



Forecasting the Lawn and Garden Moisture Index for the Southeast USA

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Outline

1. What is the Lawn and Garden Moisture Index (LGMI)
2. LGMI as a monitoring tool
3. Forecasting LGMI -- web site preview
4. Next steps

But first an advertisement . . .

CIMR – Climate Information for Managing Risk
*Partnerships and solutions for agriculture and
natural resource managers*

A symposium to be held in Florida in late spring
of 2008.

A preliminary description of the symposium is
available at the registration desk.

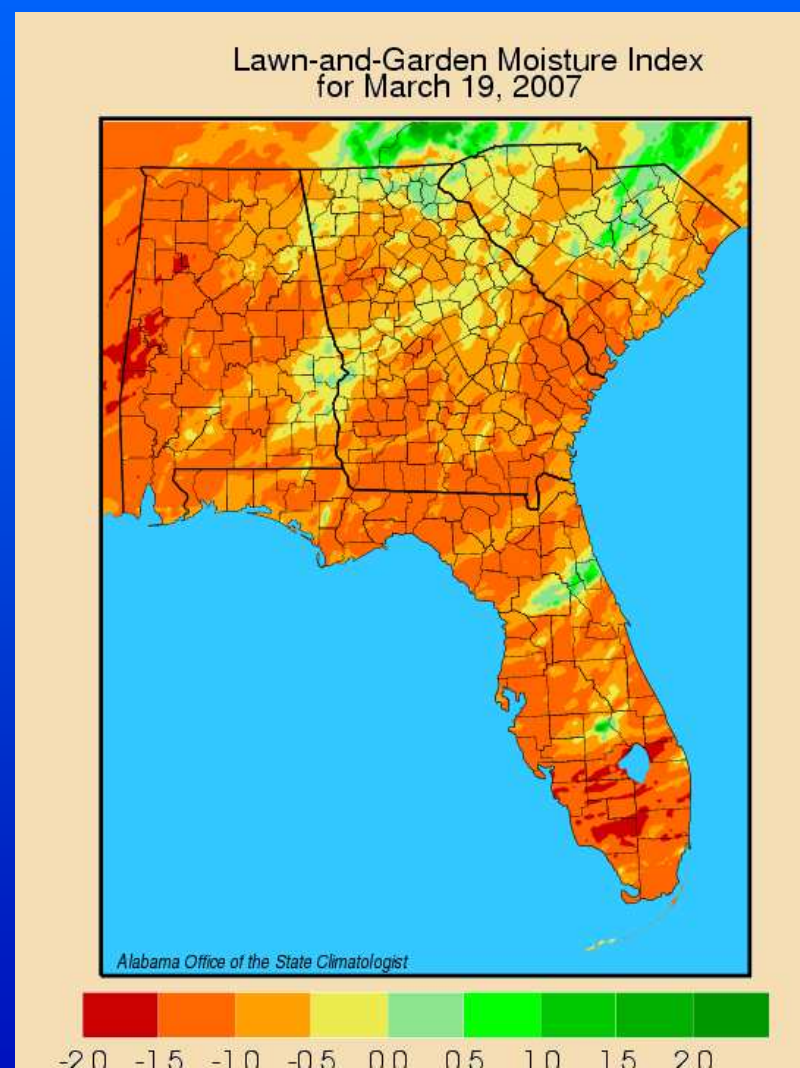
Monitoring LGMI in SE USA

A product of the Alabama Office of State Climatologist computed from Doppler precipitation measures.

