

## Walnut Marketing Board

101 Parkshore Drive, Suite 250

Folsom, CA 95630-4726

Phone: (916) 932-7070

Fax: (916) 932-7071

info@walnuts.org

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# WALNUT MARKETING BOARD

## RESEARCH COMMITTEE MEETING MINUTES March 20, 2008

The WMB Research Committee met on Thursday, March 20, 2008, at the California Farm Bureau Federation. Chairperson Earl Lindauer called the meeting to order at 9:30 a.m. Ms. Steindorf called the roll and a quorum was established. All committee members were present:

Earl Lindauer, Chair	Michael Petz
Jerry Moore, Vice-Chair	Jerry Siebert
Karen Klonsky	Bill Tos
Donald Norene	

Others in attendance included: David Ramos, WMB Research Director; Bruce Lampinen, Extension Pomologist UC Davis; Duane Lindsay, CWC Technical Support; WMB alternate Pete Turner; Vic Tolomeo and Jennifer Van Court of CASS; Production Research Advisory Council (PRAC) members Bill Carriere, Daniel Kluepfel, Janine Hasey, Joe Grant, Rick Buchner, Sam Keiper and Steve Welter; and WMB staff members Dennis Balint and Dana Steindorf.

The first agenda item was the approval of the minutes from the April 5, 2007 meeting. Mr. Moore made a motion to approve the minutes, Mr. Norene seconded and the motion carried unanimously.

Chairperson Lindauer introduced Mr. Vic Tolomeo of the California Agricultural Statistics Services to present the next item on the agenda, Review of CASS Methodologies. Mr. Balint explained that there have been questions about the validity of the objective crop forecast and Mr. Tolomeo will give an overview of the way the data is collected and the Committee will determine if there is any change that should be made in the collection methods. In the past, the barriers to making changes have included availability of staff and cost.

Mr. Tolomeo gave a presentation of the methodologies used by CASS for data collection, the use of forecast models and the sampling in relation to the acreage survey data. Looking at the objective measurement survey, it is based on actual counts and measurements. This past year CASS used 680 randomly selected orchards, two trees for each and the sample represented the population of trees by age, variety and location. The field work is usually completed in August and the results published the first week of September. Two accessible branches are randomly selected in each orchard and the nuts are counted by two enumerators. Every fifth nut is removed from the tree for measurements of weight, width (suture and cross-suture) and length. The data collected is put into a formula, regressed against the final numbers, looking at the historical relationship between the data collected and the true value of walnut receipts. Mr. Tolomeo showed a chart that compared the final production against the forecast.

Mr. Tolomeo continued with his presentation showing a chart of linear regression. CASS collects information on acreage, trees per acre, nuts per tree, nut set, and percent sound. CASS tests various combinations of the measurements and weights with five different regression models. They look for differences in standard errors, absolute historical differences between forecast and final, and relative differences. He showed a linear regression chart. All the counts and observations are input into a formula that combines the data to come up with a production number. The model variable is regressed against the final number historically (always going back at least 15 years). Once they have the comparison between the model number and the final crop number, it is charted out on the linear regression. Dr. Siebert asked Mr. Tolomeo if they are forecasting based on past relationships. Mr. Tolomeo confirmed that it is based on historical data.

Mr. Tolomeo moved on to a presentation of how CASS collects information for the acreage survey. Every other year CASS conducts an acreage survey for the Walnut Marketing Board by contacting growers and gathering parcel information. The results include county data, variety, year planted, bearing and non-bearing. Mr. Keiper asked about the cost of the acreage survey. Mr. Tolomeo stated that the Objective Forecast is \$100,000 annually and the Acreage Report is \$88,000 every other year. There was a discussion about why we do not conduct an acreage survey annually, including the cost and the fact that the trends do not warrant an annual report. Mr. Tolomeo gave a detailed report of how the data is collected and analyzed for the acreage report.

Mr. Keiper stated that the overall crop estimate process has been fairly accurate, especially in the past few years. There has been some discussion about the shift in the crop that has resulted in a reduction from 50% of the crop coming in during September and 50% in October, to less than 20% coming in during September. What the crop might look like in September isn't necessarily how the overall crop will come out when you start looking at the later varieties such as Chandlers that account for 25-30% of the total crop. There is a tendency for some industry people to take the CASS objective measurement and try to analyze it and extract more detailed information from it, especially in nut set by variety. Mr. Keiper asked what it would take and the cost to delve deeper into the model to get more detailed information on specific varieties.

