

University of California
Division of Agricultural Sciences

PROJECT PLAN / RESEARCH GRANT PROPOSAL

Project Year: 2008 Anticipated Duration of Project: 2nd year of a 2 year project

Project Leader: Buchner,R.P. and Lindow,S.E. Location: Tehama County

Cooperating Personnel: Jim Adaskaveg

Project Title: Walnut Blight Control Investigations

Keywords/Commodity(s): Walnut Blight, Xanthomonas campestris, copper/Manzate, Walnut

Relevant AES/CE Project No.: _____

Problem and its significance:

Walnut blight research has been published in the Walnut Research Reports as far back as 1972 when Floyd Perry evaluated early spray timing. Reports have been published for almost every year through 2007. From the early seventies to the early nineties Olson, Moller, Fitch, Jeter, Kado, Dutra, Sibbett, Mulrean, Schroth, Teviotdale, Lindgren, Reil, Harper, McCain, Krueger, Osgood, Woeste and McGranahan contributed to the research effort. Buchner started working with Olson in 1991 and Lindow and Adaskaveg joined the team in 1994. Including 2007, ninety-nine titles have been published in the Walnut Research Reports (<http://walnutresearch.ucdavis.edu>). The magnitude of the research effort points to the significance of the disease. Excellent progress has been made. First spray timing at 40% prayer stage and copper plus Manex tank mixes are working fairly well even under simulated rainfall. Tagging buds and evaluating bacteria location and population size have helped with first spray timing. Kocide 3000, Manzate and materials from the Adaskaveg project have entered the playing field. Concerns are developing regarding elevated kernel copper levels following blight sprays.

Objectives:

- 1) Complete the work on efficacy of early-season bactericides applied at different phenological stages for disease control (Lindow work).
- 2) Continue to evaluate 0, 8, 16, 32 and 64 ounces of Breakthru for disease control using Manzate and KOC 3000
- 3) Continue to look at the Manex replacement Manzate and evaluate any new materials if available. Will include copper alone and copper plus Manzate if we still need registration data.
- 4) Evaluate Kocide 3000 with 3 rates of Manzate.
- 5) Evaluate walnut bud break phenology and cropping based upon bud break.
- 6) Evaluate kernel copper content for sprayed and unsprayed trees.

Plans and Procedures:

- 1) Finish up the bud tagging experiments. Tag 500 buds per tree at 5 day intervals starting at first bud break. At each interval, trees will be sprayed with a Kocide/Manzate/Breakthru mix. Help from the Lindow lab will be required to tag buds, evaluate bacterial populations and do final disease rating.
- 2, 3 and 4) Randomized complete block design spraying individual trees to compare spray treatments under simulated rainfall. Rate disease in early June. Help from the Lindow lab will be required to rate diseased walnuts.
- 5) Tag opening buds and evaluate cropping by counting walnuts.
- 6) Lab analysis of kernel copper content for treated and untreated trees.

BUDGET REQUEST

Budget Year: 2008-2009

Salaries and Benefits		_____
Postdocs/RA's		_____
SRA's	Lindow Lab support	<u>4,000.00</u>
Lab/Field Assistance	Tehama field assistant 4 mos x 2,252/mo = 9008.00	<u>9,008.00</u>
Subtotal		Sub 2 <u>13,008.00</u>
Employee Benefits	(Tehama)	Sub 6 <u>3,603.00</u>
		SUBTOTAL <u>16,611.00</u>
Supplies and Expenses	Flags, tags, etc. + lab evaluations	Sub 3 <u>2,000.00</u>
Equipment	Sprayer maintenance	Sub 4 <u>1,000.00</u>
Travel	Walnut Research Conf at Bodega Bay	Sub 5 <u>700.00</u>
		TOTAL <u>20,311.00</u>

Department account number _____

Originator's Signature Date _____

COOPERATIVE EXTENSION County Director _____ Date _____

Program Director _____ Date _____

AGRICULTURAL EXPERIMENT STATION Regional Director _____ Date _____

LIAISON OFFICER _____ Date _____