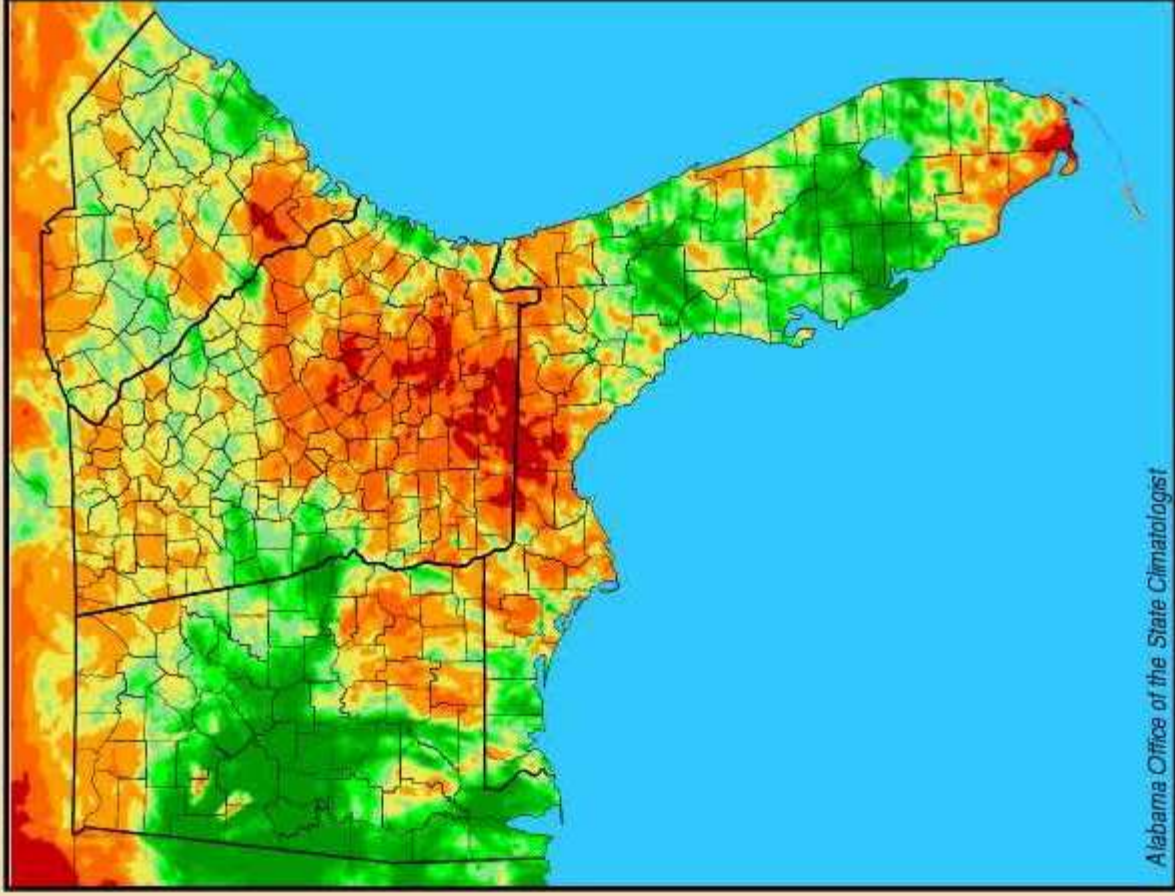
Municipal water managers report that the LGMI is an excellent indicator of water use.

Advantages of the LGMI are:

