

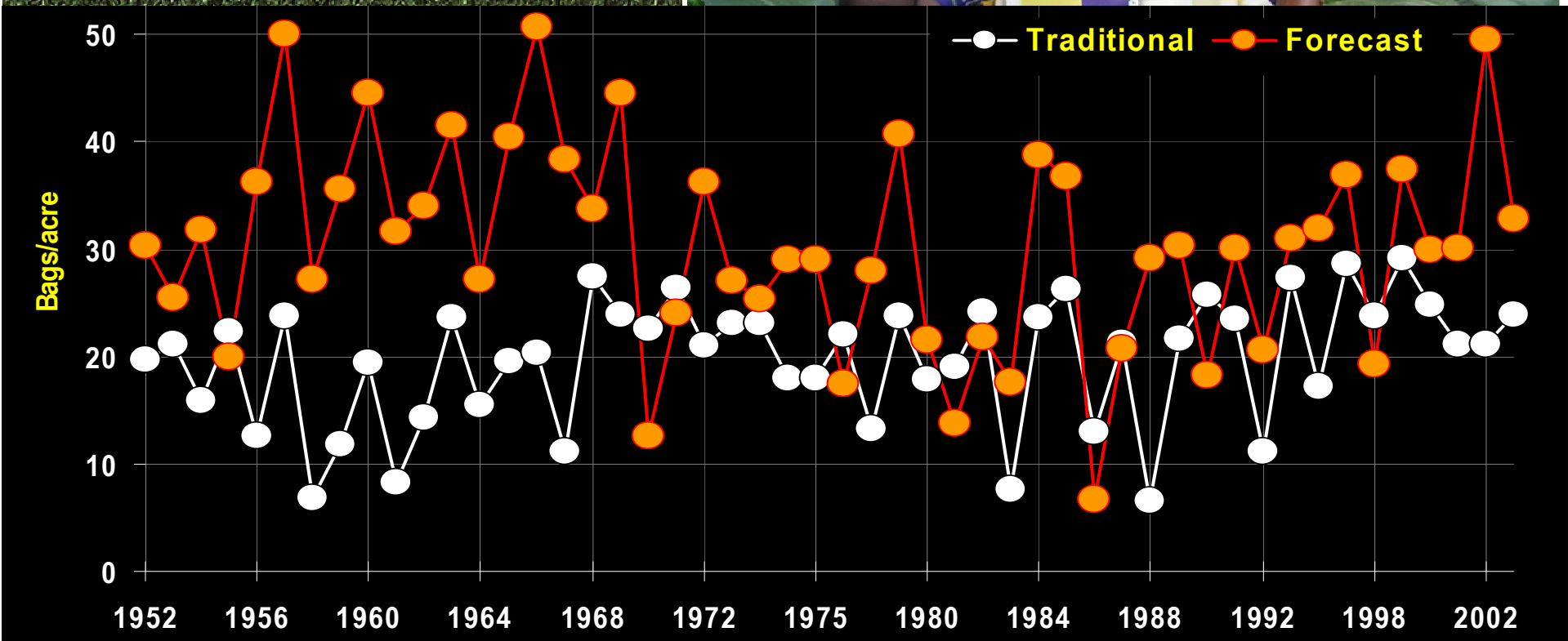
**Shrikant Jagtap**

**Global Climate Technology for Development**

