

fers is about the same as in other plants, so there is no relationship there. It has to do with the cuticle make-up and we haven't looked at that. I am sure that there is a relationship, but I don't know what it is.

VOICE: Question for Bev Greenwell. Regarding container-grown azaleas in the Pacific Northwest, do you think 10 lbs is the optimum rate of 18-6-12 Osmocote?

BEV GREENWELL: We had good results at 10 pounds and even as high as 12 pounds, but that is with very careful watering. One should monitor their own salt content if they are going to those rates. What you are doing is hovering at the very peak between optimum growth and toxicity. And if you sneak over into the toxicity range, you lose any advantage of going to the high rate.

VOICE: How about just 8 pounds to be safe?

BEV GREENWELL: OK — you are going to be safe, but then you are getting down to where you have fairly good looking plant material, growing at a reasonable rate, but you are actually getting hidden hunger symptoms — where you aren't getting optimum growth, but they look OK. You are safe but it might take you an extra year to grow the plant.

**WESTERN REGION 1981 AWARD RECIPIENT\***  
**PRESENTED BY BRUCE USREY**

The individual we honor today for the Western Region Award of Merit has achievements so extensive that it is hard to choose where to start. His achievements cover more than a quarter of a century. One marvels that an individual could be involved in so many projects to benefit his industry and fellow man.

He has always been alert to new processes and procedures. Always among the first to experiment with new equipment and new supplies in an effort to produce a better plant. The propagation of plants by faster, more efficient methods is always a challenge. He has found a special challenge in tissue culture and is commercially producing many hundreds of thousands of plants by this method, including conifers, berry vines, apple trees, *Kalmia*, a long list of *Rhododendron* cultivars, and many other plants.

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\* Presented at the Western Region 1981 banquet.

Generous with his time, he has been the prime mover in innumerable projects to benefit the nursery and florist industries, numerous youth groups, farm organizations, local schools, and his church.

He is past president of the International Plant Propagators Society, past president of the Western Region, IPPS, a supporter of the Western Washington Horticultural Society, a past president of Rainier Chapter, Washington State Nurserymen's Association, and a member of the Board of Directors, WSNA. He has been chairman of the Legislative Committee, and chairman of the Highway Committee, WSNA; chairman of the Grades and Standards Committee of the American Association of Nurserymen, a member of the American Rhododendron Society, and he is on the Board of Directors of The Rhododendron Species Foundation. He was named citizen of the year of his home town. He is an avid football fan and at times a pretty fair salmon fisherman. His name is Bruce Briggs.

MODERATOR LARRY CARVILLE: We will now have five presentations dealing with the general topic of "Plant Growth Regulators". David Lane of the Summerland Research Station at Summerland, British Columbia, will give the first paper:

## **PLANT MANIPULATION *IN VITRO* WITH HORMONES**

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**Abstract.** The experiments described in this paper illustrate some of the responses of shoot cultures to treatment with growth regulators and the manipulations made possible through their use. First examined are the growth regulator requirements of shoot cultures. Cytokinin, in particular, is required by most cultures but, in exceptional circumstances, may not have to be supplied in the medium. The optimum growth regulator concentration required for shoot or root growth varies considerably between species and cultivar; growth regulators supplied in the medium can interact with those produced by the cultures and result in dramatically different responses. Variant requirements probably caused by this effect influence rooting more than shoot growth, particularly in the cultivar M.9. Its roots initially develop into callus rather than roots when continually exposed to a normal concentration of auxin in the medium. Shoot cultivars can be manipulated by exploiting differences in their tolerances to growth regulator concentrations higher or lower than their optimum. This should make it possible to develop procedures for preventing back mutation of spur-type strains to standard growth habit and, used in reverse, may be useful for isolating and identifying new spur-type strains arising as induced mutations in shoot cultures.