

# THURSDAY AFTERNOON SESSION

November 21, 1957

The second session of the Seventh Annual Meeting was convened at 1:30 P.M., President Vanderbrook presiding.

PRESIDENT VANDERBROOK: This afternoon, we will start with the paper entitled, "Propagation of Herbaceous Perennials and Annuals," and continue with a review of modern practices. The first speaker we will have is Mr. Phil Jones, Research and Plant Breeding Department, George J. Ball, Inc., Chicago, Illinois. Mr Jones!

Mr. Jones presented his talk, "Propagation of Herbaceous Perennials and Annuals." (Applause)

## PROPAGATION OF HERBACEOUS PERENNIALS AND ANNUALS

PHIL JONES  
*George J. Ball, Inc.*  
*Chicago, Illinois*

The fact that Hugh Steavenson, Vice President of your organization, invited me to address your group, is an indication to me that many of you nurserymen do grow annual bedding plants and a good many of you who don't grow them are perhaps interested in getting into the field.

To start with, I would like to give a brief summary of bedding plant opportunities as they exist.

There is not any question that the market for bedding plants and ornamental plants of all sorts is greater today than in the not too distant past. The home owner's attitude toward the exterior appearance of his home is entirely different from what it was 30 years ago. Just for a moment I would like to quote to you from an article by Paul G. Craig which appeared in the October bulletin of the Ohio Florists Association: "There are a lot more customers around than there were a decade ago, and they have a lot more money to spend. There are today 33 million more persons and 8 million more families than in 1947. There is no let up in sight. The population is growing at the rate of 3 million per year, one of the highest rates of growth in the world. Each of these additional persons has \$300 more real buying power after taxes than he had in 1947, and each of the families has \$500 more real purchasing power. Census of business data show that florists are not getting their former share of the sale being generated by this increased income! Why not?" It seems rather obvious, that the "why not" is because the plant producers have not gone after the consumer's dollar as intensively as some of the other producers. Keep in mind in this competition for the consumer's dollar it isn't only your competitor or the florist on the other side of the town, but it is anybody who has anything to sell. If he can get the consumer's attention before you can, very likely he is going to separate him from his hard-earned "dough."

All right, let's assume then, for the sake of expediting time, that there is definitely a market. If it exists, it behooves us, if we are interested and want to get into it, to have concern for the merchandising policies or selling methods used to move the product. We must first know how to produce the merchandise and this is the subject which I would like to discuss briefly.

One of the advantages of growing your own plants to compete in this market is that you are able to select the variety of plant to suit your particular trade and climate. You are able to have plants at the time your customers want them, regulating this by when you plant your seeds. Thirdly, you can control the quality of your plants by your growing methods.

I might say by way of digression, our state colleges have been very instrumental in developing many of the cultural, streamlined methods by which growers have been able to cut their costs. Labor is the one big, single item of expense, and any method by which the labor cost can be lowered is certainly worthy of attention.

Let's talk for just a moment about production problems and discuss some of the newer methods being used today. The first general area might be seed germination. I am talking about annuals, such as petunias and snapdragons, the kind of thing people buy in the spring of the year and plant around their homes.

The seeds can be germinated, if they are not too old, in a soil-peat mixture or some other kind of medium such as neutral peat, finely shredded sphagnum moss, perlite or vermiculite, the latter being widely used for germinating seed. Many of the newer germinating media have definite advantages, since their structure is always the same and they are not subject to the vagaries of nature. They are all neutral, relatively free of organic matter and therefore, relatively free of disease organisms. They have no nutritive value. As soon as the seed has germinated in this medium you will be obligated to feed them with a liquid fertilizer.

The method we use for germinating seeds in our experimental greenhouses in West Chicago is to fill conventional flats about two-thirds full of ordinary sterilized, steamed, soil. This soil is then puddled with a hose until it is literally mud. This provides the reservoir of moisture which the seedling will need later. The next step is to place perhaps a quarter of an inch of a germinating medium on the surface of this mud. It may be neutral peat, it may be a mixture of sand and peat, or it may be any of several that I have already mentioned.

