Paper Title

Using ArcIMS to Publish AgriStats Data Online

Author's Names

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Paper Abstract

The Potash & Phosphate Institute/Potash & Phosphate Institute of Canada (PPI/PPIC) and Foundation for Agronomic Research (FAR) developed AgriStats, an Access database, to manage and analyze agricultural statistics related to nutrient management. Statistics on land use, crop acreage and production, and fertilizer consumption can be displayed graphically and analyzed at various levels of scale ranging from country to county. We are using ArcView to map database output and are developing online mapping capabilities using ArcIMS. This paper will demonstrate how ArcIMS helps end-users visualize and interpret the AgriStats data.

Paper Body

About the Institute and AgriStats

The Potash & Phosphate Institute and Potash & Phosphate Institute of Canada (PPI/PPIC) serves as the scientific arm of North America's potash and phosphate producers. PPI/PPIC's mission is to "*scientifically promote the worldwide development of phosphorus (P) and potassium (K) use in crop production systems based on agronomically sound, economically advantageous and environmentally responsible information.*" We accomplish the mission by conducting research and education programs in seven strategic locations world-wide including North, Central and South America, India, China and Southeast Asia (Figure 1). Each program is led by scientists who are responsible for identifying market development opportunities where increased nutrient use will benefit the crop production system, and to advance the appropriate use of P and K.
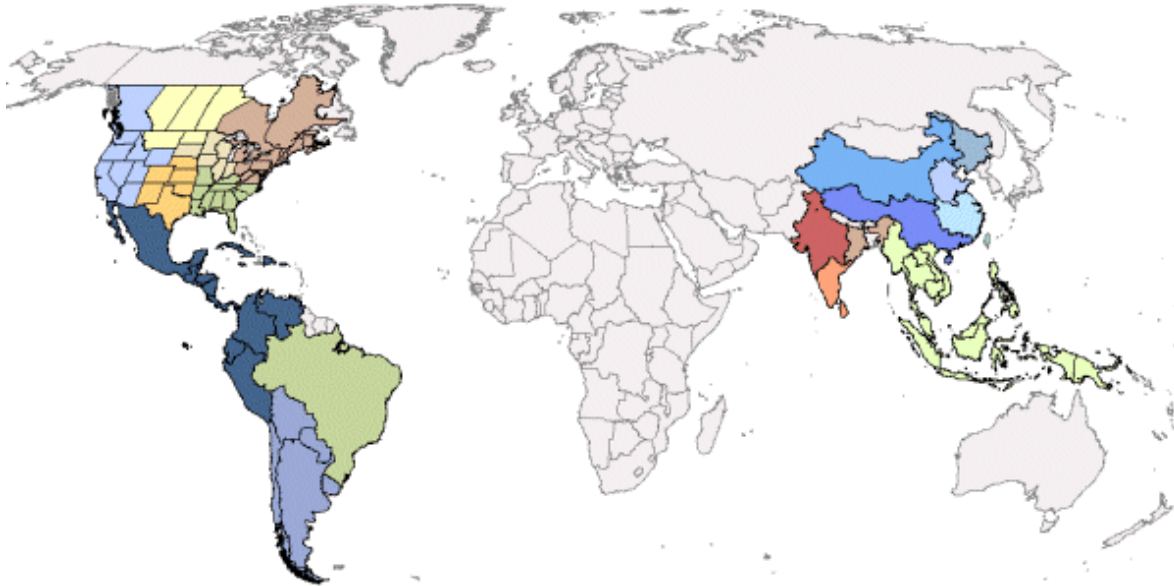
Figure 1. PPI/PPIC regions include North America, Northern Latin American & Mexico, Brazil, Latin America – Southern Cone, India, China, and Southeast Asia.

AgriStats is a tool that was developed to help identify such opportunities. AgriStats in an Access database that houses base ag statistics on land use, crop acreage and production, and fertilizer consumption. The software has the capability to analyze the base data with variables provided by our staff's local expertise to identify where nutrients used in crop production are out of balance with nutrients applied in the form of fertilizers. The software has built in screens for viewing the data and has the ability to export a wide range of data sets as pre-formatted reports. AgriStats supports simple queries by the user to narrow data sets to a specific location and crop. For online users, www.AgriStats.org is a self contained website application that is available to the public.