1. High spatial resolution
2. Updated daily
3. Minimal data requirements
4. Conceptually simple
5. Easy to animate



Lawn-and-Garden Moisture Index for June 1, 2005



Alabama Office of the State Climatologist

-2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0

LGMI Calculation

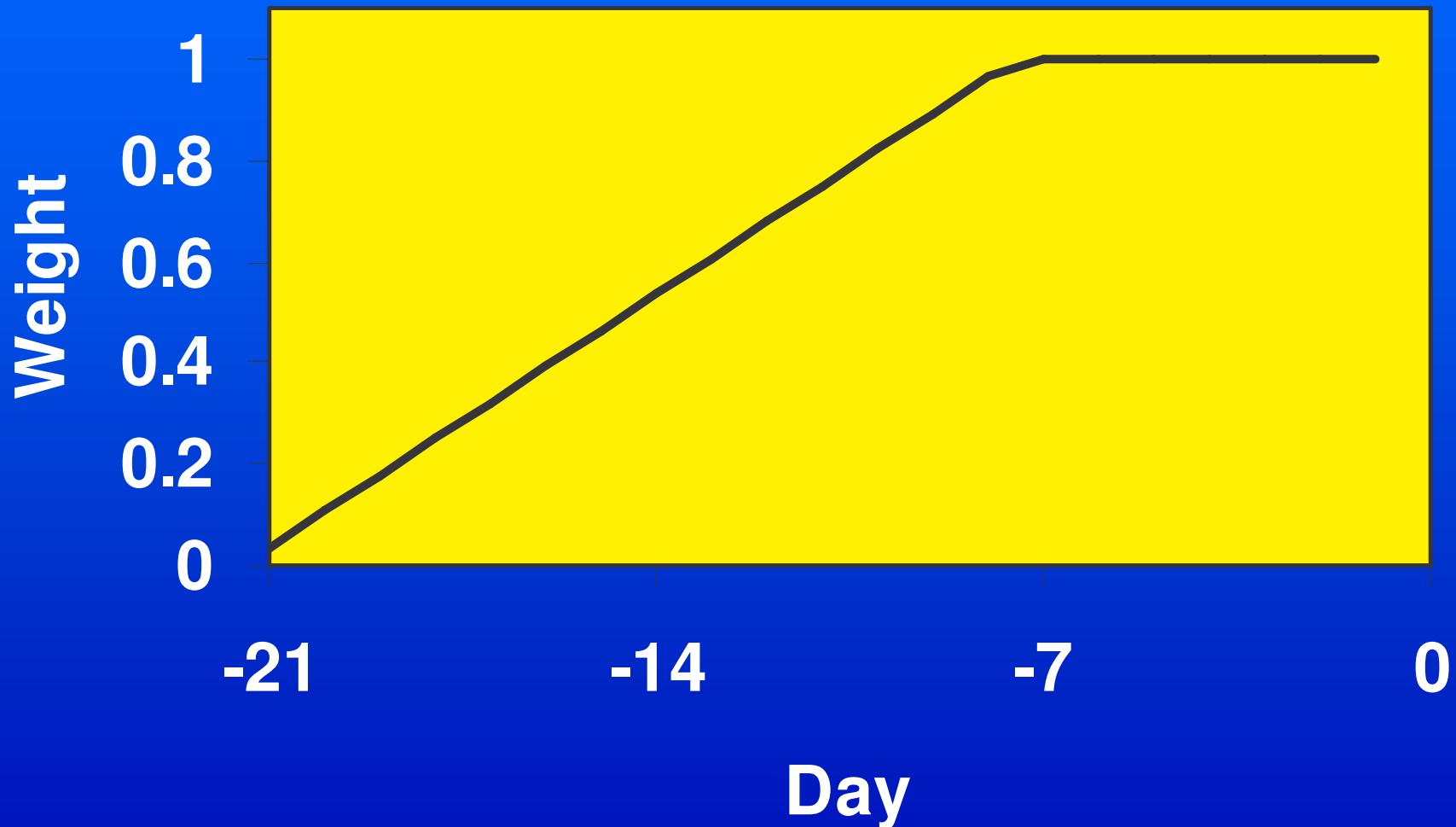
$$\text{LGMI} = [(1/28)P_{-21} + (3/28)P_{-20} + \dots + (27/28)P_{-8} + \sum_{i=-7}^{-1} P_i] - EF$$

