

MILESTONES: Separate milestones for the W-1045 project are given for each of the four major objectives. We believe that this format is more conducive to accurately reflecting the milestones for a project of this breadth. While each of the objectives is clearly linked to the others, the specific milestones for each are not necessarily interdependent.

Objective 1

- a. Develop methods for biomimetic sampling to measure bioavailable concentrations, immunological procedures, proteomics methods, and biomarker identification and development (by the end of Year 1).
- b. These methods will then be refined and validated in-house by the end of Year 3.
- c. Methods will be evaluated by inter-laboratory comparison studies (Years 4 and 5).
- d. By Year 5, these methodologies will be available for transfer to stakeholders for use by other research laboratories. Key reagents developed for the procedures will be made available by the end of Year 5.

Objective 2

- a. Determine the kinetics of various biotic and abiotic transformations by the end of Year 3.
- b. Elucidate the various mechanisms of these reactions by the end of Year 4.
- c. Determine the fate of agrochemicals and their transformation products in selected agricultural and natural ecosystems by the end of Year 5.
- d. Assess the feasibility of using these remediation techniques in realistic settings by the end of Year 5.

Objective 3

- a. Determine adverse impacts to target and non-target organisms from agrochemical exposure at the cellular and individual levels by the end of Year 2.
- b. Determine impacts of agrochemical exposure to target and non-target organisms at the community and population levels by the end of Year 4.
- c. Establish and transfer models for testing the impact of agrochemical exposures on non-target species in ecosystems by the end of Year 5.

Objective 4

- a. Develop strategies and technologies that mitigate adverse human and environmental impacts from agrochemicals by the end of Year 3.
- b. Complete field testing of the methodologies developed in Milestone 1 by the end of Year 4.
- c. Field demonstration of methodologies will be done by the end of Year 5.
- d. Transfer technology to appropriate stakeholders, including growers, Federal and State agencies, chemical manufacturers, crop consultants, extension personnel, and modelers. This milestone will be achieved by the end of Year 5.