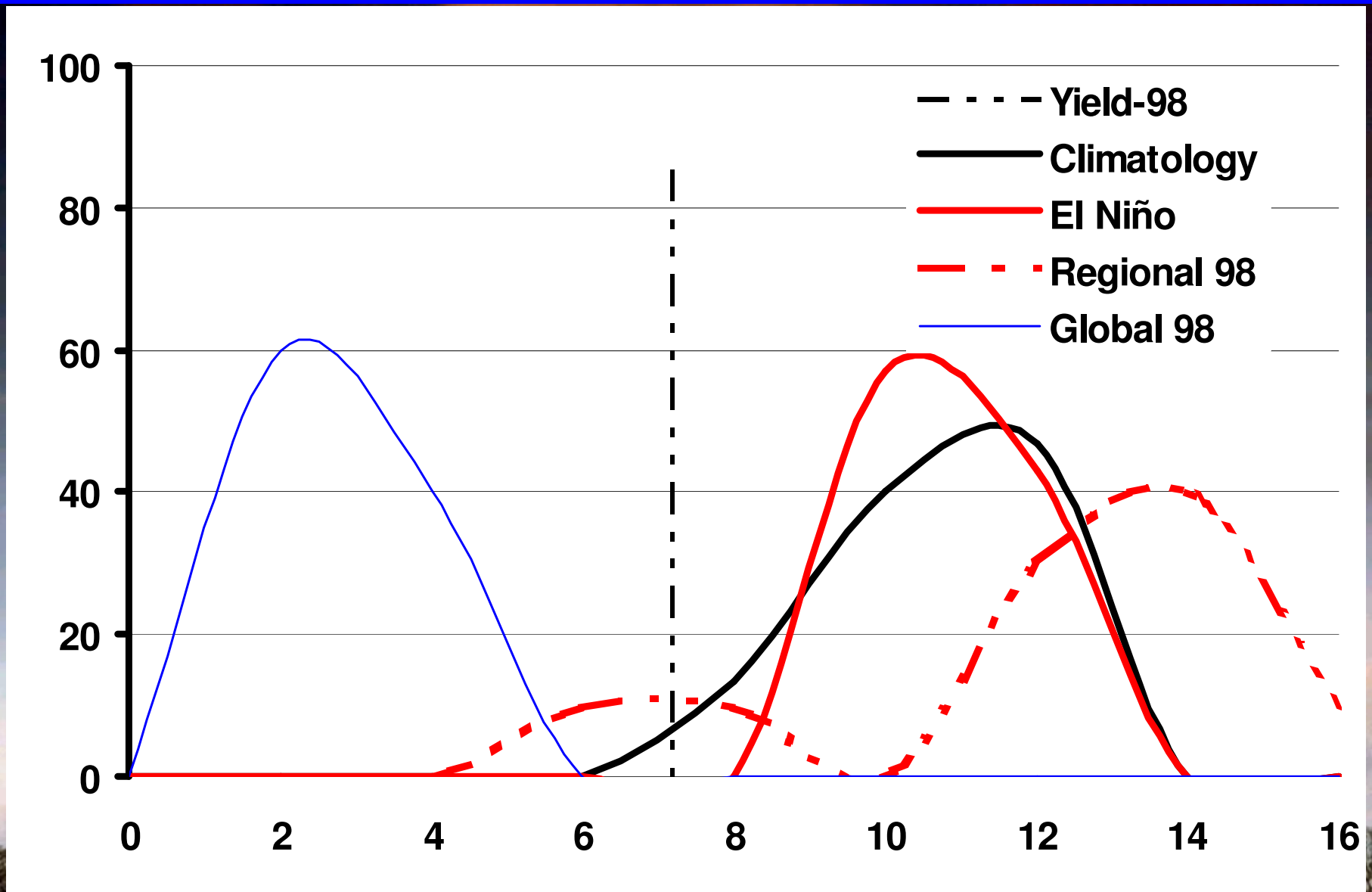
**University of Florida**

**US Department of State**

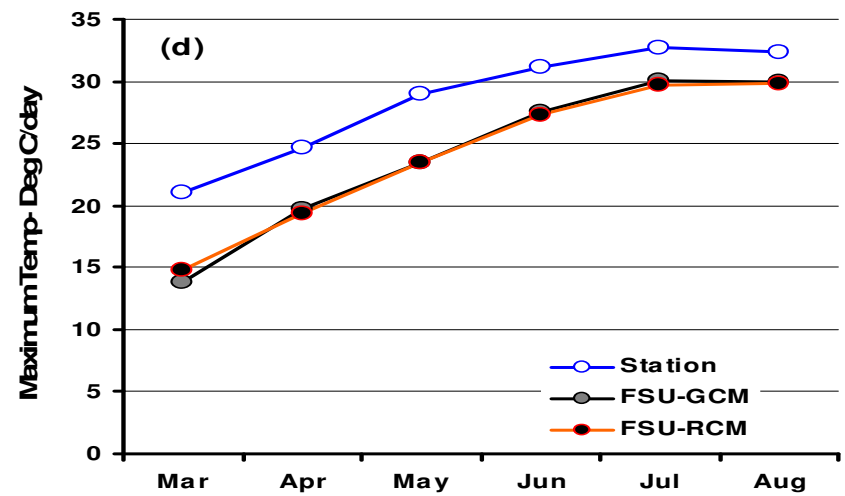
