

TECHNICAL SESSIONS

## WEDNESDAY EVENING SESSION

October 25, 1961

The Second Meeting of the Plant Propagators Society - Western Region, convened at 7:30 P.M., October 25, 1961, at the Asilomar Conference Grounds, Pacific Grove, California. Mr. Don Hartman, Leonard Coates Nurseries, Inc., San Jose, California, opened the meeting as President of the Western Region with some remarks of welcome. He then introduced Program Chairman Herman Sandkuhle, Jr., Sunset Nurseries, Oakland, California, who in turn introduced Mr. Harry B. Lagerstedt, Assistant Horticulturist, Oregon State University, Corvallis, as Moderator for the evening program.

MODERATOR LAGERSTEDT:

Growth Regulators in Relation to Plant PropagationH. B. LagerstedtDepartment of HorticultureOregon State UniversityCorvallis, Oregon

I would first of all like to commend our program committee on their excellent choice for this evening's topic, Growth Regulators in Relation to Plant Propagation.

This subject, growth regulators, is a very timely one. It was, in fact, a timely subject 25 years ago when IAA was isolated from urine and found to be useful in rooting cuttings. It was even a timely subject long before that when sugar and oxidizing agents were being investigated as rooting aids. It will no doubt be a timely subject 50 years from now, even though plants will have yielded up more secrets about themselves than we presently know. Perhaps, thinking of it in this way, Growth Regulators in Relation to Plant Propagation should better be described as a timeless subject.

At the present time we are probably on the threshold of propagation discoveries nearly equalling the period of the mid-thirties. Perhaps this evening we will catch a glimpse of what is currently going on in propagation as well as what the future may hold for us.

I have been asked to introduce this evening's subject and an excellent place to begin is with a definition. It so happens that in 1954 Dr. van Overbeek, one of our panel members, headed a committee of the American Society of Plant Physiologists on nomenclature of chemical plant regulators. From what better source could we draw a definition? His committee defined plant regulators as, "organic compounds, other

than nutrients, which in small amounts promote, inhibit, or otherwise modify any physiological process in plants". He also mentioned that compared to auxins or hormones, the term regulator had the widest of boundaries and could be applied to materials that modify any physiological process in plants.

Personally, I prefer the broadest interpretation of the term "growth regulator" as it applies to plant propagation. Under this heading, we can then discuss everything from florigen to kinetin, from 2,4,5-T to vitamin B, from traumatic acid to "accelerator A", and from Chloromone to co-factors. And, should boron be found to aid rooting, it too could be included in the list, perhaps not as a nutrient, but as a regulator playing a far different physiological role.

Who knows what substances will serve to answer some propagation questions we have at present? For example, why do etiolated stems root better than normal stems; why does juvenile wood root more readily than the adult type; why do pendant branches root better than erect ones; why does a light interruption during the night have an influence on rooting; and lastly, why does Bartlett pear, which normally doesn't root at all, produce a fair stand when the source of cutting wood comes from trees grafted on quince? When these questions, and many others are answered, we may have some surprising new growth regulators on the books.

An excellent example of what lies in the future can be drawn for the work of Dr. Hess at Purdue University. He has isolated four substances he calls co-factors, since they do not function alone, but only in the presence of IAA. Co-factor #4 appears in the largest quantity in juvenile or easy-to-root cuttings. This is the co-factor Dr. Hess is presently trying to identify. He has located a very similar compound, a reducing agent commonly used in photography. While this substance is not identical to co-factor #4, it still is very active in promoting rooting when combined with IAA. It is the ultimate aim of Dr. Hess to identify all four co-factors. Once this is done, a difficult-to-root variety need merely be analyzed to determine which co-factors are missing or in low supply. The right co-factor could be supplied and rooting would be achieved.

Now that the future and the past have been briefly investigated, let us see what the present holds in respect to Growth Regulators in Relation to Plant Propagation. Our first speaker will be Dr. J. van Overbeek, Chief Plant Physiologist, Shell Development Co., Modesto, California. Dr. van Overbeek --

Plant Hormones

J. van Overbeek

Shell Development Company, Agricultural Research Division

Modesto, California