

COMPLETED PROJECT REPORT

Project Title: An operational crow control program using broadcast calls.

Research Agency: University of California – UC Davis

Principal Investigator: Salmon

Budget: \$125,945.00

Summary:

Abstract: American crows (*Corvus brachyrhynchos*) are particularly damaging to almonds. Research in 1997 suggested that the use of crow distress calls could significantly reduce crow damage. Field studies in 1998 using improved broadcasting equipment and distress calls reduced damage from 28% to 86% compared to 1997. In 1999 we evaluated the performance and effectiveness of an integrated control program combining distress calls with shooting and pyrotechnics in almond orchards in Yuba and Fresno counties from May to September. We counted crows in the orchards and where standardized counts were not possible, kept records of crows in and around the orchards. We provided growers with materials and instructions for an integrated control program. The growers initiated control after the first signs of damage. We used a stratified random sampling design to assess damage, counting damaged nuts on the ground on a weekly basis. We measured sound levels of the crow distress calls produced by a Bird Gard (BG) RDA unit. We surveyed croplands around the study orchards for alternate feeding sites (e.g., other almond orchards) for crows. We used a questionnaire to survey growers about past bird problems and control efforts, and to rate the effectiveness of the distress calls. Low numbers of crows were in the orchards during the pre-control period from May through June. Damage to almonds began in the latter half of June. After the start of control in early July, crows stayed out of the Yuba County orchard from July until the 3rd week of August. As a result of habituation, crow numbers and damage increased to \$70.06/ac in one block of the Yuba County orchard in late August. Almond losses in the 3 other blocks of the Yuba County orchard ranged from \$1.32/ac to \$3.46/ac. In Fresno County crows and common ravens (*Corvus corax*) virtually abandoned the study orchards during mid-July through August. Flocks of crows were present in adjacent orchards. Damage on the treated orchard in Fresno County was \$4.40/ac. Costs for control were \$23.59/ac in Yuba County and \$21.45/ac in Fresno County. Benefit:cost ratios were favorable in 13 of 18 scenarios of varying damage levels from 17.5 to 70 lb of nuts lost/ac and 3 crop values from \$0.75 to \$2.00/lb. Sound levels produced by a 2-speaker BG RDA unit were greatest in front of the speakers and decreased from a peak of about 98 dB down to or nearly to background noise levels at a distance of about 300 ft. We found an abundance of alternate feeding sites in the vicinity of the study orchards. Questionnaire responses indicated

the growers were pleased with the distress calls and BG units, that they repelled the crows, and they would use them again. Based on bird counts, damage assessments, economic analysis, and grower response, the integrated control program using biosonics and traditional controls of shooting and pyrotechnics was successful. We recommend that distress calls be used as a standard component, along with shooting and pyrotechnics, for crow control.

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