

- 19 Westwood, M N 1972 Use of growth regulators in rooting cuttings of woody plants *Proc Int Plant Prop Soc* 22 160-166
- 20 Zimmerman, P W and A E Hitchcock 1937 Comparative effectiveness of acids, esters, and salts as growth substances and methods of evaluating them *Contrib Boyce Thompson Inst* 8 337-350
- 21 Zimmerman, P W and Frank Wilcoxon 1935 Several chemical growth substances which cause initiation of roots and other responses in plants *Contrib Boyce Thompson Inst* 7 209-229

RANDY HEFNER: This is in the form of a comment to Dr Dirr. One advantage of a liquid dip is your ability to experiment. Talc is difficult to do that with

PETER DEL TREDICI. Does DMSO have any effect on rooting?

MICHAEL DIRR. It is mainly a carrier to get compounds into cuttings faster. I am not aware that it has any effect on rooting

PAUL BOSLEY, SR.. Life Science Industries, Cleveland, Ohio says that NAA is extremely poisonous. Do you agree?

MICHAEL DIRR. All I can say is that EPA has approved its use for the nursery industry

### **Tuesday Afternoon, December 8, 1981**

The afternoon session was convened at 1.30 p.m with Rick Allred serving as moderator

### **EFFICIENCY IN PROPAGATION**

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Labor costs in America have steadily increased while worker productivity has in many cases declined. The survival of our businesses depends largely on our ability to increase efficiency. Labor costs comprise approximately 60% of my total budget. Coupled with decreasing worker productivity I feel this is the first and most logical place to work on becoming more efficient

We begin by taking an unbiased look at our operation. Are the facilities efficient? Is everyone producing an equal amount and is the amount enough? Assuming the facilities and procedures are efficient and the goals are in order then the area to concentrate on is labor efficiency. What amount of production can we reasonably expect from our workers? I think one answer lies in the use of production standards. A production

standard is a tool used to measure the performance of a worker against premeasured production expectancies

Production standards help us not only in gauging the productivity of employees but in many other ways as well.

We can utilize standards in planning a day's activities thereby using labor effectively. Standards can be used to plan labor costs for a yearly budget. By knowing what we can expect in terms of output we can accurately design our budget to accommodate the amount of production we anticipate. Standards also provide a gauge for determining where we are in our schedule

Production standards are invaluable in personnel relations. Employees want and need to know what is expected of them. By setting standards we set attainable goals for them to accomplish.

Standards initiate a healthy competition between crew members. Knowing their performance can be accurately and individually evaluated, the workers tend to try harder. The use of standards thus eliminated the worker who previously got by by putting on a show of work whenever the boss was around. This type of worker is extremely detrimental to a good crew. The crew sees this person as someone who shares the reward for their good work and the undermining cause for poor results. We can determine who is or is not suited for particular jobs. One person may excel in taking cuttings, a fast repetitive activity, and be a complete failure at watering, a slower type activity.

The use of production standards also helps top management in evaluating supervisors. Top management can pinpoint production expectancies against schedules. This enables management to evaluate a supervisor's performance accurately and fairly.

Probably the most important aspect of using standards is increased productivity. This is what we aim for in instituting a system of standards. The other benefits we achieve by using standards might be termed bonus benefits.

With all the positive things I've said about using standards I must be fair and list a few negative aspects. The employee working to accomplish standards puts more emphasis on quantity rather than quality. This promotes a need for quality control. Perhaps this aspect isn't entirely negative. Quality control is something many of us have shelved years ago when we could sell anything and everything we produced regardless of quality. Our business today is in greater competition for the consumer dollar. They expect and deserve a quality product from us.

To effectively use standards we need to accurately record performance. Keeping records takes time and time costs money. However, if this is done in an efficient manner the benefits outweigh the liabilities

The most serious problem with using standards can be the lack of nurserywide participation. The obvious problem is with those people working with standards tending to feel they work harder than those people who are not working with standards. This type of problem should be handled as a matter of departmental pride. The point to stress is the department produces because the people are proud of their accomplishments regardless of what is or isn't expected of other departments.

There are many methods of setting production standards. The most effective way for me is to evaluate production records and use this as a starting point. I then examine the procedure or actual mechanics of a job, much like time and motion studies. Once satisfied the procedure is correct, actual timing is made of several workers, often including myself. All this information is then reexamined and a standard is set.

The standard is never static, it is always subject to change. Standards can and should be revised from time to time. Reasons for this could be changing working conditions, employee suggestion or improved methods.

**Table 1.** Some examples of our propagation standards

| Cuttings                     | Man-hours |
|------------------------------|-----------|
| Summer Cuttings              |           |
| Cutting                      | *600-1200 |
| Preparation                  | *300-1500 |
| Sticking                     | *600-1500 |
| Evergreen Cuttings           |           |
| Cutting                      | *700-1400 |
| Preparation                  | *250-1400 |
| Sticking                     | *500-1400 |
| Peat Potting Rooted Cuttings |           |
| 3" pot                       | 125       |
| 2¼" pot                      | 190       |
| Pre-filling Containers       |           |
| 2 gallon                     | 150       |
| 3 gallon                     | 125       |
| Potting B/R                  |           |
| 2 gallon                     | 95        |
| 3 gallon                     | 63        |
| 5 gallon                     | 40        |

\*Depending on plant cultivar, difficulty in removing, preparing, and/or sticking the cutting

Our standard for peat potting rooted cuttings was revised twice in one week because of an employee's suggestion. Daily production was increased by 30%!

In closing I wish to point out that production standards alone are not going to increase productivity. The key to productivity is effective personnel management. To be effective we need to practice some very sound principles of personnel relations. The people we employ are individuals who have different needs for work. Their needs vary with different situations. We must be sensitive to their needs and adapt our management techniques accordingly. As managers, we should treat our workers the way we would like to be treated. We need to encourage interest in the job. Be receptive to their ideas. Encourage them to do their best. Give praise for a job well done. Stand behind these people.

Practice these principles and you will create an atmosphere of good moral, positive attitudes and increased productivity.

PETER VERMEULEN. Do you have problems when you find your standard is too low and you try to raise it? Also have you compared your standards with piece rate?

BLAIR MASTBAUM. Yes, it can be a problem to increase standards. The direct supervisor needs to have a good relationship with his people and be open with his workers. He needs to point out to them that if they are achieving above the set standards that there is no need to object because they are doing it already. We time at 100% efficiency but expect only about 85%.

In regard to your piece rate question, I should point out that I have a factory background and think it is a good idea. I have not, however, been able to initiate a plan when we work with crews producing 12-15,000 units per day and the great amount of interaction that occurs between different jobs. We are working on group standards.

## **THE PASSIVE SOLAR PROPAGATION STRUCTURE**

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The passive solar principle in greenhouse construction is to utilize solar energy in its most economical and efficient