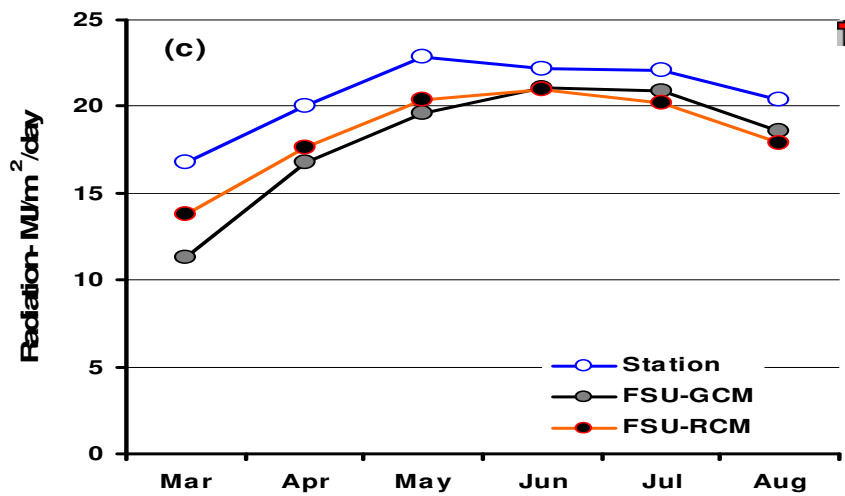
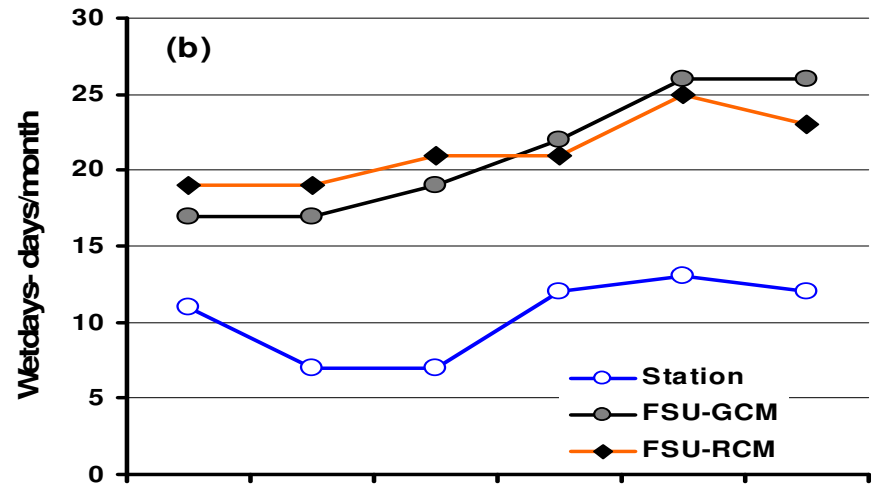
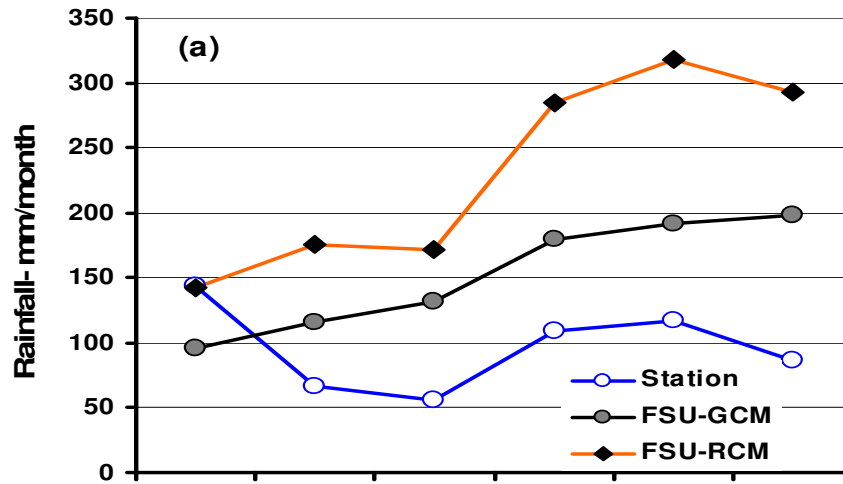




