

State of California
AIR RESOURCES BOARD

Resolution 05-65

December 9, 2005

Agenda Item No.: 05-12-3

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 proposal Number 05b-23, entitled "Orbital Scythe Prototype Development and Testing," has been submitted by O-Sage Power Equipment LLC in response to the 2005 Innovative Clean Air Technologies (ICAT) Program solicitation;

WHEREAS, the proposal has been independently reviewed for technical and business merit by highly qualified individuals; and

WHEREAS, the Research Division staff and the Executive Officer and Deputy Executive Officers have reviewed and recommend for funding:

Proposal Number 05b-23, entitled "Orbital Scythe Prototype Development and Testing," submitted by O-Sage Power Equipment LLC for a total amount not to exceed \$47,000.

NOW, THEREFORE BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39703, hereby approves the following:

Proposal Number 05b-23, entitled "Orbital Scythe Prototype Development and Testing," submitted by O-Sage Power Equipment LLC, for a total amount not to exceed \$47,000.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and agreements for the efforts proposed herein, and as described in Attachment A, in an amount not to exceed \$47,000.

I hereby certify that the above is a true and correct copy of Resolution 05-65, as adopted by the Air Resources Board.


Lori Andreoni, Clerk of the Board

ATTACHMENT A

Innovative Clean Air Technologies (ICAT) Grant Proposal: **“Orbital Scythe Prototype Development and Testing”**

Background

O-Sage Power has developed a lawn mower which is substantially more energy-efficient than standard rotary mowers, and, in contrast to existing reel mowers, has an inherent capacity to mulch grass. There are two key innovations which make this possible. The first is the placement of multiple cutting blades inside a slotted, cylindrical reel. The blades and the reel counter-rotate. This counter-rotation creates the mulching action. The second innovation is the use of thin resilient blades which make sliding contact with the inside surface of the reel at an acute angle. The shearing action accounts for a scissors-like cutting action. Energy use and emissions are reduced by at least 75 percent relative to a similar-sized rotary mower.

Objective

The ICAT project would demonstrate the effectiveness, energy efficiency, and emissions benefits of the Orbital Scythe mower.

Methods

Five self-propelled versions of the prototype will be built and tested on a variety of grasses to demonstrate the effectiveness. Both gas-powered and electric-powered lawn mowers will be built and tested for 100 to 200 hours. At least one of the units will be tested for 500 hours. Energy consumption will be measured during the tests.

Expected Results

The project should demonstrate that the Orbital Scythe mower is capable of reducing fuel consumption and emissions by at least 75 percent relative to a similar-sized rotary mower.

Significance to the Board

The Orbital Scythe mower would enable emission reductions to be achieved from both gasoline and electric lawn mowers.

Applicant: O-Sage Power Equipment LLC

Project Period: December 9, 2005, to June 30, 2007

Principal Investigator: Craig Witty

ICAT Funding: \$47,000

Co-funding: \$67,000

Past Experience with this Principal Investigator:

None.

Prior ICAT Funding to 2005

Year	2004	2003	2002
Funding	0	0	0

BUDGET SUMMARY

O-Sage Power Equipment LLC

"Orbital Scythe Prototype Development and Testing"

<u>Direct Costs and Benefits</u>	<u>ICAT</u>	<u>Total</u>
1. Labor	\$ 0	\$ 37,000
2. Employee Fringe Benefits	\$ 0	\$ 0
3. Subcontractors	\$ 38,000 ¹	\$ 41,000
4. Equipment	\$ 0	\$ 8,000
5. Travel and Subsistence	\$ 3,000	\$ 6,000
6. Materials and Supplies	\$ 5,000	\$ 10,000
7. Other Direct Costs	<u>\$ 1,000</u>	<u>\$ 2,000</u>
Total	\$ 47,000	\$104,000
 <u>Indirect Costs</u>		
1. Overhead	\$ 0	\$ 10,000
2. Other Indirect Costs	<u>\$ 0</u>	<u>\$ 0</u>
Total	<u>\$47,000</u>	<u>\$ 10,000</u>
Total Project Costs	\$47,000	\$114,000

1- The subcontractors will be individuals hired to test the mowers. These individuals will be selected during Task 2 of the project.