

Introduction

Spatial tools such as geographic information systems (GIS), global positioning systems, (GPS), and remote sensing, are emerging as rapidly available technology for Extension clientele involved in natural resource management. This poster describes the various Extension programs where spatial technology has been integrated.

Incorporating Spatial Technology into Extension Programs

Mike Daniels, Suzanne Wiley,
Becky McPeake, and Tom Riley

UNIVERSITY OF ARKANSAS
COLLEGE OF AGRICULTURE
Extension Service

Summary

The University of Arkansas Cooperative Extension Service is incorporating GIS and GPS into several existing programs while developing new programs to transfer this technology to our clientele. While this technology offers clientele many new potential uses, it also provides us with a great educational platform for conveying traditional information and knowledge

“Hands On” GPS Training and Programming

The UA-CES obtained 40 hand-held Garmin® GPS III+ units for use in training and programming via a grant from the Arkansas Forest Resources Center. These units have been used to train faculty and staff and to provide “hands-on” programming with clientele. Training topics include:

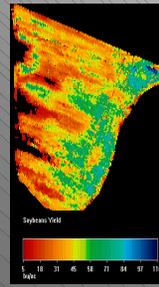
- What is GPS and how does it work?
- Overview of GPS and Cartographic Issues
- Overview of GPS Applications
- “How to Use” menus, and key functions of Garmin
- Establishing Waypoints
- Navigating to Waypoints
- Estimating Position Error
- Interface with Computer and MapSource® Software.



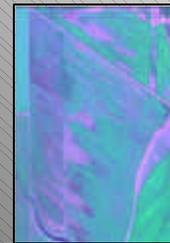
The most popular training exercise is to have individuals hide a small trinket (quarters, keys, etc.) and mark the location by establishing a waypoint with the GPS unit. After establishing the trinket waypoint, participants return to the instruction site and swap their GPS unit with someone else. The participants must then navigate to the established waypoint and find the other persons trinket.

Precision Agriculture Demonstrations

The UA-CES has integrated spatial technology into some of its row crop programs such as the Soybean Research Verification Program, aerial application training, pest management and soil testing program. In the Soybean Research Verification program, Extension works one-on-one with soybean producers to transfer spatial technology to soybean production.



Soybean Yield



Remote Sensing



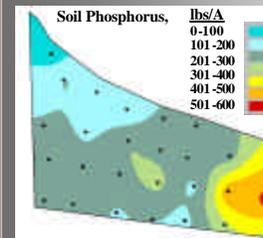
Grid Soil Sampling



Ground Truthing

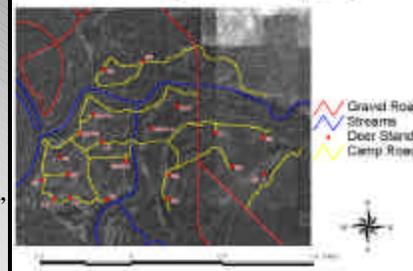
Natural Resource Management

Managing land resources for sustainability while protecting our environment can be difficult due to spatial variability in use, soils, landforms, etc. Extension has demonstrated the utility of spatial technology in natural resource management. For example, we have used GPS and GIS to develop proper soil sampling protocol and to better recommend manure application rates to pastures to reduce off-site water quality impacts.



Recreational Applications

Hunting Lease Mapping



An emerging area for GPS education is for the recreational GPS user. Many participants have GPS units but do not know how to use them. Most do not need formal instruction, but rather “hands-on” orientation. Extension has developed examples and demonstrations that appeal to hunters, hikers, and other outdoor enthusiasts. First Lady Janet Huckabee participated in one of recreational programs.

Helping Clientele Connect to GIS Data via the Internet

The UA-CES is implementing programs that help clientele become aware of the utility of GIS. One such effort introduces clientele to the tremendous repository of digital GIS data that is available for Arkansas at no charge to the user.



Youth Education



Through 4-H, extension has developed a GPS youth program to provide an exciting and fun way for youth to develop better map and orienteering skills. We have Secured a grant from the Arkansas Space Grant Consortium to further develop our GPS and remote sensing youth program.