Where: P = daily precipitation

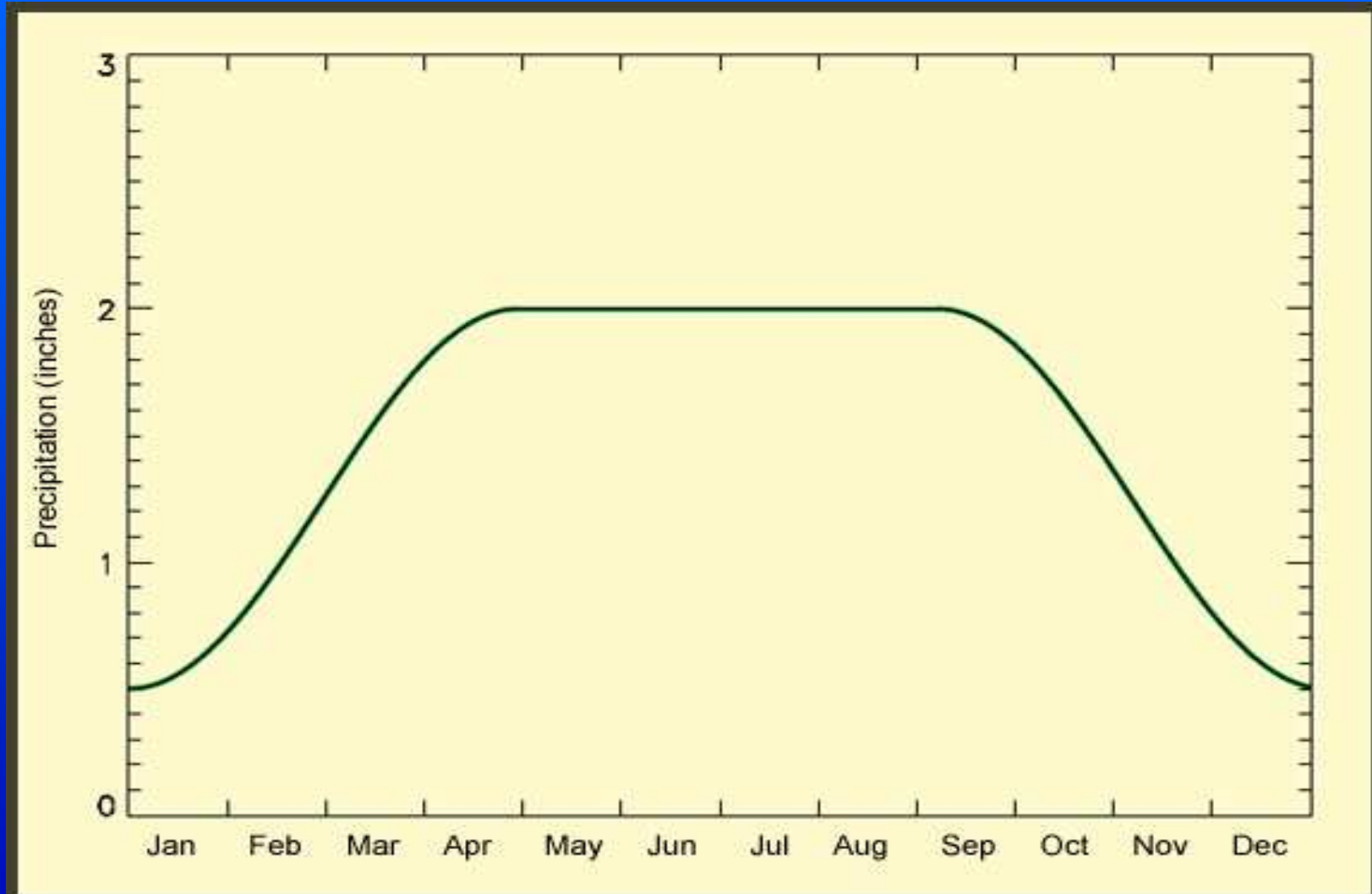
i = day

EF = seasonally adjusted potential ET factor

Weighting factors for LGMI



Seasonally adjusted potential ET



Forecast development

1. Generate bootstrapped dataset from historical coop station data; 250 years for each ENSO phase.
2. Compute daily LGMI for all stations, phases, and years.
3. Compute $P \text{ LGMI} < -1.5$ during 10-day periods throughout year for each ENSO phase.
4. Produce probability maps for region at county level.

Preview of web tool

LGMI Weaknesses

1. A single PET curve cannot represent entire region.
2. LGMI cannot not detect winter time drought.

Next steps

1. Assess usability of LGMI forecast in its current version, recognizing that the index has fatal weaknesses.
2. Develop new index that uses crop simulation model to compute water availability based on a soil water balance and PET based using remotely sensed data, probably by Priestly – Taylor method.
3. Use new index to monitor and forecast drought, following methods used with old index.

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The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry, no matter how small, should be recorded to ensure the integrity of the financial data. This includes not only sales and purchases but also expenses, income, and any other financial activities. The text explains that proper record-keeping is essential for identifying trends, managing cash flow, and preparing for tax obligations. It also highlights the role of technology in streamlining the recording process, such as using accounting software to automate data entry and generate reports. The document further details the various methods for recording transactions, including double-entry bookkeeping, and provides examples of how to correctly format and categorize entries. It stresses the need for consistency and accuracy throughout the entire process to avoid errors and discrepancies. The second part of the document focuses on the analysis of the recorded data. It describes how to use financial statements, such as the balance sheet, income statement, and cash flow statement, to gain insights into the company's financial health. The text discusses key financial ratios and metrics that can be used to evaluate performance, such as the profit margin, return on investment, and current ratio. It also covers the importance of budgeting and forecasting, explaining how these tools can help in planning future operations and identifying potential risks. The document concludes by reiterating the significance of diligent record-keeping and analysis in achieving long-term financial success and providing a clear picture of the organization's financial position.

