

## PROPOSAL

**PROJECT NO:** ARS

**TITLE:** Initiation of mating disruption for codling moth without the use of pesticide cover sprays

**YEAR INITIATED:** 2000    **CURRENT YEAR:** 2000    **TERMINATING YEAR:** 2001

**PERSONNEL:** Carrol Calkins, Research Leader, USDA-ARS, Wapato  
Glenn Richardson, Coordinator, USDA-ARS, Oroville, WA

### **JUSTIFICATION:**

Many apple and pear growers are continuing to use hard pesticides to control Codling Moth in their orchards in spite of the potential loss of Guthion and the immediate loss of PennCap (methyl parathion). Mating disruption is an effective method of control of Codling Moth if the field population is lowered initially by a pesticide application. With the loss of Guthion and the questionable value of Imidan for control, many growers trying to control Codling Moth with mating disruption will not have a cover spray available and may have trouble lowering the damage below economic thresholds. The original Oroville CAMP site is currently using a combination of mating disruption and release of sterile moths. As a result, the area with the two treatments has had little or no pesticide sprays applied for the last three years. This was an area where growers had a history of at least six sprays per year for Codling Moth control and still incurred damage. The combination of the two treatments seem to act synergistically to prevent fertile matings.

### **OBJECTIVE:**

Determine if a combination of mating disruption and sterile moth releases will reduce codling moth mating and subsequently suppress the population without pesticide cover sprays so that mating disruption alone will keep the population under control.

### **PROCEDURES:**

The research will be conducted in Okanogan County in the vicinity of Oroville. The personnel and infrastructure from the original areawide program are still intact. They have experience in working with release of sterile moths and mating disruption and are able to evaluate their effects. A moth release device mounted on a 4-wheel drive RV is available. Three or four 30-acre blocks currently under conventional codling moth control will be selected for the study. A like number of blocks that continue to be sprayed conventionally will serve as controls. Mating disruption dispensers will be installed in the treatment blocks at the rate of 400 per acre prior to the first flight of codling moths. Sterile moths will be released weekly at about the time of biofix. Traps and lures will be installed every 2.5 acres throughout the treatment and control blocks and will be checked weekly. Evaluation of damage will be conducted during July and again at harvest. The project will begin in the spring of 2000 and continue through the growing season in 2001.

**ANTICIPATED BENEFITS:**

There are presently 140,000 acres of apples in Washington State not under mating disruption. With the loss of OP and carbamate pesticides by the FQPA, no technology exists that can reduce initial populations of codling moth to the level that mating disruption alone will continue to suppress the population. If these combined technologies are effective, a tool will be available to enter the mating disruption program without the use of cover sprays.

**BUDGET:**

ARS is contributing \$60,000 this year for salaries and supplies. The Canadian CM Eradication Program will supply moths free to the project. It is necessary to conduct the study for 2 years on the same orchards to assure that the results are not due to artifacts. We are asking the WTFRC for \$40,000 in FY-2000 to keep the project alive in FY-2001 while we seek additional funds to complete the project. We are asking for an additional \$40,000 in FY-2001 to complete the second year. Other sources may include funds from the Office of IPM Policy, USDA, private industry and possibly ARS.