

FINAL PROJECT REPORT
WTFRC Project Number: CH 07-700

Project Title: Consulting for the Northwest Cherry Improvement Project

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Cooperators: Matt Whiting, Jim Olmstead, Amy Iezzoni, Jim McFerson

Other funding Sources: NA
Agency Name:
Amount awarded:
Notes:

Total Project Funding: See below.

Budget History:

Item	Year 1:	Year 2:	Year 3:
Salaries			
Benefits			
Wages			
Benefits			
Equipment			
Supplies			
Travel	\$1,500.		
Miscellaneous	\$6,880.		
Total	\$8,380.		

Significant Activities and Findings:

Coordinated conference calls with collaborators to evaluate traits for marker assisted selection and other technology applications.

- Approx. 8 group conference calls during the year. Participants included: Jim McFerson, Jim Olmstead, Amy Iezzoni, Amit Dhingra, Yanmin Zhu.

Evaluated and rated the following traits for importance and action regarding marker assisted selection and other activities.

- Tree juvenile period
- Productivity (fruit yield potential)
- Fruit weight
- Fruit texture
- Fruit firmness
- Taste (brix=soluble solids)
- Taste (titratable acidity)
- Fruit doubling (polycarpy)
- Skin (rain) cracking

Traveled to Washington State to evaluate project and assess activities and progress.

- Nov. 15 – 17, 2006. Traveled to Pasco, WA to attend and participate in the WTRFC Cherry Research Review.
- May 8, 2007. Stopped in Prosser, WA to visit research station and the cherry breeding project in conjunction with the Apple workshop in Pullman and Wenatchee organized by Cameron Peace.

Provided review of project proposals, plans and results.

- Breeding program progress reports
- Breeding program final (3-year) report
- Various proposals for marker development and marker assisted selection

Identified and compiled references for breeding and genetics of sweet cherry.

- Approx. 30 key references incorporated with trait decision trees

Submitted invoices for expenditures on a quarterly basis.

Quarter one (October 30, 2006 – December 31, 2006)	\$3,041.37
Quarter two (January 1, 2007 – March 31, 2007)	\$1,440.00
Quarter three (April 1, 2007 – June 30, 2007)	\$ 680.00
Quarter four (July 1, 2007– Sept. 30, 2007)	\$ 640.00
Total	\$5,801.37

Results and discussion:

Cherry team members participated in conference calls to assemble a list of sweet cherry traits which were then evaluated for importance as traits for improved cultivars. This evaluation was used to identify traits having the most value and potential for implementing marker assisted selection (MAS) and related activities to complement classical breeding and selection procedures in the cherry breeding program. Tree juvenile period, fruit weight, taste (brix=soluble solids), taste (titratable acidity), skin (rain) cracking and fruit firmness were ranked as very important; Productivity (fruit yield potential) and fruit doubling (polycarpy) were ranked as moderate importance and fruit texture as limited importance.

Marker assisted breeding can be used to enhance the efficiency of selection, but development and implementation usually have considerable cost. Therefore it is important to choose the most important and valuable traits on which to expend time and resources. This combined exercise has provided guidance to team members as they develop projects related to breeding as well as guidance to the breeding program.

The idea of identifying the current leading cherry cultivar(s) for each target market as well as the desired traits for a new cultivar for that market was introduced to provide a goal and targets for measuring progress in the breeding program. The goal is to replace the market leader in each target market with a new, improved cultivar in a minimum length of time.

Good progress has been made during the first three years of breeding toward reaching the goals for number of crosses and seedlings produced. Considerable attention is being paid to how best to evaluate the seedlings at locations that are most effective in allowing selection and represent the target production areas. The parents of these crosses represent a wide genetic base for sweet cherry, but there is concern about whether there is sufficient genetic variability in the cultivated gene pool of sweet cherry to generate unique new traits for consumer traits.

An excellent team of researchers is becoming available to contribute to the overall breeding effort. The interaction via conference calls and other means is important to optimize collaboration in order to have a productive project.

It is important that a permanent breeder be hired as soon as possible to provide guidance and leadership for the breeding program and assure that the significant momentum to date continues.