The first part of the document discusses the importance of maintaining accurate records in a business setting. It highlights how proper record-keeping can help in decision-making, legal compliance, and financial management. The text emphasizes that records should be organized, up-to-date, and easily accessible.

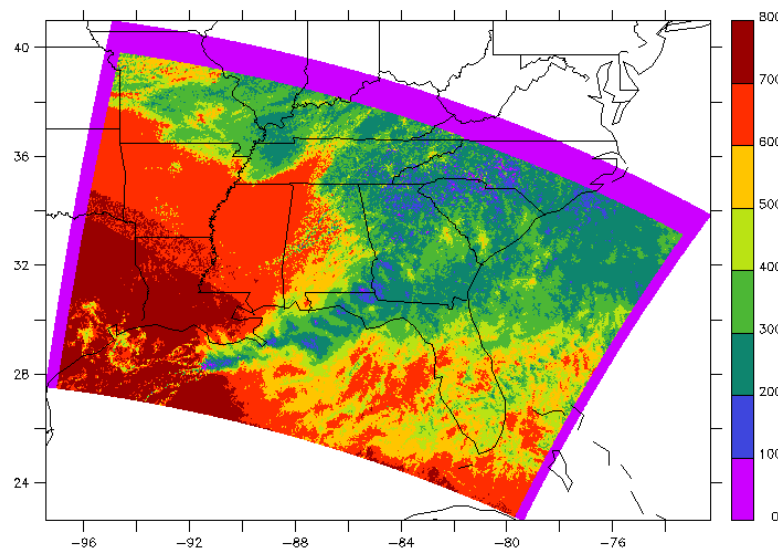
Next, the document addresses the challenges of data management in the digital age. It notes that while digital storage offers convenience, it also introduces risks such as data loss, security breaches, and information overload. Solutions like cloud storage, encryption, and regular backups are suggested to mitigate these risks.

The third section focuses on the role of technology in streamlining business processes. It describes how automation and software solutions can reduce manual errors, save time, and improve overall efficiency. Examples include using accounting software for invoicing and project management tools for task delegation.

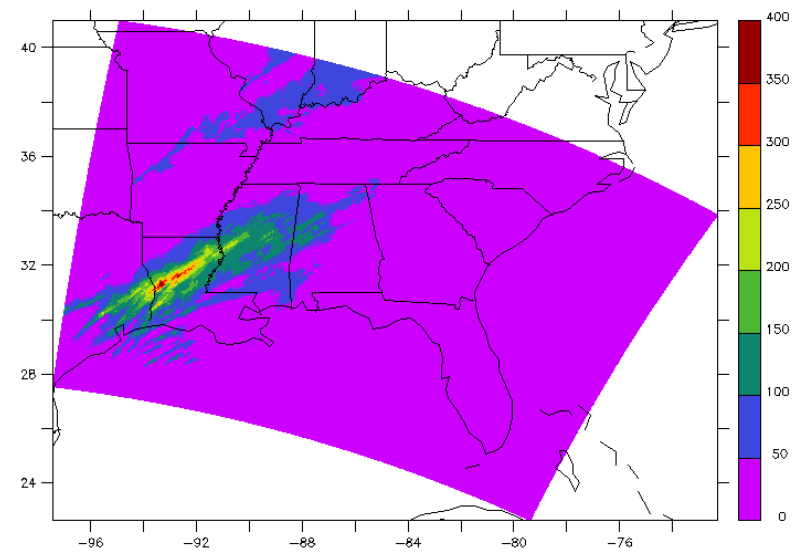
Finally, the document concludes by stressing the importance of employee training and awareness. It suggests that regular training sessions can help employees understand the correct use of technology and the importance of data security. A culture of continuous learning and improvement is presented as essential for long-term business success.

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry, no matter how small, should be recorded to ensure the integrity of the financial data. This includes not only sales and purchases but also expenses, income, and transfers between accounts. The document provides a detailed list of items that should be tracked, such as bank statements, credit card receipts, and invoices. It also outlines the best practices for organizing these records, such as using a consistent naming convention and backing up data regularly. The second part of the document focuses on the reconciliation process, which is crucial for identifying discrepancies and ensuring that the books are balanced. It explains how to compare the company's records with bank statements and how to investigate any differences. The document provides a step-by-step guide to performing a reconciliation, including how to identify errors and how to correct them. The final part of the document discusses the importance of regular audits and how to conduct them effectively. It explains that audits are necessary to ensure the accuracy and reliability of the financial statements and to identify any potential areas of concern. The document provides a checklist of items to be audited and offers tips on how to select an auditor and how to prepare for the audit process.

