

than 5°C without freezing or drying the seed, minus 2°C likely would not freeze the seeds but would suppress germination as well as fungal activity. Manipulation of relative humidity above the percent moisture of the seed should be a related effort. Mixtures of O₂, CO₂ and N₂ could be manipulated in a controlled atmosphere chamber such as those used for fruit storage, to find a suitable atmosphere. CA is reported to be used in China to store the fleshy fruit of the litchi (*Litchi chinensis* Sonn) (from correspondence with L D. Tukey)

Means by which the acorn can be freed of insect damage by chemical or other means should be investigated, as should the effects of the presence of the larvae on germination and post-germinated seedling growth.

Whether seed size (i.e., fresh weight) and year of collection influence the effect of moisture loss on germination should be considered, and identification of possible electrolytes subsequently lost after drying would be of interest.

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QUESTION BOX

The Southern Region Question Box was moderated by Charles Parkerson and Frank Willingham.

CHARLIE PARKERSON. We have had trouble controlling *Thielaviopsis* in our nursery and feel containers may be one source of infection. We are wondering about a container made to collapse like the separators in old-fashioned egg cases. It could be made of light-weight plastic and thrown away after one use. That would eliminate the necessity of attempting to sanitize used containers with methyl bromide or by other methods that may or may not be effective. In addition, the collapsible feature would make storage easy and the fact that many cells could replace many separate pots would cut down tremendously on handling and filling time. Is anything like

this on the market; and if not, would there be enough demand to justify its manufacture?

BRYSON JAMES: Are all other parts of your system clean? I have found *Thielaviopsis* in peat pots.

ROBERT LAMBE: I have often found it in the soil mix. It produces a very resistant spore and seems just to wait for a holly root. I have even put bark in the micro-wave oven and still been able to isolate it.

JAMES BERRY: Could it be we just don't use a strong enough dose of methyl bromide?

ROBERT LAMBE: Once this fungus gets started in a nursery, it is very hard to control. Certainly, disposable pots could help if that is one source of infection. But if it is already present, perhaps even in the roadways, just changing pots cannot solve the problem.

CHARLIE PARKERSON: Steam would kill the fungus, but melts plastic pots. Formaldehyde would also kill the fungus but is highly toxic. We would prefer to set up a production line system using a one-way pot. We had the idea of a fast production-line method using a micro-wave to sterilize the pots. We melted the pots and as Bob said, we still found viable *Thielaviopsis* in the bits of used bark that had remained in the pots from their previous use.

HUGH STRAIN: Is anyone using milky instead of clear poly for plant protection? We've heard it recommended but haven't heard results from people trying it.

BUTCH GADDY: We liked the fact that it didn't allow heat build-up. However, we did lose some hollies under milky plastic because the soil was too cold.

HUGH STRAIN. We have tried it in our propagation section and it seems to work.

GARY HUTT. We use it for winter storage over container stock.

CHARLIE PARKERSON. You lose tensile strength, through, as you don't have 4 mils of poly when it's impregnated with something else.

HUGH STRAIN. The milky copolymer doesn't seem to tear on the low structures.

DENNIS McCLOSKEY. We like the heat. After all, that's why we're covering. If it gets too hot, we simply open the door.

JOHN HOPKINS. We tested clear and milky plastic side by side. We found that when the temperature during the day was 90°F under clear plastic, it was only 70°F under the milky. Yet

at night it was 5°F to 10°F warmer under the milky covering.

HENRY NIENHUYS: White has less fluctuation, and that's what kills the plants

CHARLIE PARKERSON: There has been interest in knowing something about the marketing strategy that the Hines people will use for, let's say, the next two years. Specifically, are the people making the decisions actually plant-oriented people?

BILL BARR: At the presidential level, administrative expertise is what is important. However, the Weyerhaeuser Corporation has a long history of plant-growing operations and their expertise is well recognized

FRANK WILLINGHAM: In contrast, Ralston-Purina was forced to sell Green Thumb because of a lack of that knowledge and expertise.

CHARLIE PARKERSON: How difficult is it for a large corporation to make changes in production and marketing plans?

BILL BARR: It is probably not too much more difficult than for a smaller concern, especially since most decisions applying to a specific location are made there. The market is evaluated once or twice a year, which may be more frequently than with some smaller concerns.

FRED MAY: Do you think the corporate mind can accommodate, so to speak, the idea of dumping plants?

BILL BARR: Yes. They would be as concerned as a corporation as we are personally when such a thing is necessary.

