

ROW CROP/OTHER

Project: 77 Studies on Biology and Control of Root-Knot Nematodes in Vegetable Crops

Project Leader: Philip A. Roberts, Ph.D., Professor and Nematologist, Department of Nematology, UC Riverside

Objective: The development and characterization of cultural and genetic (resistance) control strategies for root-knot nematode in vegetable and rotational row crops. Emphasis is placed on the study of nematode biology and population dynamics through agricultural manipulation.

Project: 456 Alfalfa Experimental Germplasm and Cultivar Adaptation and Evaluation – Testing of Conventional and RR Varieties

Project Leader: Daniel H. Putnam, Ph.D. Associate Agronomist, Department of Plant Sciences, UC Davis

Objective: 1. To evaluate certified cultivar differences in alfalfa forage yield, quality, and persistence, and to communicate these results to clientele. 2. To develop and provide forage yield and performance data on alfalfa experimental germplasm to public and private alfalfa scientists. 3. To test the differences, should they exist, in yield between RR and non-RR alfalfa varieties.

Project: 461 Specialty Crops Development and Variety Evaluation for the San Joaquin Valley

Project Leader: Manuel Jimenez, Farm Advisor, UC Cooperative Extension, Tulare County

Objective: To provide research based information on new specialty crops for the small scale growers of the San Joaquin Valley.

Project: 501 Evaluation of Blackeye Breeding Lines for Performance and Insect Resistance

Project Leader: Philip A. Roberts, Ph.D., Professor and Nematologist, Department of Nematology, UC Riverside

Objective: 1) Identify a new blackeye and an all-white breeding line as potential new varieties for California through grain yield and quality evaluations of advanced blackeye breeding lines. 2) Confirm and quantify sources of genetic resistance to cowpea aphid, and begin to transfer this resistance to adapted breeding lines. 3) Quantify the resistance to lygus bug present in breeding lines 96-11-27 and 99-8-321-2 and accessions IT95K-1479 and IT95K-1491, and transfer this resistance to adapted breeding lines.

Project: 663 Deep Vadose Zone Flow Study

Project Leader: Thomas Harter, Ph.D., Associate CE Specialist, Department of Land, Air, Water Resources, UC Davis

Objective: To maintain the field site as a vadose zone research laboratory for UC Davis and other investigators cooperating with the project leaders.

Project: 811 Studies on Biology and Control of Root-Knot Nematodes in Vegetable and Grain Legume Crops

Project Leader: Philip A. Roberts, Ph.D., Professor and Nematologist, Department of Nematology, UC Riverside

Objective: The development and characterization of cultural and genetic (resistance) control strategies for root-knot nematode in vegetable and rotational row crops. Emphasis is placed on the study of nematode biology and population dynamics through agricultural manipulation, and crop improvement through breeding selection.

Project: 851 Specialty Small Fruit Evaluations

Project Leader: Manuel Jimenez, Farm Advisor, UC Cooperative Extension, Tulare County

Objective: The initial objective was to establish a blueberry and blackberry planting to make preliminary evaluations on growing blueberries and blackberries. From those preliminary studies many growers planted these crops commercially. To assist clientele with these new crops it will be necessary to conduct much more detailed research trials. The recently established trials will go a long way to improve productivity and therefore profitability for blueberry growers.

Project: 856 Annual Specialty Vegetable Research

Project Leader: Richard Molinar, Farm Advisor, UC Cooperative Extension, Fresno County

Objective: To identify new and/or improved annual specialty crops that will improve the economic returns to the small farmer, and to investigate technologies including pest management that the small farm operator can adopt.

Project: **857 Perennial Specialty Crop Research**

Project Leader: *Richard Molinar, Farm Advisor, UC Cooperative Extension, Fresno County*

Objective: To identify new and/or improved perennial specialty crops that will benefit the economic returns to the small farmer, and to investigate technologies including pest management that the small farm operator can adopt.

Project: **1002 Ozone Impact on Crops**

Project Leader: *David Grantz, Ph.D., Extension Specialist, Botany and Plant Sciences, UC Riverside, Kearney Agricultural Center*

Objective: 1) To quantify the impact of altered root system function on competition between weedy species (nightshade and nutsedge) and cotton and melon, in pots containing scintered clay. 2) To contrast aphid honeydew, phloem sap obtained from melon by surgical manipulation of the petiole, and sap obtained from cotton using severed aphid stylets. 3) To quantify the morphology, branching, surface area etc. of root systems of cotton and melon, using computerized image analysis. 4) To determine whether the internal anatomy (xylem area to cross sectional area) is altered by ozone exposure. 5) To screen modern cultivar of kiwifruit for effects of ozone on gas exchange, growth, and root proliferation. 6) We are planning a field study of mandarin and navel orange responses to ozone, using a natural gradient of ozone in several locations. We propose to undertake a preliminary screen of genotypes in the chambers to identify the nature of ozone symptoms of facilitate their identification in the field.