Mr. Tolomeo stated that this is something that CASS has explored and it would take more historical data to develop a relationship between the measurements and the true final data. The Walnut Marketing Board and CASS have data on some varieties (but not all) going back to 1999 and for a model that uses historical data, that is not long enough. Mr. Keiper stated that 230 samples of Chandler statewide is not a big enough sample size to get stratified data. We would need to increase that 3 or 4 times. Mr. Tolomeo stated that because the historical data is not there on Chandlers, it only goes back a few years, it would be very difficult to develop a model.

Mr. Tolomeo said that he thinks he has a pretty good idea of what the industry is looking for and what obstacles CASS will face to provide more detailed and accurate information to the industry. The objective measurement model is used just to get information about the population of the entire crop. He understands the industry wants to know what it would take to do more samples on variety and how would it be worked into the total production. Mr. Balint asked if the variety sampling would be done at the same time as the objective measurement. Mr. Tolomeo confirmed that it would have to be completed at the same time, however, there is a small window of time that the enumerators have to capture the data that is used for the survey. He indicated that CASS could take the variety information and calculate how it relates to the final numbers.

Chairperson Lindauer stated that he feels that CASS understands what the industry would like to see and that they will do what they can to satisfy the request for more information on variety over time. Mr. Keiper reiterated that he understands that variety sampling is an ongoing process that requires historical data and asked that CASS continue expand on it every year. Mr. Tolomeo commented that CASS will look at the data they have, the relationships within the data, and start looking at late versus early varieties. The committee decided that no major changes should be made to the current objective measurement survey and sampling process at this time.

In order to accommodate Dr. Steve Welter who had another commitment that required an early departure from the meeting, Chairperson Lindauer moved forward to agenda item 7, PRAC Working Group

Presentations and Discussion. Dr. Welter is Chair of the Entomology Working Group of PRAC and presented an update of his working group and their research priorities. He explained that there has been some confusion between PRAC and the Research Committee as to how much participation is expected of PRAC. The Entomology Working Group is something that has been in place for many years and has functioned independently from PRAC. The group was originally formed to determine the directions their research should take which he thinks fulfills some of the objectives of PRAC. Dr. Welter explained that the goal of PRAC is to give advice for long-term planning and coordination in the various working groups. He feels that the goal should include input from the Research Committee back to the working groups to let them know if they are on track.

In referring to the Entomology Working Group research priorities (copy attached), Dr. Welter explained that he only listed the high priorities and the ones that are workable. The goal is to move to a more sustainable approach to insect pest management and the two main emphases are the development of pheromones and area wide programs for both codling moth and navel orangeworm. The group believes that the least costly and more long-term management for walnut aphids and mites are in biological controls. Dr. Welter mentioned that he would like to see more participation from industry and Research Committee members in the working groups so that if PRAC goals and priorities get off track they will know sooner rather than later, and this would ensure that proposals coming in from researchers are within the priority guidelines of the Research Committee so that there is no wasted time. Dr. Welter would also like to see working group members attend group meetings other than their own in order to learn about the goals and priorities of all.

Dr. Welter explained that there is a cross-commodity effort in biological controls going on with almonds, pistachios and walnuts funded by the USDA that will receive about \$3.3 million. He would like to propose that the Entomology Workgroup expand across those three commodities because there are certain issues that are shared such as codling moth and navel orangeworm.

Dr. Welter also expressed his belief that PRAC has worked in short-term planning, however, long-term planning has not really been happening. The questions that need to be answered are where should walnut research go in 10 years, where is the innovation happening, how to get in new proposals and how to identify them. He would like to see better use of PRAC to help set priorities and better coordination between the two groups, PRAC and the Research Committee.

Chairperson Lindauer moved back to agenda item 5, GMO Statement – Review and Recommendation to the Board. Ms. Steindorf explained that this item was on the agenda because, even though the Committee made some changes last year to the Walnut Marketing Board GMO statement, that statement was never presented and approved by the full Board. Because there are new members to the Committee this year, it was necessary to revisit the statement prior to presenting it to the Board in May for approval. She distributed a copy of the GMO Statement (copy attached). Chairperson Lindauer stated that there has not ever been and there is not now any genetically modified walnuts produced as a result of anything the Walnut Marketing Board or this Committee has done.