JAKE TINGA: I would agree with Bill since if they make a mistake it is a big one. Look at GM.

DENNIS McCLOSKEY: Over-production is a fact of the economy, not of the corporate mind. People in a corporation can make a decision as quickly as I can

CHARLIE PARKERSON: Question to Earl Robinson. Earl, could you comment on Amfac's marketing strategy and plans for the near future?

EARL ROBINSON: We are trying to integrate production and marketing. We are looking carefully at cultivars and trying to evaluate their potential. Expansion is the name of the game today in the nursery segment of Amfac especially since returns on other holdings have felt the pressure of low prices. Sophisticated data processing techniques are being used more and more. In general, the organization is regrouping and refining its overall operation

JUDSON GERMANY. Is anyone propagating *Magnolia soulangiana* from softwood cuttings?

JOHN ROLLER. The soft tips will wilt, but *M. soulangiana* can be propagated from cuttings taken farther back on the stem. You have to keep the humidity high and burn them up! We test Chloromone at the recommended strength as well as at other dilutions and then use what works best. You must keep your propagation house hot and tight, then open it gradually. Fungus can be a problem so sanitation is critical.

CHARLIE PARKERSON: John, what is in Chloromone?

JOHN ROLLER: I don't know as the company does not give this information, but it is good on broad-leaved evergreens. It's present price is \$40/g.

DENNIS McCLOSKEY. We have also had excellent results using Chloromone on broad-leaved materials but have never been able to find out what's in it. Extremes in temperature destroy it.

GERALD SMITH. Do you follow the direction sheet that gives suggested dilutions for various species?

DENNIS McCLOSKEY. In general, yes. However, we stay away from full strength.

PHIL BEAUMONT. We put the entire cutting in Chloromone, then dip the tip in Hormodin. This seems to prevent heavy callus formation on photinia.

S.I. PATEL. Related plants that have the same characteristics will react in the same way.

GARY HUTT. Dennis, what concentration do you use for azaleas?

DENNIS McCLOSKEY: We use a weak 4:1 dilution.

PETER VAN DER GLESSEN. We use 5:1 dilution on just about everything but dwarf yaupon.

FRANK WILLINGHAM. Chloromone is apparently a triacantanol alcohol compound. The research results look good.

BILL CURTIS: It is widely used in Canada.

HUGH STRAIN: It is also used extensively in the Mobile area.

TED GOREAU: Could it be willow extract?

JIM BERRY. I tried willow juice both in ethyl alcohol and in water. I feel it did affect rooting, regardless of the solvent.

JOHN ROLLER. There is a good paper by Charlie Hess on cofactors, which describes tests that show plants do contain compounds that affect rooting.

BRYSON JAMES: The levels of hormones and other growth factors in the cutting seem to be related to the juvenility of the stock plant.

PHIL BEAUMONT. Has anyone tried using Atrinal¹ to encourage branching of cleyera?

BILL BARR. Yes, but it was not too effective.

JIM BERRY: It seems to give us some winter protection.

HENRY CLAY: Three oz/g gave response on photinia. The salesman recommended 2 applications.

JIM BERRY. Gary Cobb² at the Auburn University Ornamental Horticulture Field Station, Mobile Alabama, has tested Atrinal on photinia.

PETER VAN DER GLESEN. We have used it on Carolina yellow jessamine, *Gelsemium sempervirens*, applied June 1 and again in September. We use 2½ oz/gal.

JAKE TINGA: I'm interested in knowing about the demand for variegated plants.

EARL ROBINSON: We don't plan to do any more than we are. We must decide 2 or 3 years in advance and consider costs in relation to expected selling price.

CHARLIE PARKERSON. The idea is to produce as long as the customer buys, and then quit. They are not our bread-and-butter items.

BILL BARR. Color is important. People here want it. Since it's almost impossible to grow blooming plants during hot Texas summers, variegated foliage is used instead

JOHN HOPKINS: Does anyone here have variegated *Osmanthus ilicifolius*?

BILL BARR: We (Hines) may have it at our West Coast facility. Monrovia Nursery does have it.

TED GOREAU: We take 2¼ in tip cuttings in June that are fairly soft and use Hormodin #3. There's nothing special about what we do, and we get 80 to 85% rooting.

JUDSON GERMANY: Is anyone propagating black-stemmed bamboo? (*Phyllostacchys japonicus*)?

¹ Atrinal (dikegulac), Hoffman La-Roche, Inc., Nutley, N J

² Gary Cobb, P O Box 8276, Mobile, Alabama 36608