

California Walnut Board

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CALIFORNIA WALNUT BOARD

RESEARCH COMMITTEE MEETING MINUTES November 28, 2012

The CWB Research Committee held a meeting on Wednesday, November 28, 2012 at the California Farm Bureau Federation in Sacramento, CA. Chairperson Jerry Moore called the committee meeting to order at 10:17 a.m. Ms. Steindorf called the roll and a quorum was established. The following committee members were present:

Jerry Moore, Chairperson
Bob Driver, Vice-Chairperson (arrived at 10:50 a.m.)
David Keyawa
Bert Crane (arrived at 11:30 a.m.)
Lynn Morgan
Todd Ramos
Bill Tos

Also present were Dr. David Ramos, CWB Research Director; Andrea Ricci of USDA/AMS; Board members Donald Norene and Bill Carriere; and CWB staff member Dana Steindorf. Several researchers and staff from UC Davis were also present, including: Abhaya Dandekar, Jan Dvorak, Mingcheng Luo, Julian Alston, Chuck Leslie, Joe Grant, David Neale, Ken Tate, Dianne Velasco and Malli Aradhya. Participating via teleconference were Michael Braverman and Becky Sisco of IR-4 Project at Rutgers, and David Zilberman of UC Berkeley.

The first order of business was the approval of the meeting minutes from March 6, 2012. Mr. Keyawa made a motion to approve the minutes as mailed. Mr. Todd Ramos seconded the motion and it carried unanimously.

Chairperson Moore asked Dr. Dandekar to present the next item on the agenda, the Report on the Status of the RNA_i-based Crown Gall Resistant Paradox Rootstock and Next Steps. Dr. Dandekar began with an overview of the rootstock that was developed using *agrobacterium*-mediated plant transformation and RNA_i gene silencing technology to inactivate expression of the tumor forming genes. Dr. Ramos commented that by inserting the gene from the *agrobacterium* into the walnut genome it prevents the bacteria from causing a gall to develop – like a vaccination. Dr. Dandekar explained that there are many advantages over traditional breeding; however, there are also disadvantages including regulatory hurdles, higher cost to market and public acceptance issues.

Dr. Dandekar explained that there is no movement of genetic material from the rootstock through the graft union. Mr. Leslie stated that the paradox rootstock is completely male sterile, so there is no viable pollen on a paradox tree.

Dr. Dandekar then discussed the de-regulation process. First, they have to do multi-location field testing to prove efficacy. The three agencies that they have to deal with in the de-regulation process are APHIS, EPA and FDA. APHIS will make the determination of non-regulatory status – the de-regulated

item does not pose a risk to the environment; once that determination is made it will allow us to test the product in farmer's fields and to commercialize. EPA defines all transgenes as PIP (Plant Incorporated Pesticide) and they regulate the sale, distribution and use of all pesticides. EPA will establish which are active ingredients and which are inert ingredients, as well as the toxicity or allergenicity of gene products. FDA will assess the food safety and the GRAS (generally regarded as safe) status. DNA and RNA are GRAS.

Dr. Ramos introduced Dr. Braverman, Manager of the Biopesticide and Organic Support Program under the IR-4 project at Rutgers University, whose job is to help specialty crops deal with pesticide and regulatory issues. Dr. Braverman is in the position to help us move through the regulatory process with the agencies. Dr. Braverman stated that Becky Sisco is the western region IR-4 Field Coordinator based at UC Davis. IR-4 received the request for assistance from Dr. Ramos; the project management committee has approved the request and they are prepared to provide assistance as needed. The assistance would involve both EPA and APHIS, with FDA to a lesser degree; IR-4 provides guidance on how to interact with the agencies and how to request information and clarification on guidance documents. There is no charge for the services of IR-4. The cost for registration would be determined by several factors, including: the cost of research needed to satisfy the data requirements of EPA and APHIS; cost for travel to Washington DC for several meetings; and independent laboratory analysis costs if requested by any of the regulatory agencies. The length of time needed to complete the process depends on the interactions with the agencies and the data requirements they have, but he would anticipate three-to-five years before we are looking at registration.

Dr. Braverman stated that one issue the committee will have to determine is who will be the registrant. The California Walnut Board could be the registrant; the process to become the registrant begins with applying to EPA for a company number, a simple process. Mr. Tos asked what the total cost range to the CWB would be to go through the regulatory process. Dr. Braverman stated that the independent lab analysis would be in the \$10,000 to \$12,000 range; there would be costs for travel to attend meetings in Washington, DC; the unknown cost is doing the research to meet the data requirements of APHIS.

