

# NJ Ag GIScience Educator

GIS \* GPS \* RS

*A newsletter of the NJ Department of Agriculture in Collaboration with the NJ Department of Education*



## AgrowKnowledge GIS/GPS Workshop—Success!

The New Jersey Department of Agriculture, Office of Agricultural Education hosted an exciting and informative two-day Spring Professional Development GIS/GPS Conference on May 4-5, 2007, at the Enterprise Center of Burlington County College in Mt. Laurel, NJ

Participants left the two-day conference with valuable skills in using a GPS receiver to collect waypoints, collecting simple feature information and attribute data, transferring data and displaying it in a GIS; and understanding the value of spatial data for a manager.

One participant remarked: “The GPS/GIS Conference...was excellent and just what I needed. Since last year’s con-

ference and the online course [provided by the NJ Department of Agriculture through ESRI], I have been fighting this technology and, literally, all my critical questions have been answered. I have been getting requests from professionals about GPS and GIS as well and have been struggling with how to provide what they needed when I didn’t fully grasp it myself. The conference gave me the hands-on guided instruction I needed, information about where to get the georeferenced maps I knew I needed, and the confidence to begin course development. While I still have more to do and much more to learn, at least now I feel as



Enterprise Center, Burlington County College, Mt. Laurel, NJ

though I have the tools to move forward.”

The conference training was conducted by Mr. Terry Brase, Principal Investigator, AgrowKnowledge, the National Center for Agriscience and Technology Education. Terry is a professor at Kirkwood Community College in Cedar Rapids, IA.

For more about Agrowknowledge, see page 3, “About AgrowKnow.”

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## A New Title – A New Format

As you have noticed, the title of this newsletter has been changed from “In the Field with GIS” to “NJ Ag GIScience Educator” to better reflect the content and target audience of this publication.

The distinction between “GIS”

and “GIScience” is an important one to make. Geographic information systems represent only one type of the geospatial technologies. The term “GIScience,” as used here, better represents the full array of geospatial technologies available and addressed in this newsletter.

Under the GIScience umbrella fall all of the related technologies, e.g., geographic information systems, remote sensing, photogrammetry, global positioning systems, etc.

We hope you like the new title—and the new format too!

## Technology & the Generation Gap

"While Precision Agriculture GIS/GPS tools enable New Jersey farm operators to more efficiently manage farms and natural resources, much of the potential is unrealized due to a technology barrier. There is a generation gap slowing the adoption of GIS/GPS precision ag tools for tasks from logging IPM scouting recommendations, tracking spray and fertilizer applications by field, guiding equipment, to recording and retrieving field notes. ...New Jersey farmers need younger

geospatial trained employees to see these tools adopted on-farm." (from "Sustainable Farming on the Urban Fringe, Monthly Highlights of the New Jersey Agriculture Experiment Station, May 2006)

We have young people who are highly technologically savvy, and we have generations of older individuals who are not as easily adaptable to new technology. According to Larry D. Rosen, Ph.D., in "Understanding the Technological Generation Gap" (The National Psycholo-

gist, March-April 2004), states: "We are in the midst of four generations. Those born before 1946 make up the 'silent generation.' Baby Boomers were born between 1945 and 1964 followed by Generation X (1965-1980) and the Net Generation (born after 1980). Each generation has approached technology and life quite differently." These are important considerations when Baby Boomer or Generation X educators are trying to introduce new  
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## The "Ag Lag"

According to Kirkwood Community College, Cedar Rapids, IA, "Agriculture was one of the first industries to apply GPS and GIS technology more than 10 years ago, yet less than 11.1% of U.S. farms and agribusinesses utilize this technology that has been demonstrated to increase efficiency and profitability. The tremendous potential for growth in this industry is only restricted by the ability of

the educational system to provide the technical expertise and geospatial technology awareness needed by the industry."

We have a new technology industry with enormous growth potential and an agricultural industry that could benefit greatly, but has not taken full advantage of that potential.

A study by Rutgers Cooperative Extension and the Grant F.

Walton Center for Remote Sensing and Spatial Analysis in New Brunswick, NJ, conducted a study to determine whether geospatial technologies would be beneficial (accurate and economical) for use on "smaller farms and farms common to New Jersey grain, forage, fruit, and vegetable producers." The results of the study were very promising regarding the poten-  
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*"Agriculture was one of the first industries to apply GPS and GIS technology more than 10 years ago...."*

## GPS to GIS

One of the most useful topics at the May Conference (see page 1) was learning how to use data collected via a global positioning system (GPS) unit with a geographic information system (GIS).

If you want a refresher on this topic, visit the Penn State University Land Analysis Lab website (<http://lal.cas.psu.edu/>

[software/tutorials/gps/gpstogis.html](http://software/tutorials/gps/gpstogis.html)) for tutorials on how to import GPS data into a GIS.

