those seedlings were matched together when they were 6 to 8 inches high. Every seedling is a genetic variation and, as in a human being, it is hard to say how one will mature. We know that birches will root. If we select a good plant, root cuttings and then plant 3 to 4 rooted cuttings together, we can have uniform clumps.

Thursday Evening, December 11, 1980

The Thursday evening educational program on applied aspects of teaching plant propagation labs was convened at 8:00 p.m. with Dr. Elton M. Smith serving as moderator.

THE "KNOW-HOW" IN PLANT PROPAGATION EXPECTED FROM COLLEGE GRADUATES:

SEED PROPAGATION

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Over the 30 years or so that our establishment, Forrest Keeling Nursery, has been in operation, the production of tree and shrub seedlings has been a mainstay accounting for about 50% of

our gross sales. During this period we have employed a good many college graduates, perhaps a score or more, mostly with degrees in horticulture. In recent years we have enjoyed the stimulating experience of having groups of college-level trainees at our nursery during the summer and also spring and fall periods. Today our work force numbers about 100 of which 10 are college graduates, most with horticultural training. These college trained people have management, supervisory, sales and technical responsibilities.

Interestingly enough, I can never recall quizzing any of these people, prior to their employment, on their knowledge of or expertise in seed propagation. This might be considered a lapse in our interview procedures.

But is it really? We have spent a couple score years developing our seed propagation techniques and each year modify or change some procedure based on new knowledge or experience. Can we realistically expect any new graduate to possess expertise in a field of practice it has taken us so many years to develop?

What then do we look for in college graduates when employment slots open? Obviously we are looking for help that can assist us down the success road — people who can help us make a buck, if you will. Available statistics indicate that only about half of college graduates stick with their first job more than a year. It's a matter of young people finding their nitch. But this is very costly to the employer. It may be a few years before a new graduate in a technical, sales or management situation really becomes profitable to his/her employer. So, among other things, we like to assess the likelihood that a mutual affinity will present a fair chance for career employment. More on this later.

Of course we look at grade average and scholastic and extra-curricular record. A candid talk with principal instructors or a counselor can be most helpful in assaying his/her potential. Part-time, summer and other work experience and references are, of course, important. Picking up the phone and discussing the applicant with prior employers or instructors can be more meaningful than written references.

For production work, other things being equal, a farm background is desirable. We are in-ground or field growers. It is amazing how long it takes someone who has not worked with the soil to understand when tillage conditions are right and when working soil at the wrong time can be disastrous. Farm youths also often have a discipline of good work habits.

In any phase of plant propagation continuing diligence is a must. The individual interested in 9 to 5 hours and long, free weekends should surely turn to other fields of employment, such as banking, brokerage or the like. We have a saying at our place

that you can only kill 'em once. It takes only one unattended clogged mist line or a burner out in the greenhouse to ruin weeks of otherwise superb propagation effort.

Not that seedage or other propagating endeavor need be a drudgery. I have been engaged in a number of other pursuits before becoming a full-fledged nurseryman and can honestly attest that none were as satisfying or fulfilling. With good back-up personnel the propagator need not be chained to his duties. But when that alarm rings at 3:00 a.m. indicating the burner has flamed out in the greenhouse, somebody better respond to get the emergency heaters going.

Enthusiasm and esprit are probably more important in sales or leadership situations. But as any college graduate may move to these areas such qualities, along with basic honesty, a sense of company loyalty, and other good personal attributes are always sought in prospective key employees.

Earlier I mentioned career employment and the turnover problem. Like many or most production nurseries we are located in a small rural town, lacking many amenities of city or college communities. More than once we have encountered situations where the employee was happy but where the wife, perhaps city bred, was unhappy in the "hick town." This situation can be expected to lead to the loss of a promising employee. For this reason we favor key employees with their roots down. If the employee, and especially the wife, has her people in the community the stability factor is greatly enhanced.

Recently I visited what has to be the most modern field seedling nursery in the northwest. It was between seasons and the operation, which would employ 60 or more during peak activity, had only the manager, assistant manager and a couple of other hands working. The manager was a young woman with a horticulture degree and a nursery background. Her assistant manager was a younger woman recently graduated from a horticulture school. They were both maneuvering tractors around, getting set for fall seeding and harvesting. I asked the manager how her crew would break down between male and female workers. She thought a minute and replied, "about 99% female. Aside from one handyman to do any real heavy lifting, women run the place. We do, however, bring in contract labor to pull seedlings at harvest time."

The past year our greenhouse seedage and vegetation propagation has been largely headed by a couple of women trainees, or interneers would be the better description. They have done an outstanding job and I would be happy to hire either to head up this work.

I don't think any nurseryman expects any horticulture school

to turn out "experts," in whatever phase of propagation. If the educators can give us people who can think, who can communicate and who possess the disciplines on which expertise can be built that is all we should expect.

**THE "KNOW HOW" IN PLANT PROPAGATION EXPECTED
FROM COLLEGE GRADUATES:
HERBACEOUS AND TISSUE CULTURE PROPAGATION**

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I feel our universities are offering a well-rounded academic curriculum in horticulture education and in most cases very good programs in plant propagation. The basic information is offered; the student who is most interested and studious becomes the leader of tomorrow.

The universities cannot be faulted in graduating students who are not talented, employable people, ready to assume immediately the management responsibility of general propagation, whether it be the sexual or asexual propagation of evergreen or herbaceous plant materials.

If there is a fault that prevails in preparing students for immediate takeover of a progressive propagation program, it lies in too little practical, hands-on training. At Purdue, ten weeks of summer work in industry is required to obtain the horticulture degree. There should be at least two twelve-week work summers required; even then, the student will only be partially trained for major responsibility.

Tissue culture, perhaps better titled micro-culture, is highly technical. A student desiring to work in this field must pursue special academic training, with courses directed toward this goal, over a two year period, or longer, before he or she is capable of lab management. A degree is not necessary for the culture transfer process. There are greater opportunities in this field of endeavor for those who have attained at least a masters' degree in lab management.

In my opinion the greatest values one should get out of college are; 1) learn to be a problem solver; 2) know where to get information; 3) keep an open mind to change; 4) keep updating knowledge.

Aside from the university degree, there are other qualifications required for serious consideration by industry for employ-