

FINAL PROJECT REPORT

Project Title: Consulting for the Washington apple breeding project

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Cooperators: Bruce Barritt, Jim McFerson, Cameron Peace, Yanmin Zhu, Amit Dhingra

Other funding Sources **Not applicable**

Total Project Funding: \$7500

Budget History:

Item	2008		
Salaries			
Benefits			
Wages			
Benefits			
Equipment			
Supplies			
Travel	\$2,000		
Miscellaneous	\$5,500		
Total	\$7,500		

ORIGINAL OBJECTIVES

- Coordinate and lead monthly conference calls among the apple breeding cooperators to facilitate discussion of important issues related to apple breeding and this program.
- Support work of the program leader, Bruce Barritt (and the new breeder when appointed) and that of other interacting scientists through presentation of ideas evaluation of strategies and plans, focusing of commercially-oriented objectives and measure of progress against project goals.
- Provide analysis and critique of proposals for competitive funding of research and development related to apple breeding.
- Identify other programs, breeders, and scientists in the public and private sectors that can provide collaborative support to the breeding program.
- Facilitate the transition that is expected to occur as Bruce retires and a new breeder is hired to lead the program.

SIGNIFICANT ACTIVITIES AND FINDINGS

- Coordinated conference calls with members of the apple team.
 - Nine conference calls during the year to discuss issues relevant to the apple team activities. Participants included Jim McFerson, Bruce Barritt, Cameron Peace, Amit Dhingra, Yanmin Zhu, Jim Mattheis, Dave Rudell, Kate Evans.
- Reviewed and critiqued research proposals for apple team members
 - Individual submissions to the NRI competitive grants program
 - Group proposals for the national RosBreed and RosTrait submissions
 - Several funding proposals to the WTFRC
- Facilitated integration of MAS into the Washington apple breeding program.
 - Worked with Cameron and students to critique the MASS decision tool.
- Provided key references to apple team members.
- Participated in the Apple Research review.
- Submitted invoices for expenditures on a quarterly basis.

RESULTS & DISCUSSION

The monthly conference calls continued to be a useful forum for members of the apple team to identify issues and opportunities for group input and to bring perspectives from different points of view.

WSU faculty and ARS scientists were actively involved in submitting individual and group proposals for competitive funding of apple and other fruit crops relevant to Washington and the PNW. Several

scientists associated with apple improvement received competitive grants through the NRI and many of those resources make substantial contributions to the success of this breeding program and other improvement projects. Several large collaborative projects were not funded, e.g., RosBreed and RosTrait, but the resources and contacts resulting from those efforts are proving useful, never-the-less. I reviewed many of those proposals and am available to assist researchers in developing their proposals.

I worked with Cameron Peace and his lab to critique their ideas during development of the MASS analytical tool for assessing the value of using MAS and different approaches for integrated trait development. The availability of apple trait priorities which we developed previously was useful for applying these assessments to the Washington Apple Breeding Program. The breeding program is moving along nicely toward integrating MAS as part of the selection protocol for identifying outstanding individuals in selection populations.

Kate Evans is on board as the new apple breeder and the transition of leadership of the breeding program from Bruce Barritt to her is progressing very well. This program is well-organized and beginning to produce a good flow of selections for advanced testing and potential new cultivars. It is well positioned to take advantage of the new genomics and genetics resources to make major steps forward in improving selection efficiency and effective evaluation and release of new materials for the benefit of the Washington apple industry.

EXECUTIVE SUMMARY

Title: Consulting for the Washington apple breeding project

PI: Fredrick A. Bliss

WTFRC Funding: \$7,500.

I continued as a consultant to the Washington apple breeding program which is an established, well-managed program focused on development of new cultivars that will be major contributors to improving the global competitiveness of the Washington apple industry. Superior selections developed by Bruce Barritt and his team are being evaluated for advanced trials and commercial release.

Traditionally, development of new cultivars has required between 15 and 20 years from first cross to release if all goes well. Because the investment of time and resources in a breeding program is substantial, there is a need to increase the efficiency of the breeding program and reduce time to commercialization as much as possible. Recent developments in molecular genetics and genomics provide excellent opportunities to streamline breeding programs provided that new approaches are well integrated with proven classical methods.

My project objectives this year were to: 1) Coordinate and lead monthly conference calls among the apple breeding cooperators to facilitate discussion of important issues related to apple breeding and this program; 2) Support work of the program leader, Bruce Barritt and that of the new breeder and other interacting scientists through presentation of ideas, evaluation of strategies and plans, focus on commercially-oriented objectives and measure of progress against project goals; 3) Facilitate the transition of program leadership from Bruce to the new breeder; 4) Provide analysis and critique of proposals for competitive funding of research and development related to apple breeding; and 5) Identify other programs, breeders, and scientists in the public and private sectors that can provide collaborative support to the breeding program.

The monthly conference calls continued to be a good vehicle for sharing ideas, concerns and opportunities among team members. I was actively involved with helping members prepare and develop competitive grant requests to various funding groups at the regional and national levels.

The integration of marker assisted selection into the breeding program is progressing well, with major input from supporting scientists, such as Peace, Zhu, Dhingra and others. There are numerous opportunities to develop MAS capabilities and the previous work by the team to prioritize traits for conversion to molecular markers has been very useful in guiding these efforts. The MASS decision tool being developed by Peace will further focus priority efforts for technology development and application to apple breeding.

The transition of responsibility for leadership of the breeding program from Barritt to Evans is progressing well in my opinion and it is poised to produce a continuing flow of superior selections for advanced evaluation with improved efficiency and precision using molecular techniques combined with good classical breeding.