Merging Satellite and Radar Data for Crop Model Input



Satellite Derived Insolation

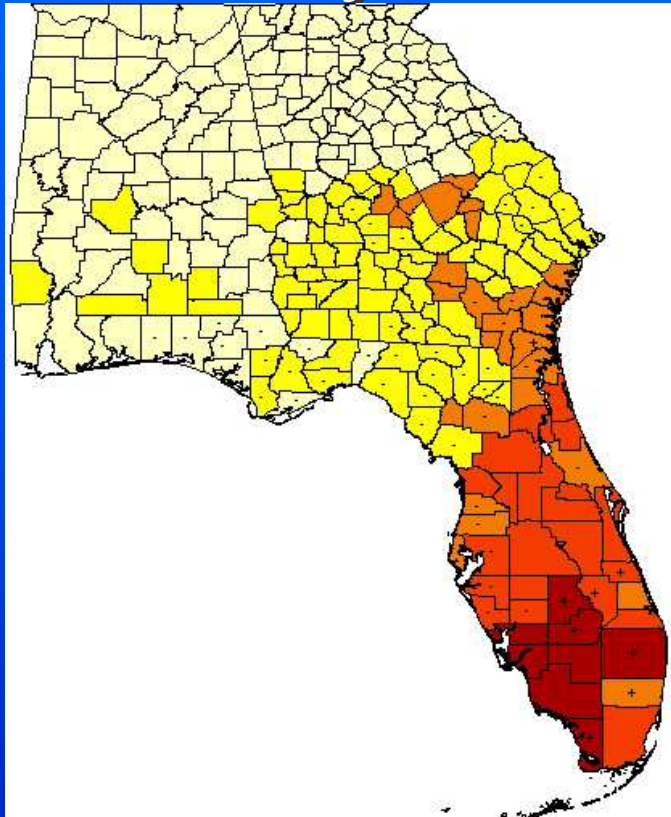


Radar Derived Precipitation

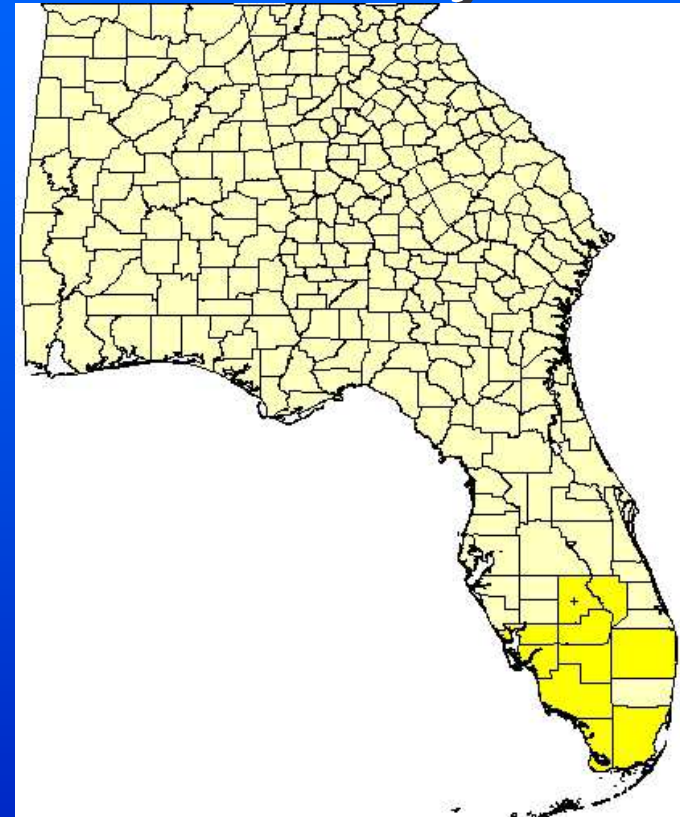
DSSAT

Drought Forecasting

Keetch-Byram Drought Index – May 2007



Abnormally Dry Conditions
(at least 7 days at 450 or above)



Extremely Dry Conditions
(at least 7 days at 650 or above)

For more information on KBEI forecasts visit AgClimate.org.