Final Report for 2008-2009 RERF Funded Project

Title: 100-Watt CO2 Laser Processing System-Synrad Firestar t-Series Laser

Award Date: 01/31/2009; Award Amount: $22,000
(Doc #: VL005001; Index: AFC251 AFE1)

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1. Budget Statement
This RERF fund was awarded to Dr. Qingyue Ling on January 30, 2009 in a total amount of $22,000. The cost of the laser system was $34,859. The Food Innovation Center matched the total of $12,859 and purchased this laser system With the OSU check number 51151317 from Synrad at Mukilteo, WA on April 17, 2009. The system was first set up for running at the Food Innovation Center on June 17, 2009. The system has been running well for various projects since then.

2. A brief summary of the scholarly work/activities made possible as a result of the RERF funding.
   a. Supported a research project “Innovating a Laser Wheat-Perforating Technology to Reduce Kernel Hardness for Milling”, and presented research result at 2009 AACC International Annual Meeting, September 13-16, Baltimore Convention Center, Baltimore, MA.
   b. Supported a Master degree graduate research work “EXPERIMENTAL INVESTIGATION OF CARBON DIOXIDE LASER (CO₂) PERFORATION AS A POTENTIAL SKIN PRETREATMENT FOR SUGAR INFUSION OF BLUEBERRIES”, August, 2010
   c. 2011 IFT International Conference poster “Improving Sugar Infusion Process of IQF Blueberries with Carbon Dioxide (CO₂) Laser Skin Pretreatment”
   d. Pending research publication paper “The use of carbon dioxide (CO₂) laser perforation as surface treatment to improve blueberry infusion process” Journal of Food Science
   e. Supporting an ARF funded research project “Improving Quality and Dehydration of Value-added Blueberries Using CO2 Laser Processing Technology”.

3. A brief summary of any additional scholarly activities the RERF funding made possible for the investigator(s).
   a. Laser marked hazelnut samples for Oregon Department of Agriculture’s Oregon product promotion conference, July, 2009
   b. Laser marked 481 wood coins as gift items for OSU University Event Office, May 11, 2009
   c. Laser marked fresh apples for Oregon Farm Bureau promotion of Oregon products, December, 2009.

e. Laser marked Hazelnuts samples for Hazelnuts Growers of Oregon, January 18, 2010

f. Laser marking demo at Oregon State Fair at Salem, OR on September 3rd, 2010

g. Laser marked 800 orange samples for OSU Housing and Dining Services on September 22, 2010

h. Laser marking demo for Congressman Kurt Schrader at FIC on April 22, 2011

4. List all external funding requests (i.e. proposals) that have been developed and submitted as a result of the RERF funding.