

REPORT
Education and Extension Committees
Conifer Translational Genomics Network
Coordinated Agricultural Project
University of California, Davis
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[Report submitted at Annual CTGN Project Meeting, June 22-23, 2009. CTGN Project responses to recommendations follow below in italic Calibri font.]

Education

Primary educational efforts of the CTGN over the past year included the recently held shortcourse, entitled Genomics in Tree Breeding and Forest Ecosystems, as well as a quarter-long course at Oregon State University. The shortcourse, originally intended mainly for graduate students, attracted 23 participants but few were actually grad students (4 graduate students, 5 post-doctoral fellows, and 14 industry representatives). Based on the extensive survey done by the Conifer CAP professional evaluator, the course was quite successful, with generally favorable evaluations.

Recommendations:

- Suggestions for future iterations of the shortcourse include focusing more on applications and less on theory.
- The wide range of experience and educational backgrounds of the participants in the first shortcourse made the course challenging. The instructors did a very commendable job on the first time through the curriculum as a short course. Depending on the makeup of future shortcourses, perhaps the course could be organized to accommodate this diversity by, for example, using remedial readings or providing instruction before the class begins.

These two recommendations are related. Enough theory to bring participants to the same starting point will always be necessary. Diversity of experience and educational background will likely always be a challenge, as will expecting participants to prepare in advance of a shortcourse, no matter how much emphasis is placed on the importance of remedial reading. We will continue to make this effort, but we will also have to expect that the first session of future courses will have to include material and theory intended to get everyone at the same starting point. Our application process, which requires a narrative describing interest and background from applicants is one way to anticipate and plan for the diversity of backgrounds for any one shortcourse.

- Other constituencies could be surveyed to determine if there is interest in putting together a combined genomics shortcourse. One approach might be to coordinate with other CAPS to see if a general genomics/plant breeding section of the shortcourse could be followed by separate sections that are crop-specific. Perhaps this could be discussed with the other CAPs to see if such an approach would be marketable and create a new pool of

graduate students and other participants. The modular organization of the course lends itself to this type of approach.

We recognize the merit in this suggestion, but have to balance an attempt to collaborate with other projects with our need to fulfill our specific education and extension requirements. A first step could be offering modules specific to this project for presentation at other project training and outreach events. The full extent of such recommended collaboration will also depend upon the approval by USDA CSREES who will need to be satisfied that each separate project is fulfilling its objectives.

- To increase graduate student interest in forestry careers, it was suggested that a couple of short You-Tube movies be created that feature some interesting aspects of the profession, as well as interviews of young people who have chosen this career. Offer students at participating institutions a small “prize” for the winning video – a very successful venture by the American Society of Plant Biologists (<http://www.chlorofilms.org/index.php?module=Pages&func=display&pageid=6>).

This is an interesting suggestion. We will investigate the ASPB model and consider how something similar for forestry could be generated or supported by this project. An integral outreach component of our NSF sponsored ADEPT2 project was the creation of a website designed specifically to attract students to forestry and natural resource careers. This website is very popular, and receives continued updating through the Dendrome server and staff (www.forestrycareers.org). Any videos produced by the CAP project would logically be housed at this site.

Extension

Extension activities during this past year consisted mainly of presentations to the tree improvement cooperatives, about 50 presentations in total. The CTGN sees direct encounters, consultative interactions, on-line resources, and peer-reviewed papers as outreach products for next year. Plans are also to continue with presentations to co-op directors and members. The Advisory Board appreciates that the materials in these presentations were at a level more appropriate to the interests and educational levels of this clientele. Historically some technologies have been “oversold” to the forestry community. CTGN is clearly making an effort to help the community understand the MAS technology but not to overemphasize its potential. CTGN is very proactive in conducting evaluations of both the education and extension activities. Michael Coe, Cedar Lake Research and Consulting Group, LLC, from Portland, OR is leading these evaluation efforts.

Recommendations:

- The focus of these presentations should be more on possible applications (see below) than on understanding the intricacies of the scientific approaches. Some industry participants are technicians, some with only a high school education, making it difficult for them to take full advantage of the information offered.

We agree. Of course the content of any given presentation is dictated first by the audience. We can and will continue to tailor our presentations to the audience as best we can, with emphasis on application rather than science. Our current focus is on development of three interrelated journal articles that are intended to be very applied in nature. Future extension presentations will take this recommendation into account.

- Success of extension depends on adoption of new technologies and changes in attitudes and practices. But, at present the science is still developing and there are no concrete examples in forestry; however, other crops do have successes with MAS and using these is another means of communicating its potential utility.

