

GEM Avocados & the Future of the California Variety Breeding Program



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In March 2002, the University of California (UC) filed a plant patent application seeking protection of its intellectual property rights in a new avocado tree designated '3-29-5' with the varietal denomination, GEM. The patent filing describes the characteristics of the GEM variety as: 1) exhibiting a vigorous moderately-spreading upright growth habit; 2) less alternate bearing than the 'Hass' variety; 3) forming fruit that is well-distributed around the tree, somewhat larger than 'Hass' and maturing at approximately the same time; and 4) forming leaves in greater quantity than 'Hass' trees, among other traits.

The patent was granted by the U.S. Patent and Trademark Office on October 14, 2003, and a license agreement was subsequently executed between Brokaw Nursery and the university to propagate trees for domestic plantings. Now, 14 years later, the GEM variety is just starting to gain momentum in California.

Generally speaking, universities have been slower than private corporations to realize the full potential of revenue streams generated by plant patents. Over a 25-year period beginning in 1977, the top 15 universities engaged in plant genetic research obtained 246 plant patents compared to 4,183 plant patents received by U.S. corporations (2003 B.Y.U. Educ. & L.J. 771). Driven

by a need to recapture investment and make a profit, corporations are often adept at navigating intellectual property law and geared toward commercialization. By contrast, universities often receive federal funding for their plant research programs and place greater focus on long-term research.

As costs rise and public funding becomes more fleeting, universities are increasingly seeking mutually-beneficial relationships through licensing and research partnerships. The licensing agreement struck between UC and Westfalia in 2011 for commercialization of the GEM variety abroad is evidence of this trend.

When the GEM variety was released, UC recognized the substantial and continuing investment California avocado growers made in the avocado breeding program through the California Avocado Commission. No royalties were to be collected when the trees were sold to California avocado growers by Brokaw Nursery. Undoubtedly, the University viewed things differently when reaching its license agreement with Westfalia. Although the terms of that agreement are confidential, it is safe to assume that commercialization of the GEM variety outside of the U.S. translates into licensing revenue and royalties as trees are propagated and come into production in Chile, New Zealand

and elsewhere around the globe.

At the same time, and in the face of challenges posed by the shot hole borer and the need for salinity-tolerant rootstocks, the Commission has greatly reduced its investment in the variety breeding program, focusing solely on germplasm preservation and maintenance. The Commission's waning investment and the UC's intent to capitalize on its intellectual property put the California avocado industry at a crossroad.

During a recent tour at the South Coast Research and Extension Center in Irvine, Dr. Mary Lu Arpaia and Eric Focht spent some time showing several promising varieties to CAC management. There are five varieties that are nearing release, each with different and intriguing characteristics. For example, there is BL516 or Marvel, which exhibits a narrow, upright growth habit suitable for high-density planting and produces fruit which rates highly during postharvest and sensory evaluations. Two other varieties have fared well thus far at the Lindcove field station in the Central Valley, perhaps raising optimism about the expansion of acreage into colder climes.

This time around, however, when these latest selections are patented, there are no firm guarantees. Having brought



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this new material to the brink of release with many years of investment, it seems logical to think that California avocado growers should have royalty-free access to these varieties. The Commission intends to make that case successfully to the university. Once that investment stops, negotiating favorable terms for release of new varieties becomes more difficult. A repeat of the GEM release, where UC gave only a modest degree of thought to commercialization of a variety worldwide, is unlikely to happen again.

At a recent meeting of the Commission board, Dr. Tim Spann expertly framed this issue for discussion. He reported on a straw poll of the Production Research Committee (PRC) taken to gauge the interest in CAC's future involvement in the variety breeding program. A majority of the PRC believe that the Commission should attempt to build a partnership with other industry

entities to share costs and keep the program going. At stake are the terms of release for any newly-patented material by the university. After thoughtful deliberation, the Board directed management to explore possible partnerships, and to advise the University that California avocado growers have a continuing interest in the new material.

The devil, of course, is in the details. The partnership concept has considerable merit, but such an arrangement is sure to be complex because potential partners will be thinking not only about U.S. production but propagation and distribution of fruit worldwide. Nonetheless, it likely represents the Commission's best chance for preserving favorable treatment of California avocado growers when new varieties are released, while continuing our investment in the program at a level that is sustainable and affordable. 🥑

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