Mr. Tos made a motion to approve the GMO statement as presented. Mr. Petz seconded the motion. Mr. Balint stated that at the time the Board will review this statement in May the Walnut Marketing Board will have adopted the name California Walnut Board so he recommended an amendment to the motion to reflect that name change. Mr. Tos amended his motion as recommended.

After some discussion, the Committee agreed that the wording in the statement “produced any time in this decade” should be revised to “at any time in the foreseeable future.” Mr. Tos amended his motion to reflect that change. The motion carried unanimously.

The next agenda item was Grower Outreach: Establish Research Conference. Chairperson Lindauer explained that the almond industry holds a conference each year that includes a grower outreach meeting. Dr. Ramos stated that the farm advisors and Bruce Lampinen regularly attend the conference. Dr. Lampinen commented that from a research perspective, the researchers probably prefer the Bodega conference because of the interaction. The walnut farm advisors also hold annual grower meetings where research, marketing and industry statistics are discussed. After discussion weighing the pros and cons of the walnut industry holding a conference similar to the almond conference, the Committee decided that it

was not necessary or financially feasible to hold such a conference. The Walnut Marketing Board already does a good job getting information out to the growers in the form of newsletters, extension service grower meetings and annual Board meetings.

Chairperson Lindauer moved on to the next agenda item, PRAC Working Group Presentations and Discussion. Dr. Welter gave his presentation earlier on the Entomology Working Group because of prior time commitments. Ms. Janine Hasey came forward to give her presentation on the Genetic Improvement Working Group, of which she is co-chair along with Mr. Bill Carriere. Ms. Hasey distributed notes from the group's meeting in August 2007 for the Committee's review and explained the background of the working group. The first meeting of the working group was in May 2006 and about 12 people attended from a variety of backgrounds; growers, researchers, farm advisors and Board staff members.

Ms. Hasey explained the research priority spreadsheet as put together by the work group which used Gale McGranahan's format for ranking the issues, by Scion or Rootstock and then by current or future priority. Each issue was given a priority rating, the group discussed the plan, and developed a timeline. Ms. Hasey explained that the real value to these workgroups is that they meet in smaller groups and they can focus on specific topics. One of the high priorities that came out of the meetings was genomics, a long-term solution to many problems in scion and rootstock. In October 2006, a meeting was called at U.C. Davis that included walnut improvement and biotech researchers where they discussed the state of genomics research and basically defined a genomics vision and applied goals to that vision. Out of this came a project that was funded by the Walnut Marketing Board for 2007, Walnut Genome Analysis, from principal researcher Abhaya Dandekar.

Ms. Hasey gave a brief summary of the Walnut Genome Analysis project. The main goal of the project is to increase the speed of walnut cultivar development by identifying bio-markers that will allow selection of traits. They are doing genetic mapping, physical mapping and functional mapping. There are about 800 trees in the walnut germplasm collection and they are fingerprinting all of them. Eventually they will establish the genetic structure with associations for marker selection which will lead to rapid walnut genotyping with new cultivars. Dr. Dandekar has indicated that they are on schedule with this project, possibly even a little ahead.

Ms. Hasey stated that the Genetic Improvement Working Group of PRAC met again in August 2007. The priority list was updated and there was an in-depth discussion on the Walnut Genome Analysis project. They also talked about the status of the transgenic crown gall resistant rootstock which is in a two-year process of testing for metabolite movement through the grafting union. The regulatory process means that it will be 5-7 years before commercialization of that rootstock.

Ms. Hasey stated that she feels that in great part because of the Genetic Improvement Working Group, we are two years into a Walnut Genome project that will bring us closer to new cultivars. Mr. Carriere commented that traditional breeding is a long, drawn out process. However, if we can identify specific markers in a new cross that we know are associated with desirable traits through genome analysis, the process will become much quicker.

