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California Avocado Society and University of California, Riverside

AVOCADO BREEDING

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In recent years much of our attention has been directed toward propagating our newer avocado selections in a central test plot to compare their performance (as replicated trees) with standard varieties. Within a few years, vital data such as precocity, production, fruit quality, maturity season, relative fruit size, flower type, and tree form will be obtained. Early data from recent selections indicate some interesting prospects for commercialization.

Among the selections showing valuable commercial traits are: BL122, Sirprize, BL 667,3-29-5, Harvest (5N-5(-)4), OA 184, 5-552, BL 343, and Regal. These are briefly described below in order of priority:

BL122: patented variety that has now been recommended for planting, as it has demonstrated exceptional commercial promise.

Sirprize: patented variety, early season 'Hass' -type (really more like black Fuerte). **BL 667:** heavy producing 'B' -flower "Hass'-type.

3-29-5: heavy producing 'Hass'-type, preliminary data suggests that it has good potential for success.

Harvest (5N-5(-)4): 'Hass'-like with very good production on mother tree, currently evaluating trees in replicate plots.

OA 184: 'B'-flower 'Hass'-type, quality slightly inferior to 'Hass'.

5-552: excellent quality green-skin; better than 'Ardith'; slightly susceptible to greenhouse thrips.

BL 343: Very preliminary data, but appears to be 2 months ahead of 'Hass' maturity with comparable quality; slightly less pear-shaped than 'Hass' (slim ovate).

Regal: many good qualities make 'Regal' an excellent candidate for further breeding work; off-flavor has been described by some who have sampled this variety.

Others like RTS 176 and BL1058 are serious contenders as pollinators. Isolated plots are currently being established to determine how effective these are in comparison with such standard pollinizers as Bacon, Fuerte, and Zutano.

The new material requires considerable propagation, expansion, and testing. Our cooperator list is growing rapidly and their enthusiasm is greatly appreciated. This will give us data essential to accurate commercial assessment. Gray is spending more and more time with these invaluable cooperators (including some weekends), as well as in UC testing plots. Maintenance of the C.A.S. germplasm plot and the isolated rootstock

breeding plots continues. Lastly, avocado seedlings are remarkably variable in terms of tree size and shape, therefore we are studying various labor-efficient pruning and training techniques to achieve better tree form. Our results may be of value to present commercial varieties, including Hass, and will be discussed in the oral presentation.

Finally, Guy Witney has joined the breeding program which will allow Dr. Bob Bergh to enjoy his retirement. The priorities for the breeding program going into the next century will be discussed at the C.A.S. Spring Meeting but will include:

1. The continued evaluation of scion material from crosses made in California and of any promising materials obtained from other international industries.

2. Emphasis on 'B'-flower 'Hass'-like material that may extend the 'Hass' season and provide pollination benefit. In cooperation with Dr. Mike Clegg, examining outcrossing of 'Hass' and new 'B'-flower types. In cooperation with Dr. Kirk Visscher, examine bee preferences, flower visitation, and the role of bees in outcrossing.

3. Evaluation of salt tolerance of rootstock materials both from the rootstock breeding program and international sources. Examining the link between *Phytophthora* tolerance and salt tolerance.

4. Examine the potential of dwarfing rootstocks and interstocks on avocado phenology and production.

5. In the course of conducting routine field work in the breeding program we will continue to provide innovative horticultural techniques to growers in the areas of grafting, tree training, and pruning.