Using ArcIMS to interpret AgriStats data

ArcView maps are often created internally to display data sets from AgriStats. ArcIMS is now being used to display data based on the user's online query of AgriStats data. A couple of example maps that are available through IMS follow.

This example shows involves rice production in Southeast Asia. A map showing the countries in the region is the base map (Figure 2).
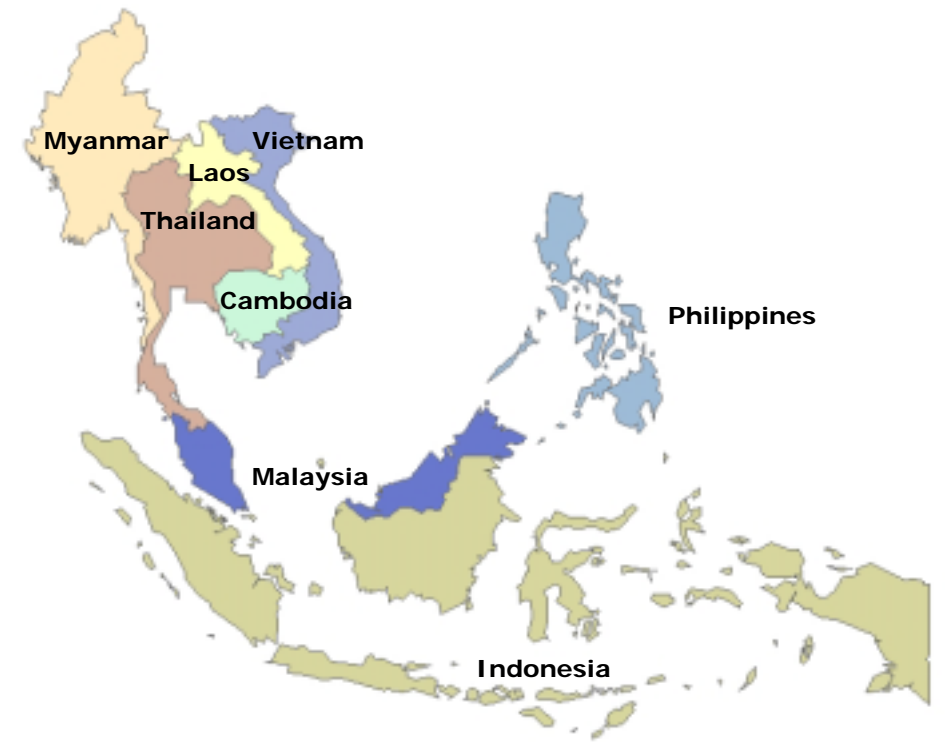
Figure 2. Southeast Asia region

The user can then examine statistics and make comparisons for rice production in the region including total production (Figure 3), yield (Figure 4), P consumption, K consumption, and area planted (Figure 5). Queries of the data contained in the layers can be performed to select a set of countries. For example, a user can find our which countries produce at a yield less than 2 t/ha using the query tool in IMS (Figure 6).
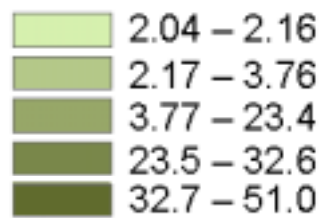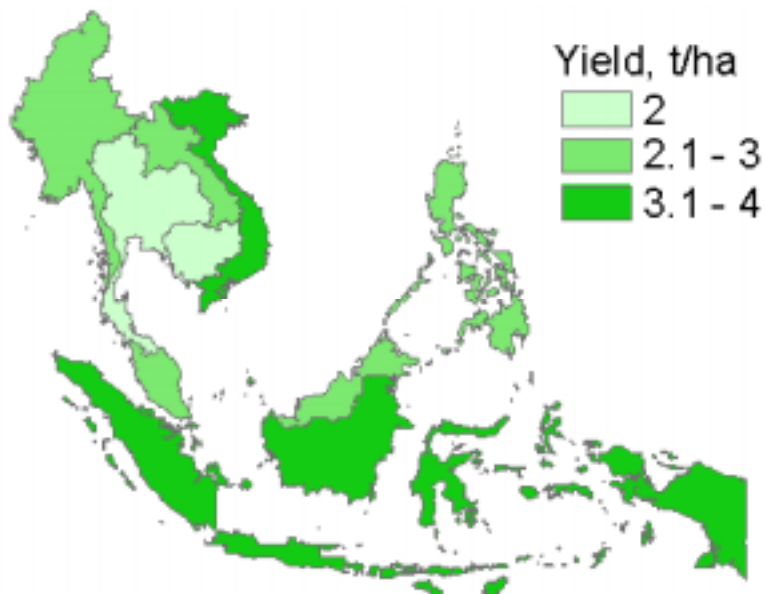
Production, Mill t
2.04 – 2.16
2.17 – 3.76
3.77 – 23.4
23.5 – 32.6
32.7 – 51.0