Rick Buchner spoke on the next priority list from the Orchard Management Working Group. He stated that he and Joe Grant co-chair this group and they met in August 2006 with about 20 attendees including extension services people, researchers and industry members. Two major issues were discussed: how to get the research job done, insuring research and outreach capacity for the future; and they identified and prioritized orchard management research priorities (list attached). The bigger issue, in Mr. Buchner's opinion, is how to get the research job done. Resources are diminishing so efficiency must improve to use limited researchers with limited funds to get the most done. The industry partnership is required for the mutual benefit of all involved. There are hurdles to overcome, including recent extension service retirements; vacant positions not being filled because there is not a lot of money available; new professors have different interests in priorities; and finding continuity and maintaining enough infrastructure to support ongoing production research.

Chairperson Lindauer asked Dan Kluepfel to present the next subject, the Plant Pathology Working Group priorities. Dr. Kluepfel stated that his work group was the last one to meet, in August 2007 with a diverse group of 16 industry members attending. The work group divided the pathogens into four groups:

fungi, bacteria, nematodes and viruses. There were very few surprises in the high ranking priorities, those being lesion nematode, crown gall, phytophthora, and blight, not necessarily in that order.

Dr. Kluepfel stated that there was a lot of discussion during the meeting and these types of meetings are a very useful exercise for the researchers and the Board. He mentioned that there is a lot of overlap between his Pathology group and the Genetic Improvement group, both in meeting attendance and priority issues, including crown gall and phytophthora.

Dr. Kluepfel concluded by stating that one product of the working group discussions was some more work in blackline, which may be more of an issue than we realize. There is a group getting together on March 21<sup>st</sup> to discuss just the blackline issue.

Mr. Carriere commented that the purpose of PRAC, as he understood it, was to give feedback to the Production Research Committee and to get feedback back from them. The presentations today are giving the Committee the opportunity to let PRAC know that the priorities are on the right track and that going forward would include proposals on these priority issues from the researchers.

Chairperson Lindauer stated that the budget for continuing projects is going to take the majority of the money available this year and will not leave a lot for new projects. If there are new proposals generated as a result of PRAC work group priority issues and they do not get funded, it does not mean that the Committee did not want to fund, only that there are continuing projects that take precedence.

Dr. Ramos commented on the PRAC Post Harvest working group issues in the absence of group chairperson Jim Thompson. He stated that Mr. Thompson feels that he has done as much as he is able because he feels there is confusion or lack of enthusiasm from the Production Research Committee to take on post-harvest related problems. Dr. Ramos stated that Mr. Thompson surveyed the walnut handlers and came up with the priority list of post-harvest issues facing the industry. These include energy utilization, drying efficiency, storage issues, alternatives to methyl bromide and food safety issues. Mr. Thompson made a presentation to the full Board in February 2007 on these issues; the lack of feedback reinforced his feelings that handlers do not have a lot of interest in collectively working on these problems.

Dr. Ramos stated that the Post-Harvest Working Group of PRAC is in limbo until which time this Committee or the Board gives it reason continue. The Committee needs to decide where do we go from here with PRAC; is it functioning and providing the Research Committee what is needed; and does there need to be more input/suggestions as to what PRAC should be doing in the coming years.

A discussion ensued about the role of PRAC and how it was designed to be an advisory council to the Research Committee, not a replacement for the Committee. In order to have PRAC members more included in the research process, it was suggested that the members attend the annual Research Conference in Bodega Bay.

Mr. Tos made a motion that the members of PRAC be invited to attend the annual Walnut Research Conference. Mr. Petz seconded the motion and it carried unanimously.

Chairperson Lindauer moved on to agenda item VIII, Review and Decisions of FY 2007/2008 Research Proposals. He indicated that there is a research budget of \$650,000 that was already approved by the Board and those funds will be allocated towards new and continuing projects today. He would like to begin with a review of the continuing projects and then move on to new projects. Dr. Ramos distributed an analyses and recommendation that he put together based on project status, his personal observations and PRAC working group priorities.

**CONTINUING PROJECTS:**

**Budget  
Recommendation:**

- 1. Walnut Orchard Management: Pilot Projects, Field Testing, Adaptive Research and Problem Solving by CE Farm Advisors and Specialists – 92 WMB 1**  
Lampinen (Ongoing w/review) 46,971

The Committee approved this project at the budget amount requested.

