A proposal prepared for the College of Agriculture Technology Advancement Committee

I. Title: PC-assisted Soil Fertility Mapping in Agronomy Laboratory and Special Problems Classes

Proposed by: Lee Burras, Assistant Professor of Agronomy
Elvin Hasselman, Agronomy Instructor
Stanley J. Henning, Assistant Professor of Agronomy
Andrew Manu, Associate Professor of Agronomy

Signatures:

______________________________ ______________________________
Lee Burras,      Elvin Hasselman
Associate Professor of Agronomy  Agronomy Instructor

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Stanley Henning    Andrew Manu
Assistant Professor of Agronomy  Associate Professor of Agronomy

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Randy Killorn     Steven Fales
Chair, Agronomy Teaching Panel  Head, Department of Agronomy

Project Leaders:

Lee Burras   Elvin Hasselman
1126 Agronomy  1010 Agronomy Hall
294-0559   294-3287
burras@iastate.edu  hasselm@iastate.edu

Stanley Henning  Andrew Manu
1027 Agronomy Hall  1126A Agronomy Hall
294-7846   294-5510
sjhennin@iastate.edu  akmanu@iastate.edu
II. Project Overview and Expected Benefit

A. Description and intended purpose for all project expenditures and identification of expenditures from Central Pool Funds

Implementation of this request will enable students to generate field maps of data they have produced in laboratory from samples located with global positioning systems (GPS) equipment. In the agronomic and environmental services workplace, GPS-assisted sampling is requisite for farm management and environmental investigations. This hands-on experience will better prepare our students for future employment and professional careers that use the newer, user friendly software proposed for student use.

By granting this request we will meet introductory and intermediate course needs for handling data generated from fields sampling. Students will learn how to enter data into a software system that generates soil fertility and other analytical data maps. This will facilitate an understanding of spatial dependence of measurable soil parameters at both field and landscape scales.

B. Description of how the proposed facilities or services will be made available to students

The PCs and software will be available to students enrolled in or have completed Agronomy soil laboratory courses. The laboratory is scheduled for classes 12 hours per week and is open at all other times during the day. By special arrangement, evening access to the PCs and software will be available too. During the semester, a minimum of 40 hours a week of student access will be possible. Additional hours of access will require special arrangements.

Each semester there are 40 students enrolled in Agronomy 354 Lab. A similar number of student are enrolled in other Agronomy classes where training will be provided for using this software. Students who have completed this course or have used this software elsewhere will be able to access it during their residency at ISU. In addition, students will have access to the Agronomy 354 Lab while undertaking special problems in soils analysis and they will be able to access and use this software. One of the benefits of having student access is that it enables student peer learning. Proficient software users can be very efficient instructors of other students during open times. As confidence and proficiency are acquired, approximately 60 to 80 students each semester will be able to use both the lab and the PCs and software.

C. If the project requires special new technologies, describe how these requirements will be met

This request includes a wireless internet hub and each PC is equipped with appropriate wireless card modem. This will enable the PCs to be moved about in
the lab and moved to any wireless equipped classroom for instructional purposes.

D. Identify university facilities that will be needed for the project

This request will place the PCs in Agronomy 1037; no modification of the existing room area is required. Because the PCs will be wireless equipped, they can be move about as needed throughout the semester. They may be actively engaged in instruction during part of a scheduled lab period and later used independently by a student working on a special project. Room 1037 Agronomy is approximately 38 feet by 40 feet. There are three lab benches within the room.

III. Support and Maintenance

This request is for two PCs, one color printer, and two copies of SMS Basic v. 2 Ag Mapping and Management Software from Ag Leader. Future support and maintenance will be provided by the Agronomy Department – Teaching.
IV. Budget

A. Table 1. Full Itemized Budget

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
<td>PC - Intel Pentium 4, Windows XP, 256 MB RAM, 5+ GB storage, CD-RW, Zip Drive, 1280X1024 32 bit display resolution, 19&quot; monitor, wireless internet card</td>
<td>$2,800</td>
<td>$5,600</td>
</tr>
<tr>
<td>1 2</td>
<td>Color Jet Printer</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>2 1</td>
<td>Wireless hub</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Software</td>
<td>SMS Basic v. 2.0 Ag Mapping software</td>
<td>480</td>
<td>960</td>
</tr>
</tbody>
</table>

|                      |                                                                 |       |        |
|                      | Total                                                              |       | $7,110 |

B. Table 2. Minimized Itemized Budget

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
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<td>480</td>
<td>480</td>
</tr>
</tbody>
</table>

|                      |                                                                 |       |        |
|                      | Total                                                              | $3,480 |