We usually drench with Panodrench, which will give us a flat relatively free of organisms. Of course, there are organisms which affect the plant even though the growing medium has been sterilized. However, this operation provides a buffer against any organism that may be introduced at a later date.

The flats are then marked with the word "growing" The next operation is the actual planting of the seed. Many growers sow them broadcast and are successful. We prefer to make shallow depressions an inch and a half apart and an eighth to quarter inch deep. We sow

the seed in these shallow rows because we believe we can better keep the seed from drying out before germination and we can also control damp-off. Because damp-off generally starts in one spot, it is possible to confine its spread to the row in which it starts rather than to let it spread at random throughout the flat. Sowing in rows also enables you, when transplanting time comes, to handle the seedlings more easily than if it is sown broadcast.

The matter of temperature control for germinating seedlings is important. Most annuals like a temperature of at least 60 degrees for satisfactory germination. Areas in which this temperature is to be maintained can be provided with heating coils, steam or hot water, or if your operation is small, with electric heating cables.

Because moisture is so important during the germination stage, and the fact that it must be kept so uniformly has led to the development of special methods for maintaining a uniform moisture supply. I have mentioned one in speaking of the reservoir of muddy soil under the thin germinating layer. This technique has the advantage of being able to carry water up to the surface by capillarity which is activated as the surface dries out.

The use of either automatic or manually-operated misting systems has also proven to be a decided advantage in maintaining a good germination environment. Very recently polyethylene plastic sheeting of nearly any size has come into the picture as a seedflat cover. Tucking the ends of the plastic under the ends of the flat will give you a uniformly high moisture level inside this enclosure at all times. It is important from the disease standpoint to get this polyethylene off your plants immediately after the seeds germinate.

Now, let's talk for just a few minutes about handling the seedlings after they have germinated. After they are a quarter of an inch or so in height, most annuals will benefit by moving them to a 50 degree greenhouse. I was referring to a night temperature. The day temperature will be perhaps 5 to 7 degrees warmer on a cloudy day and 10 to 15 degrees warmer on a sunshiny day. The plants will take water less frequently but more of it as the roots develop and go down. Here, the use of fermate is strongly recommended for control of the damp-off after the seedlings have germinated and been placed in the growing houses.

As far as our growing methods are concerned, they have not changed radically in the last several years. The same cultural procedures that were good ten or fifteen years ago are good today. The only thing new in the growing phase of the operation is the shift to and widespread adoption of the sand-peat mixture in place of soil for growing plants in containers and small pots. The work in this country is based largely on the original work done at the University of California, in Los Angeles under the supervision of Dr. Kenneth Baker and carried on by a lot of his co-workers. The use of the sand-peat mixture has grown rapidly in California because of the high salt content that prevails in many of the soils which results from the surface irrigation they are obliged to use. Then, too, the sand-peat mixture gives the operator a standardized medium which does not vary greatly from

batch to batch. Those of us who use soil without knowing its properties, find our soil requirements, fertilizers, manures, and whatnot vary so much from year to year it is almost impossible to maintain a uniform growing medium. If soil is used, and I must admit most growers use soil today, it must be properly prepared. If it is excessively sandy, you are going to have to add something to make it a little more stable, a little more firm, and a little more adhesive. Here, peat with the addition of some clay will help. On the other hand, if your soil is heavy you probably will have to loosen it up. Peat and sand are the most commonly used media for this purpose.

Bedding plant merchandising is undergoing a minor revolution today. Many growers still practice the operation of seeding and growing large numbers of plants in flats. They dig the plant out from among the other plants and wrap it in newspaper for the sale. In the first place, it costs too much money to wait on people. In the second place, people are too impatient. So, we are growing bedding plants in small pots and small plant containers that will hold anywhere from a dozen to a dozen and a half to three dozen plants.