- 2. Walnut Production and Quality as Influenced by Orchard and within Tree Canopy Environment – 07 WMB 6**  
Lampinen (Continuing 2 of 2) 15,583

The Committee approved this project at the budget amount requested.

- 4. Walnut Genome Analysis – 07 WMB 8C**  
Dandekar (Continuing 2 of 4) 150,000

The Committee approved this project at the budget amount requested.

- 5. Walnut Improvement Program – 92 WMB 2**  
McGranahan (Ongoing w/review) 116,238

The Committee approved this project at the budget amount requested. There are separate amounts for Bill Olson and Chuck Leslie who are consultants on this project to be approved at the end of the proposal discussion. Mr. Balint asked Dr. Ramos to include a footnote in the projects next year referencing the consultant fees. Dr. Ramos stated that would not be a problem, however, the contract for the project that goes to U.C. cannot include the consultant fees; the consultant contracts need to remain separate.

- 6. Clonal Propagation of Walnut Rootstock Genotypes for Genetic Improvement – 02 WMB 1C**  
McGranahan (Continuing 2 of 2) 40,000

The Committee approved this project at the budget amount requested. There is a separate amount for Wes Hackett who is a consultant on this project to be approved at the end of the proposal discussion.

- 7. Evaluation of Wild *Juglans* Species and Paradox Rootstock Selections for Crown Gall Resistance – 06 WMB 3C**  
Kluepfel (Continuing 3 of 3) 13,000

The Committee approved this project at the budget amount requested.

- 10. Optimizing “Meso-Pheromone” Emitters for Codling Moth Management in Walnuts – 07 WMB 1**  
Welter (Renewal 1 of 1) 37,755

The Committee approved this project at the budget amount requested.

- 11. Using Aerosol Pheromone “Puffers” for Areawide Suppression of Codling Moth in Walnuts, Year 4 – 05 WMB 7**  
Pickel, Grant (Continuing 4 of 5) 30,000

The Committee approved this project at a reduced budget amount of \$23,000 based on the recommendations from Dr. Ramos and the request of the PI's to reduce their budget in order to fund the new proposal from Nick Mills (#12).

- 13. An Ecological and Molecular Study of the Biocontrol Agent *A. rhizogones* K84 and its Effectiveness in Controlling Crown Gall of Walnut – 07 WMB 4**  
Kluepfel (Continuing 2 of 2) 14,000

The Committee approved this project at the budget amount requested.

- 14. Biology and Management of *Phytophthora* Crown and Root Rot on Walnut – 04 WMB 2**  
Browne (Continuing 2 of 2) 18,500

The Committee approved this project at the budget amount requested.

- 15. Methyl Bromide Alternatives – 01 WMB 3**  
McKenry (Continuing 3 of 4) 24,000

The Committee approved this project at the budget amount requested. A discussion ensued about methyl bromide and the Critical Use Exemption process. Mr. Lindsay expressed his appreciation for Mike McKenry and all the work he does for the industry by helping with the pre-plant CUE.

Mr. Balint stated that it would be a good idea for the Committee to set aside about \$30,000 for a reserve fund in the event EPA or MBTOC comes to us for data that we do not have on methyl bromide or other issues. If we had to collect data at the spur of the moment, there is no budget in order for us to be ready when the time comes to act quickly in such an event.

Dr. Ramos asked if the contingency fund could be set up in next year's budget since there is no leeway in this year's. The Committee agreed to table the issue until the review of ongoing and new proposals is completed.

- 16. Functional Genomic Analysis of Walnut-Nematode Interactions – 06 WMB 2C**  
Dandekar (Continuing 3 of 4) 35,000

The Committee approved this project at the budget amount requested.

- 17. Epidemiology and Management of Walnut Blight – 03 WMB 7**  
Adaskaveg (Renewal 1 of 3) 46,000

The Committee approved this project at a reduced budget amount of \$44,000 again at the request of the researchers in order to accommodate Nick Mills' project (#12).

- 18. Walnut Blight Control Investigations – 95 WMB 5**  
Buchner, Lindow (Continuing 2 of 2) 20,311

The Committee approved this project at a reduced budget amount of \$18,000 again at the request of the researchers in order to accommodate Nick Mills' project (#12).