We were extremely encouraged by feedback and comments given by attendees at our short-course. A handful of participants, responsible for breeding programs, clearly indicated a change in attitude toward use of MAS in their operational programs, and signaled a willingness to initiate projects now. We will carefully evaluate MAS and association genetics case studies from other organisms for their utility as examples for promoting the technology in forestry.

- For some target groups, there may also be an infrastructure problem, since some do not have the laboratories and equipment to adopt the technology. So the focus should be on changing attitudes toward the utility of the technology so that they will be receptive when applications of the technology are ready to be adopted.

This recommendation will be accommodated by future extension presentations and outreach events. What we have tried to do in our presentations to cooperative members is offer them our services as scientific advisors on how to implement marker applications in their programs. This has already taken the form of designing projects, facilitating contracts with genotyping service companies, and guidance on how to use software, such as QTL Express.

- Activities of co-op directors should focus on continuing to expose their members to the information covered in CTGN presentations. Is this information being included in yearly reports, newsletters, web sites, listserves, etc.?
- CTGN might consider follow-up sessions with the co-op directors to determine if CTGN can provide additional information or help in encouraging continued educational activities for their members. Having directors comfortable with this information will be helpful in advance of having the products of the technology available.

These two recommendations are related. It bears repeating that our co-op directors are the CTGN team. The Extension and Education director(s) work hand in hand on a regular basis, to both create and deliver the information to each other and the paying members of the cooperatives. The largest contribution the E&E staff can make to co-op director/team members is perhaps the summary and interpretation of results from our sister ADEPT2 project, which is just now wrapping up.

- Annual reports of the co-ops should be linked to the CTGN website and vice versa in order to provide more continuity in informational exchange.

We will work to acquire and publish links to the co-op reports and outreach efforts at the CTGN website.

- A quarterly newsletter from the CTGN might keep target audiences connected to the project by providing backgrounds of CTGN participants, by describing successes of MAS in other crops, and by summarizing in lay language papers on topics of interest.

There is merit in this idea, but a quarterly interval may be too ambitious for the staffing and funding available. Informally, we routinely route new published works to our team members and until last quarter, we have circulated quarterly progress reports to all team members, committee members and stakeholders in our listservs. The newsletter concept is a good one and we will pursue it as time allows.

- The AFRI approach to extension relies heavily on eXtension and has become the mandated primary extension tool for the new CAPs; “older” CAPs are also strongly encouraged to adopt this approach. SolCAP has been given funding to coordinate eXtension activities of the CAPS and to prepare them for inclusion in the eXtension website. CTGN should contact SolCAP to determine how to coordinate posting of both education and extension resources on eXtension.

We will follow up this recommendation to contact SolCAP with regards to their use of eXtension.

- Development of one or more fact sheets on marker assisted selection and breeding as a profession might be included in the U.S. Forest Service/UC-Davis: “Why We Care About Genetics” series. These could also be distributed following training sessions.

This series does provide a good model for lay-person-oriented information. While this series seems to be no longer active, the CTGN website could post its own factsheets with the suggested topics.

General Concerns

- The committee has some concerns about how CTGN will effectively carry on the education and extension program after David Harry leaves. Dave communicates very effectively with a broad educational range of clientele, brings much knowledge, enthusiasm, and commitment to the project, and thus will be very difficult to replace. Communicating effectively to different target audiences at the appropriate level is not easy; care should be taken to identify an individual with a proven track record in this regard.

Dr. Harry’s departure is clearly a keen concern for the CTGN project and we have given it considerable attention. As the EAB has noted, replacing Dave’s capabilities and experience is a desirable goal, though it will no doubt be a difficult replicate. Finding someone with the appropriate skills that is available and willing to work part will be the major hurdle. We are evaluating several

approaches to filling this gap and will try to inform the EAB as soon as we have decided how to move forward.

- The committee also suggests that a replacement be sought for Extension Advisory Board member, J.B. Jett, who has retired.

Retirement status per se doesn't disqualify someone from service as an advisor. We need to clarify Dr. Jett's interest in continuing in this capacity.

- Advisory Boards can provide useful feedback on direction and approach, but it is most useful to Conifer CAP if individuals are actively involved and attend meetings. Perhaps some members of the Advisory Boards, who are not able to actively participate, might be replaced with others who are more committed to assuming this responsibility.

This is an on-going challenge for this and any project. The most effective advisors are individuals who are actively engaged in the areas of their expertise. This puts them in great demand and it can be difficult to schedule events to capture full participation of all relevant parties.

Summary

Overall, the Education and Extension Advisory Boards feels that the CTGN has done a very good job in the education and extension arenas. CTGN benefits from having small and very well-defined education and extension target audiences and individuals committed to effectively delivering information to these groups.

We appreciate this recognition by the advisors.