Figure 3. Total rice production in Southeast Asia

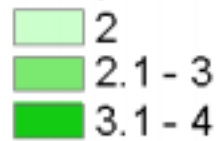Yield, t/ha
2
2.1 - 3
3.1 - 4

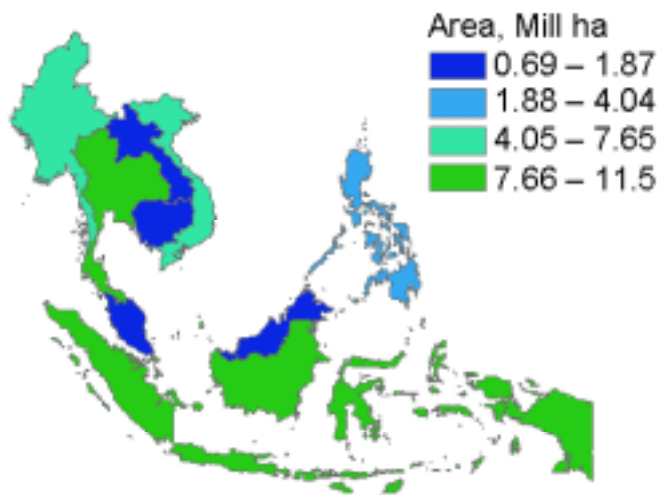**Figure 4. Rice yield for Southeast Asia**

Figure 5. Area planted to rice in Southeast Asia

Figure 6. Countries with yields less than 2 t/ha.

Soil Test data

PPI/PPIC in North America has conducted a soil test survey to determine general soil test levels in states and provinces in the U.S. and Canada. Mapping soil test levels as a percentage of soils testing medium or low for P or K provides a base upon which other statistics can be compared. These layers with others in an ArcIMS application provide users the ability to query the data.
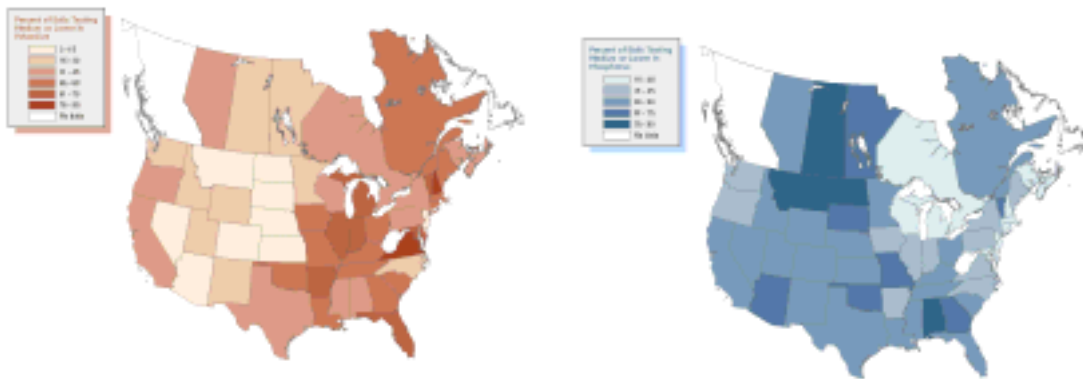
Conclusion

ArcIMS is proving to be a value added tool that helps analyze existing data for PPI/PPIC. It provides an additional method to compare data visually. An IMS application also provides a way to provide access to many layers of data in one interface. PPI/PPIC in working to expand the data that is available online in AgriStats through an ArcIMS site for AgriStats.

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