- 19. Consulting Contracts**  
Hackett, Leslie, Olson (Ongoing with Review) 26,200

The Committee approved the consulting contracts as follows: \$12,000 for Wes Hackett; \$8,400 for Chuck Leslie; and \$5,800 for Bill Olson.

Mr. Balint stated that after review of the on-going projects and approval of the new project from Nick Mills, there is \$7,232 unallocated of the \$650,000 budget. Chairperson Lindauer suggested the Committee review the remaining new projects to see if there is anything the Committee would like to fund.

Mr. Tos asked Dr. Ramos, of the continuing projects, how many are really in their last year and will be terminating. Dr. Ramos stated that there are several, including project #13 from Dr. Kluepfel, that will more than likely come to an end. A discussion ensued about walnut blight and the Walnut Blight Control Investigations (project #18). Mr. Lindsay stated that we have to have that ongoing research from that project or we will not get the Section 18 on Manex each year. Mr. Balint stated that there may be some relief next year if we get the Section 3 on the replacements for Manex.

The discussion regarding the \$30,000 contingency fund continued. Mr. Balint stated that, if nothing else, he would like the Committee to make a recommendation to the Board to establish a contingency fund separate and apart from this Committee's budget for methyl bromide or other research that may be needed.

The Committee discussed proposal #9 from Jim Leesch. Dr. Leesch is a valuable resource for methyl bromide research and his input is critical to the industry. Unfortunately, there are not many researchers who would be available to assist us with any urgent issues that arise. Mr. Lindsay stated that it also reinforces our position to MBTOC and EPA that we have current, ongoing projects on critical issues such as finding a replacement for methyl bromide.

Mr. Norene made a motion to approve Dr. Leesch's project (#9) with the remainder of the budget, \$7,232. Mr. Tos seconded the motion and it carried unanimously.

Mr. Siebert made a motion to recommend to the Walnut Marketing Board that a contingency fund of \$30,000 be established in the 2008/09 budget for unexpected research related issues that arise, i.e. methyl bromide. Mr. Tos seconded the motion and it carried unanimously.

### **NEW PROJECTS:**

- 3. Developing a 3-D Computer Simulation Model of Walnut Tree Architectural Growth and Dry Matter Partitioning – 08 WMB 1**  
DeJong, Lampinen (New 1 of 4) 44,157

The Committee did not fund this project.

- 8. Prevention of Preharvest and Postharvest Fungal Infection in Walnut: Antimicrobial Natural Compounds and Target Gene-Specific Control – 08 WMB 2**  
Campbell (New 1 of 3) 19,460

The Committee did not fund this project.

- 9. A Comparison of Methyl Bromide and Profume® Efficacy Against the Eggs of Navel Orangeworm and the Diapausing Larvae of Codling Moth in Walnut Fumigations Conducted at NAP and Under Vacuum – 08 WMB 3**  
Leesch (New 1 of 2) 7,000

The Committee funded this project at \$7232.

- 12. Selective Pesticides and Biological Control in Walnut Pest Management – 08 WMB 4**  
Mills (New 1 of 3) 20,521

The Committee approved this project at the budget amount requested.

Mr. Norene made a motion to approve the following projects at the budget amounts requested except where noted: 1, 2, 4, 5, 6, 7, 9 (increased to \$7,232), 10, 11 (reduced to \$23,000), 12, 13, 14, 15, 16, 17 (reduced to \$44,000), 18 (reduced to \$18,000), and consulting contracts for Wes Hackett, Chuck Leslie, and Bill Olson for a total not to exceed \$650,000. Mr. Petz seconded the motion and it carried unanimously.

Chairperson Lindauer moved to the next agenda item, Recommendation to the Board for Research Funding for 2008/2009. Mr. Moore recommended no less than \$700,000. After a brief discussion, Dr. Klonsky made a motion to recommend a Production Research budget for 2008/2009 of \$715,000. Mr. Moore seconded the motion. Dr. Klonsky then amended her motion to a budget recommendation for 2008/2009 of \$725,000 to more closely match the total of projects that were submitted this year. Mr. Moore amended his second and the motion carried unanimously.

Under other business, Dr. Lampinen mentioned that the Walnut Research Conference in Bodega Bay will be January 21-23, 2009.

The time and place of the next meeting will be left to the discretion of the Chair. There being no further business, the meeting adjourned at 2:53 p.m.