Project: **1009 Cover Crops and Biofumigation for Root-Knot Nematode Management**

Project Leader: *Antoon Ploeg, Ph.D., Associate Extension Nematologist, Department of Nematology, UC Riverside*

Objective: Compare the effect of different cover crops and their subsequent use as a biofumigant on the population levels of root-knot nematodes (*Meloidogyne javanica*) and plant growth of a subsequent nematode susceptible vegetable crop.

Project: **1010 IR4 Kearney Field Research Center**

Project Leader: *Fred H. Swanson, Field Research Center Project Leader, Kearney Research and Extension Center*

Objective: 1. To conduct annually 30-40 Magnitude of the Residue field trials in support of the IR4 program according to U.S. EPA Residue Chemistry Guidelines (Series 860.1500) and compliant with FIFRA Good Laboratory Practice standards to satisfy the registration data requirements of federal and state regulatory agencies. 2. To report efficacy and phytotoxicity results.

Project: **2005 Biology and Ecology of the Corn Leafhopper and Corn Stunt Spiroplasma in the Southern San Joaquin Valley**

Project Leader: *Charles G. Summers, Ph.D., Entomologist, Department of Entomology, UC Davis, Kearney Agricultural Center*

Objective: 1. To determine the biology and over-wintering capabilities of corn leafhopper and corn stunt spiroplasma in the San Joaquin Valley. 2. To determine the level of resistance to *D. maidis* or CSS in currently available silage corn cultivars.

Project: **0502 Weed Control in Blackeyes**

Project Leader: *Kurt Hembree, Farm Advisor, UC Cooperative Extension, Fresno County*

Objective: To screen various herbicides and combinations of herbicides to determine effects on efficacy, crop tolerance, and yield.

Project: **0606 Evaluation of Efficacy and Residual Control of Mosquitoes by Bi-Larv**

Project Leader: *Anthony Cornel, Ph.D., Associate Entomologist, Department of Entomology, UC Davis, Kearney Agricultural Center*

Objective: Determine the residual efficacy of slow release tablet formulation of Dimilin known as Bi-Larv against *Culex pipiens quinquefasciatus*.

Project: **0707 Multi-Site Evaluation of Saccharum Complex and Other Potential Energy Crops**

Project Leader: *David Grantz, Ph.D., Extension Specialist, Botany and Plant Sciences, UC Riverside, Kearney Agricultural Center*

Objective: Evaluate a variety of colonial and (later) seeded materials of the tropical grasses, sugarcane and sweet sorghum for biomass production on a year round basis to support an active ethanol refinery. Additional promising counter-cycle crops could be added to the project in later years as needed to round out the 12 month availability of biomass. Conduct agronomic, physiological and chemical studies of the most promising cultivars for their suitability to the emerging biofuels industry. Evaluate water use and fertility requirements of selected materials to optimize the economics of production of biofuel crops under Imperial Valley, East San Joaquin Valley and West San Joaquin Valley conditions. Work with the industry to refine the germplasm available for anticipated industrial end uses.

Project: **0708 Management of Soil-borne Diseases of Carrot and Potato in a Sustainable Agricultural System**

Project Leader: *R. Michael Davis, Ph.D., Professor and Extension Specialist, Plant Pathology, UC Davis*

Objective: 1) Compare the influence of soils in a conventional agroecosystem (synthetic fertilizers and a fallow period), a low-input system (organic soil amendments and green manures), and an intermediate system (a combination of organic nitrogen and synthetic sources) on soil-borne disease of carrots and potato. 2) Determine the microbial activity in each agroecosystem by measuring respiration of the soil, fluorescein acetate hydrolysis, and populations of bacteria, fungi, and nematodes.

Project: **0806 Influence of Lygus Population Densities on Pima Cotton Production**

Project Leader: *Peter B. Goodell, Ph.D., IPM Advisor, IPM Kearney Agricultural Center-Central Valley Region*

Objective: 1) Establish a Pima cotton trial in KREC to study the influence of Lygus population density on Pima cotton. 2) Investigate the relationship between Lygus population density and fruit retention in Pima cotton. 3) Investigate the impact of Lygus populations densities on Pima cotton yield. 4) Develop and extend improved management information through written media and existing production meetings.

Project: **0905 Blackeye Bean Seeding Rate and Row Spacing Evaluation**

Project Leader: *Shannon Mueller, Ph.D., Agronomy Farm Advisor, U.C. Cooperative Extension, Fresno County*

Objective: Determine the optimum planting configuration for CB46 and Sh50 in terms of plant and row spacing. Variables to evaluate include yield, seed size, weed competition, disease incidence, and economics.