

California Department of Food and Agriculture
Environmental Monitoring and Pest Management
1220 N Street, Room A-149
Sacramento, CA 95814
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**PROTOCOL TO DOCUMENT THE PRESENCE OF OXADIAZON HERBICIDE
IN RUNOFF WATER COLLECTED FROM LANDSCAPE MAINTENANCE AND NURSERY
SITES IN ORANGE COUNTY**

INTRODUCTION

Oxadiazon is a selective preemergent herbicide registered for use on woody ornamentals and turf areas to control annual grasses and broadleaf weeds. Recently, the State Water Resources Control Board (SWRCB) reported the detection of unusually high levels of oxadiazon herbicide found in fish samples collected from the San Diego Creek drainage area in Orange County. As a result of these detections, the Orange County Agricultural Commissioner has requested that the California Department of Food and Agriculture's (CDFA) Environmental Hazards Assessment Program (EHAP) conduct a cooperative study to identify possible sources of oxadiazon. Based on pesticide use information for the first quarter of 1990 (CDFA, 1990), primary usage in the county was directed toward outdoor nurseries having containerized plants and landscape maintenance areas which received 45% and 34% of the oxadiazon applications, respectively.

OBJECTIVE

The objective of this study is to document the possible off-site movement of oxadiazon herbicide in runoff water from landscape maintenance and outdoor nurseries sites where use has been known to occur.

PERSONNEL

This study will be a cooperative effort with sampling to be performed by the California Department of Food and Agriculture's Environmental Hazards Assessment Program staff and the Orange County Agricultural Commissioner's staff. Key EHAP personnel are listed as follows:

Clarice Ando - Project Leader/Field Coordinator
John Troiano - Senior Staff Scientist
Nancy Miller - Laboratory Liaison
Jean Hsu - Chemical Analyses
Peter Stoddard - Public/Agency

All questions concerning this project should be directed to Peter Stoddard at (916) 324-8916 or ATSS 454-8916

MONITORING BACKGROUND AND DESIGN

Two types of study sites have been selected for this project. The first is a turf area in an urban commercial region where the grassy area (landscape maintenance site) borders the commercial buildings and adjacent parking lots. The second involves two outdoor nurseries which capture irrigation runoff water from nursery usage and contain the water in recirculation ponds to be recycled for future irrigation use. Occasionally, the electrical conductivity of the captured water becomes too high for productive plant growth and consequently, the water is released into nearby drains.

At the landscape maintenance site five composite grass and soil samples will be randomly collected from a treated turf area. The samples will be collected one day following the first irrigation after herbicide application. Runoff water from precipitation and/or irrigation will be collected from the first irrigation (herbicide application day) and two subsequent runoff events. Water samples will be collected at 30 minute intervals not to exceed 2 samples per event (0.5 hr sampling period).

At each of the two outdoor nursery locations five composite soil samples will be randomly taken prior to water collection. Release water held in the recirculation ponds will be sampled at the gate as it exits the system with

samples taken at 30 minute intervals not to exceed 2 samples per event. Two release events will be sampled.

SAMPLING METHODS

Sampling will be a cooperative effort to be performed by EHAP and county personnel using standard EHAP procedures (Sava, 1986). A composite soil and grass or soil sample will consist of four subsamples collected from the soil surface to 2.54 cm depth using stainless steel cylinders to remove the sample cores. The subsamples will be placed in a quart glass sample jar and mixed and kept chilled until analysis.

All water samples will be collected in 1-liter glass amber containers sealed with teflon lined caps. The pH will be recorded with each sample taken. Water collected at the landscape maintenance site will be taken using a hand pump with teflon tubing changed between 30 min sampling intervals. If runoff is minimal or sheet runoff is encountered at the landscape maintenance site, water collection can be facilitated by using a piece of teflon sheeting to capture a sufficient quantity of water so the hand pump can be utilized. Both soil/turf and water samples will immediately be placed on wet ice and remain chilled until chemical analyses.

ANALYTICAL METHODS/QUALITY CONTROL

Analyses will be performed by the CDFA laboratory using either liquid/liquid or solid phase extraction methods. The minimum detection limit for both methods is 0.1 ppb. Rhone-Poulenc will analyze split samples for quality control.

BUDGET

A. Personnel Expenses

Permanent Hours (64 hours x \$15/hour) \$ 960

B. Operating Expenses

Per Diem (2 persons x 3 nights x \$84.00/person/night) .. \$ 540

Mileage (\$0.24/mile x 930 mile) \$ 223

Mailing Labels/Blue Ice \$ 100

Sample Shipment from Orange to Sacramento County by

Courier Service (\$100/10 lb x 240 lb)\$ 2400

\$ 3263

C. Chemical Analysis

CDFA Laboratory

15 soil/turf samples (15 samples x \$100/sample) \$ 1500

14 water samples (14 samples x \$100/sample) \$ 1400

Rhone-Poulenc Laboratory

15 soil/turf samples \$ 0

14 water samples \$ 0

subtotal 2900

grand total \$ 7123

TIMETABLE

Sampling period - April 1991
Chemical Analyses - April/May 1991
Report Preparation - May 1991

REFERENCES

California Department of Food and Agriculture. 1990. Pesticide Use Report for the first quarter - January through March.

Sava, R. 1986. Guide to sampling air, water, soil, and vegetation for chemical analysis. CDFA Report. Sacramento, CA.