State of California
AIR RESOURCES BOARD

RESEARCH PROPOSAL

Resolution 08-4

January 24, 2008

Agenda Item No.: 08-1-2

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code sections 39700 through 39705;

WHEREAS,. a research proposal, number 2649-258, entitled "Reducing Emissions of Volatile Organic Compounds from Agricultural Soil Fumigation: Comparing Emission Estimates from Simplified Methodology," has been submitted by the U.S. Department of Agriculture;

WHEREAS, the Research Division staff has reviewed and recommended this proposal for approval; and

WHEREAS, the California Department of Pesticide Regulation has agreed to cosponsor this proposal for a total amount of $50,000; and

WHEREAS, the Air Resources Board will fund this proposal for a total amount $100,000; and

WHEREAS, the U.S. Department of Agriculture has agreed to contribute approximately $100,000 of in-kind funding for the project;

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:

Proposal Number 2649-258 entitled "Reducing Emissions of Volatile Organic Compounds from Agricultural Soil Fumigation: Comparing Emission Estimates from Simplified Methodology," submitted by the U.S. Department of Agriculture, for a total amount not to exceed $150,000.

NOW, THEREFORE BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Proposal Number (2649-258) entitled "Reducing Emissions of Volatile Organic Compounds from Agricultural Soil Fumigation: Comparing Emission Estimates from Simplified Methodology," submitted by U.S. Department of Agriculture, for a total amount not to exceed $150,000.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein, and as described in Attachment A, in an amount not to exceed $150,000.

I hereby certify that the above is a true and correct copy of Resolution 08-4, as adopted by the Air Resources Board.

Lori Andreoni

Lori Andreoni, Clerk of the Board

ATTACHMENT A

"Reducing Emissions of Volatile Organic Compounds from Agricultural Soil Fumigation: Comparing Emission Estimates from Simplified Methodology"

Background

The State Implementation Plan (SIP) for ozone includes volatile organic compound (VOC) emission reduction requirements for fumigant pesticides. The California Department of Pesticide Regulation (DPR) is in the process of developing regulations that are designed to achieve a 20 percent reduction in VOC emissions from fumigant pesticides. However, there is still some uncertainty in the exact magnitude of the emissions reductions that will be achieved by the DPR regulations. This is due to uncertainty in both the baseline VOC emissions levels and the achievable reductions from the available emissions control strategies. The purpose of this study is to provide needed experimental data that would reduce the uncertainty in the estimated baseline emissions and the estimated reductions, thereby ensuring that the anticipated emissions reductions from the DPR regulations are realized and that the SIP commitments for fumigant pesticides are met.

Objective

The objective of this project is to perform laboratory and small-scale soil plot experiments to generate the data that is needed to improve the estimated emission rates of fumigant pesticides under various emission control scenarios. The results of the experiments will help to obtain more accurate estimates of the emission reductions that will be achieved from control strategies that will be employed to meet the requirements of the DPR regulations.

Methods

A combination of small-scale soil plot experiments and laboratory experiments will be conducted to augment the results of the field experiments that the investigator is currently conducting. The combination of these laboratory, soil plot, and field experiments will provide the data needed to better estimate current fumigant emission rates and the emission reductions from control strategies that will be employed to meet the requirements of the DPR regulations. The laboratory experiments will employ stainless steel soil columns of dimensions 12 cm (diameter) by 150 cm (height) and soil chambers of dimensions 120 cm (height) by 80 cm (width) by 10 cm (thick). The soil columns and chambers will be filled with soil from agricultural fields in California, which will then be fumigated with pesticides using practices and amounts that simulate actual application rates in California agriculture. Fumigant volatilization rates will be measured over time. In the soil plot experiments, plots of approximately 1.5 m by 1.0 m by 1.0 m will be constructed using soil collected from actual fields. Fumigants will then be applied using amounts and practices representative of California agriculture, and volatilization rates will be measured over time. The soil plot experiments have an advantage over the laboratory experiments in that they allow the simulation of agricultural practices, such as disking. They also permit the simulation of the use of tarpaulins or films to reduce emissions.

Expected Results

It is expected that the results of the experiments will provide the necessary data to more accurately estimate baseline emission rates of fumigant pesticides and the emissions reductions that can be achieved from the available control strategies. This will allow DPR to make any necessary modifications to its regulations to ensure that the emissions reductions required by the SIP are achieved.

Significance to the Board

The results of the study will help to ensure that the emission reduction requirements of the SIP for fumigant pesticides are achieved.

Contractor:
U.S. Department of Agriculture (USDA)

Contract Period:
36 months

Principal Investigator (PI):
Dr. Scott Yates

Contract Amount:
$150,000

Cofunding:
ARB will provide $100,000
DPR will provide $50,000
U.S. Department of Agriculture will provide approximately $100,000 of in-kind services, including development of research methodology, coordination and implementation of research activities, data analysis, and report preparation.

Basis for Indirect Cost Rate:
The indirect cost rate of 10% is less than the agreed upon rate between the federal government laboratories and the State of California.

Past Experience with this Principal Investigator:
ARB currently has a contract with this principal investigator to perform full-scale field experiments to estimate fumigant pesticide emissions. The principal investigator is meeting all of the requirements and expectations of the contract.

Prior Research Division Funding to USDA:

Year	2007	2006	2005
Funding	$0	$0	$0

BUDGET SUMMARY

U.S. Department of Agriculture

Reducing Emissions of Volatile Organic Compounds from Agricultural Soil Fumigation. Comparing Emission Estimates from Simplified Methodology

DIRECT COSTS AND BENEFITS			
1.	Labor and Employee Fringe Benefits	$ 112,640	
2.	Subcontractors	$ 0	
3.	Equipment	$ 5,000	
4.	Travel and Subsistence	$ 3,000	
5.	Electronic Data Processing	$ 0	
6.	Reproduction/Publication	$ 0	
7.	Mail and Phone	$ 0	
8.	Supplies	$ 14,360	
9.	Analyses	$ 0	
10.	Miscellaneous	$ 0	
	Total Direct Costs		$135,000
INDIRECT COSTS			
1.	Overhead	$ 15,000	
2.	General and Administrative Expenses	$ 0	
3.	Other Indirect Costs	$ 0	
4.	Fee or Profit	$ 0	
	Total Indirect Costs		$15,000
TOTAL PROJECT COSTS			**$150,000**