

PROTOCOL FOR MONITORING RESIDUES OF CORN AND DRY BEAN HERBICIDES IN MERCED COUNTY WELL WATER

Introduction

In a previous study, no residues of alachlor or metolachlor were detected in well water samples taken from major corn and dry bean production areas in Yolo and Solano Counties. Generally, the texture of soils in these areas was heavy.

Corn and dry beans are also grown in lighter soils occurring in the Central San Joaquin Valley. Recently, soils in Merced County were mapped with respect to their potential to allow contamination of ground water. Utilizing this information, this study is intended as a follow-up to determine whether the corn and dry bean herbicides, alachlor, metalochlor or atrazine, are present in ground water in areas of Merced County where lighter textured soils occur.

Personnel

The study will be conducted by EHAP personnel under the overall supervision of John Troiano. Roberta Welling will coordinate the well sampling survey. Questions regarding the study should be directed to Mary Brown at (916) 324-8916, ATSS 454-8916.

Objective

This study has two objectives. First, as a continuation of the investigation of alachlor and other herbicides in ground water, water samples obtained from wells sited in light soils will be tested for residues of alachlor, metolachlor, and atrazine. Second, the study will provide a test of the probability of occurrence of contamination by section, based on surface soil nomenclature included in Bob Teso's mapping.

Study Design

The sampling design will be based on the overlap by section of soil probabilities, supplied by Bob Teso, and of areas where corn and dry beans are grown. The section soil probability ratings will be divided into 3 ranges, 0-33, 34-67, and 68-100%, categorizing the probability for contamination. Five sections will be chosen for sampling in each of the 3 probability ranges. Four wells will be sampled within each section to provide an actual sectional probability for contamination that will be compared to the derived probability that was based on soil nomenclature. A total of 15 sections will be sampled with 4 wells sampled per section providing 60 well water samples. Residues of alachlor, metolachlor and atrazine will be measured.

Well logs will be obtained before sampling so that wells that are sealed will be chosen to provide ground water samples. The depth of the wells will also be noted so that shallow wells will be sampled first. Standard EHAP sampling procedures will be used to obtain well water samples and the samples stored on wet ice in amber bottles prior to shipment to the laboratory.

At the time of sampling, the cropping patterns surrounding the well will be noted and the soil type recorded, if available. Subsurface samples to a depth of 10 feet

may be taken at a later date for texture analyses. These may help explain any anomalies in the results.

Budget

60 well water samples at \$200 for 3 pesticides

\$12,000

10% quality assurance

1,200

Total

13,200