Another new thing in the growing of plants is the system of feeding all plants with liquid fertilizer at the time of watering. It isn't economical to dry-feed your plants. Considerable time can be saved today by growing your plants in temperatures of 50°F. night, 90°F. day, and perhaps putting them in the cold during the latter part of their growing period. The oldtime growers who started growing in cold temperatures and then hardened them off during the late spring, actually were just adding to the production cost. The whole operation has been speeded up consistent with the quality, of course.

I would like to enumerate what I consider to be the seven basic requirements for growing good bedding plants. These are negative in approach, and might better be termed the seven things you should not do, or seven possible causes for failure.

1. Poor physical condition of the soil. A soil which is poorly aerated, poorly drained, tight and hard can't do much but result in trouble.

2. The seedling or cutting used was too hard or stunted. If you allow your seedlings to become overcrowded you can never expect them to develop into quality plants.

3. Starvation, or simply failure to provide plants with sufficient nutrients. I would say that is probably the prime reason for the majority of second and third grade plants you see on the market today.

4. Disease troubles. The various stem and root rots, while they may not completely kill the plant, in many cases can so hamper the development as to make it second grade.

5. Insects. For one, aphids can literally sap the life out of plants which were in prime condition the week before.

6. Lack of water. We are often too busy and fail to water plants as often as they require it.

7. Growing plants too cold. Actually, with most annuals when you get down to a night temperature of 40°F., photosynthesis and other plant processes practically come to standstill. The plant does not die, but by the same token, it doesn't grow.

Now that I have discussed some of the newer methods of growing and some of the short cuts that are used in plant production today, allow me to mention two other developments which will have a bearing on plant production in the future. Plastic greenhouses used to supplement the existing glass area are working out to the decided advantage of many growers. They are being used, generally, as temporary growing enclosures for a three- or four-month period in the spring of the year. The other development in growing quality bedding plants has been the production of new, improved varieties. I am sure all of you are familiar with the advantages that hybrid field corn has over the old, open pollinated types. They grow faster and yield better. Although yields do not mean anything to people who want flowers growing in their yards, it does to you who are producing the plants. For example, hybrids grow faster. By reducing the time required to grow a crop you can delay your sowing and still have a quality plant to sell in the spring. If you can save three or four weeks growing time, that, is money in your pocket. Hybrids are more uniform and more vigorous in growth. They present a more attractive piece of merchandise and they give your customer, the home gardener more satisfaction. With hybrids there is generally less mortality as a result of disease and other problems.

I would like at this time to tender an invitation to any or all of you to visit our place any time you are around Chicago, Illinois this coming summer. That concludes what I have to say. Thank you.

PRESIDENT VANDERBROOK: Thank you, Mr. Jones.

The next presentation is, "Present Day Practices in the Propagation and Culture of Perennials" by Kenneth B. Fisher, Kingwood Nurseries, Mentor, Ohio.

Mr. Kenneth B. Fisher presented his paper. (Applause)

## PRESENT DAY PRACTICES IN THE PROPAGATION AND CULTURE OF PERENNIALS

KENNETH B. FISHER  
*Kingwood Nurseries*  
*Mentor, Ohio*

The term "perennial," when loosely applied, covers all plants which live for more than two years, and as such applies to woody, as well as herbaceous material. For our purposes today the discussion will be confined only to herbaceous material, for that, after all is the material accepted under the category of perennials by the trade. This broad classification includes probably 3 to 5 thousand varieties.

Even this definition is too broad, for in parts of the United States, such as the far South and far West, some material which is of a true perennial nature, must because of tenderness be treated as annuals in the rest of the country and Canada. Some of the plants in nursery catalogs which are listed as perennials are actually biennials, i.e., *Campanula calycanthema* (Cup & Saucer), *Digitalis* (Foxglove), and *Dianthus barbatus* (Sweet William). Other plants offered in herbaceous lists such as *Iberis* (Candytuft), *Pentstemon* (Beard Tongue), *Phlox*