Dr. Dandekar introduced Professor David Zilberman of UC Berkeley, and Professor Julian Alston of UC Davis, to discuss what we need to do to move forward. Prof. Zilberman talked about the potential for public acceptance of the rootstock. Prof. Alston presented the key points of biotechnology and agricultural sustainability. He explained that agricultural research yields big dividends with long time lags; research and development takes a long time, but the benefit cost ratios are very large. Also, there are big benefits to producers, consumers and biotech companies and reduced environmental burden of pesticides. Some barriers to horticultural biotechnology are long development time, regulatory burdens and costs, and market resistance. However, there is potential for more effective management of pests and disease with a smaller environmental footprint.

Dr. Ramos asked the committee if their decision is to still move forward with the transgenic rootstock. The Committee agreed that is their decision; however, the issue of the registrant needs to be addressed. Ms. Ricci stated that she would do some research to determine if the CWB could be the registrant.

Ms. Morgan made a motion to delegate authority to the Committee Chairperson to move forward with the registration of the rootstock and to determine who will be the registrant. Mr. Tos seconded the motion and it carried unanimously.

Chairperson Moore skipped ahead to agenda item F, Report on the Walnut Breeding Program/Endowment and Tree Crop Breeder/Geneticist Position. Dr. Ramos introduced Dr. Ken Tate, acting chair of the Department of Plant Sciences at UC Davis, and explained that they have been having discussions with the dean's office, the department chair and faculty of plant sciences regarding our desire and need to have a designated academic leader for the walnut breeding program in the department. The Research Committee also recently expressed their commitment to the program by increasing the endowment. Dr. Tate confirmed that the idea is to integrate the additional funds with the existing endowed program to co-fund the proposed endowed chair; the value is added leadership to the program.

Dr. Ramos introduced Dr. David Neale who has been a resource to Chuck Leslie in the breeding program. Dr. Neale, who has a background with USDA/ARS and is a forest geneticist in the Department

of Plant Sciences, has agreed to take on the added responsibility for providing the academic leadership and support for the walnut breeding program. Dr. Neale will fill the endowed chair position until the responsibility can be transferred to a new plant breeder over the next 2-5 years.

Chairperson Moore thanked Dr. Neale and moved to the next agenda item, Report of the Genomics Implementation Workgroup. Mr. Chuck Leslie explained how the priorities are set for developing traits and the benefits to the breeding program. The objective is to reduce breeding costs through genomics (marker development) and the priorities for markers include: lateral bearing, early harvest date, light kernel color, blight avoidance/resistance, husk fly resistant, and nut and shell traits. He then broke out the costs per year of evaluating seedlings by current methods based on land charges, management (planting, pruning, spraying, irrigating, etc.), evaluation (spring phenology, yield, disease), harvest, cracking and data analysis, and others (crossing, pollen collection, grower trials, etc). The total averages out to \$1,185 per tree. Dr. Jan Dvorak then discussed the progress of marker development.

Chairperson Moore asked Mr. Joe Grant to present agenda item E, PRAC Update. Mr. Grant distributed a copy of the CWB Research Committee goals and PRAC working group priorities spreadsheet as well as an overview of PRAC including a research proposal funding timeline. PRAC consists of the two co-chairs of each of the four working groups and the walnut research liaison. The designated liaisons of the Research Committee to the working groups are as follows: Genetic Improvement/Plant Pathology – Lynn Morgan, Bob Driver, Bill Tos; Entomology – Bill Tos, Bob Driver, Bert Crane; Orchard Management – David Keyawa, Todd Ramos, Jerry Moore, Bert Crane. Mr. Grant stated that PRAC will be meeting on December 13, 2012. They need to elect a chairperson and discuss some procedural issues at that meeting.

Dr. Ramos moved to the next agenda item, Report on Hiring of Proposed CE Specialist and Advisor Positions. He indicated that 19 positions are going to be filled in the extension service within the next year. He discussed the upcoming retirements of some farm advisors and the difficulty getting the positions refilled. He has been told that if the industry wants a position filled that is not part of the first group of 19, that they would have to come up with money. The cost to fill a position for a farm advisor would be \$140,000 per year for six years; the cost could be split between one or more commodity groups. The pistachio industry has already approached the walnut industry on splitting the cost of the position that Bob Beede will be vacating this year, which would be \$70,000 per year for each of us.. Dr. Ramos would like the Committee to consider this issue and revisit at the next meeting.

Under other business, Dr. Ramos discussed the Research Achievement Award that has been bestowed upon four individuals in the past. He distributed the criteria for selection of the award. If the Committee is interested in presenting an award this year, Dr. Ramos stated they should let the Chairperson know and he will appoint a sub-committee to make a selection.

The time and place of the next meeting will be at the discretion of the Chairperson and staff. An executive session was not necessary. Hearing no further business, Chairperson Moore adjourned the meeting at 2:42 p.m.