The site provides specific instructions for Garmin GPS units and more general hints to help you along if you are using other types of GPS receivers. The tutorials cover:

How do I download waypoints and other data from my Garmin GPS to my computer?

How do I download waypoints and other data from other GPS units?

How do I import downloaded Garmin waypoints into ArcView?

How do I import a text waypoint file into ArcView?



## The NJ Professional Education Port (NJPEP) and GIS

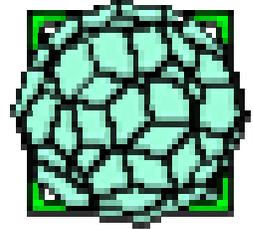
NJPEP is the Department of Education's state-of-the-art NJ Professional Education Port (<http://liberty.state.nj.us/education/njpep/index.html>). The mission of this exciting professional development site is to support the understanding and implementation of the standards and assessments. Under the management of the Department of Education's Office of Academic and Professional Standards, the web site will provide statewide professional development opportunities and information designed to increase student achievement by

enabling educators to understand and effectively implement the Core Curriculum Content Standards and their related skills and assessments.

The NJPEP web site frees educators from the constraints of time and space by creating a virtual academy. Within NJPEP, teachers can have an interactive space where standards-based classroom activities or professional development activities can be collaboratively developed and shared with and by other teachers throughout NJ. NJPEP is a web site and

development space with the mission of offering content developed by teachers for teachers to maximize learning opportunities for NJ students and educators.

A new feature on the NJPEP web site focuses on geospatial technologies (<http://liberty.state.nj.us/education/njpep/virtual/index.html>). For links to articles, state mapping resources, and lesson plan resources, and web-based mapping tools, this is the site to visit!



NJPEP: The "virtual world" of professional development..

## The "Ag Lag"

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tial of such technologies to benefit even the small farmer.

Specifically the study found that "GPS and its related technologies (GIS and RS) will continue to play a significant role in improving farm management practices in New Jersey. The demonstration programs in Integrated Crop Management (ICM) and watershed manage-

ment are utilizing new technologies to 1) reduce fertilizer and pesticide costs, 2) improve crop management, 3) improve spray recommendations for pest control, 4) monitor irrigation systems, 5) monitor nutrient pollution to watersheds, and...6) provide value-added information to growers to improve farm management and farm profits even on the finer spatial and temporal scales applicable to

New Jersey agriculture."

Therefore, the benefits of geospatial technologies for agriculture in New Jersey do not appear to be limited to only the larger agribusiness operations, but also to smaller farm operations as well. As these technologies continue to proliferate the market, the challenge will be to ensure that the small farmer is not left behind.

*"GPS and...related technologies...will continue to play a significant role in improving farm management in New Jersey."*

## About "AgrowKnow"

AgrowKnowledge, the National Center for Agriscience and Technology Education is a national partnership of community colleges. Our work is enhanced by the involvement of business and industry, leading universities in agriculture education, secondary schools, and professional associations.

AgrowKnowledge understands the increasing demand for high-tech careers in areas

such as precision agriculture, biotechnology, alternative energy production, natural resource management, and nutritious food production for a hungry world. As a result, AgrowKnowledge partners prepare students for the workforce, ready to use emerging technology in agriculture, food, and natural resources.

For more information contact AgrowKnowledge at:

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**AgrowKnowledge**  
The National Center for Agriscience & Technology Education

## **Got Questions:?**

*For more information on geospatial technologies, or to provide  
feedback on this newsletter and/or suggestions for future arti-  
cles, please contact:*

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WE'RE ON THE WEB AT  
[WWW.JERSEYAGEDUCATION.NJ.GOV/  
GISNEWSLETTERS.HTM](http://WWW.JERSEYAGEDUCATION.NJ.GOV/GISNEWSLETTERS.HTM)

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## **Technology & the Generation Gap**

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technology into the curriculum  
for Net Generation students.

Rosen adds that, "The Silent Generation was raised without what we call modern technology. Baby Boomers formed the first technological generation with computers on the horizon. Gen Xers were the first to be computer literate. And the Net Generation cut their teeth on computers, video games and the Internet. They differ in the ways they use technology, the questions they ask and the choices they make."

It is easy to see why the Net Generation has and will continue to take easily to GIScience and the labor market will likely

hold significant opportunities for them in this field for a long time to come.

Take heart, though, as all generations have something important to contribute to the next wave of innovation. Purdue University considers the value of working with each generation:

- The G.I. Generation (1904-1922) brings problem-solving skills to the table
- The Silent Generation (1922-1945) brings experience and knowledge of what has and has not worked in the past
- The Baby Boomers (1945-1964) bring dedication to get

the job done, whatever the sacrifice

- Generation X (1965-1980) will ask the hard questions to make sure that things are done as efficiently as possible
- The Millennial Generation [The "Net Generation"] (1981-2000) will bring a deeper understanding of the direction of the future.

*"[T]he Net Generation cut their teeth on computers, video games and the Internet."*