# Using Climate Models for Yield Predictions: Working with Uncertainties



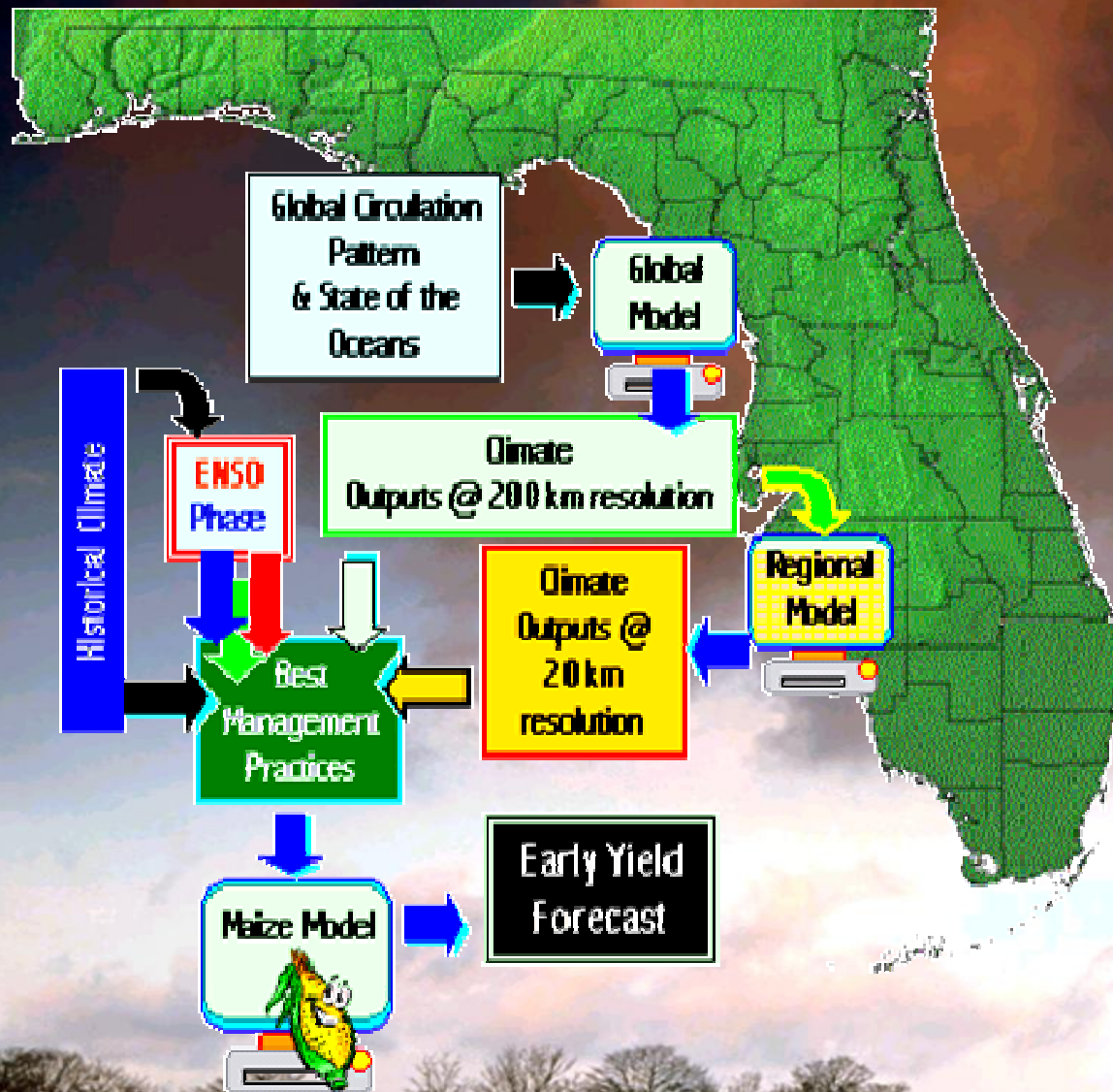
# Using Climate Models for Yield Predictions: Working with Uncertainties



## From USER's Perspectives

- 1. While it is clearly desirable to improve a forecast model by resolving model shortcomings, we may simply not have the data or understanding to pin down crucial uncertainties in the models.**
- 2. Model may have two types of error: random errors due to the cumulative impact of unknown processes on the known processes, and systematic errors due either to parameters not being adequately constrained by available observations or to the structure of the model being incapable of representing the phenomena of interest.**
- 3. Therefore, a systematic treatment of model error is essential for forecasts to be useful in decision making. The net result of minimizing errors is that usable forecasts can be made with existing models.**

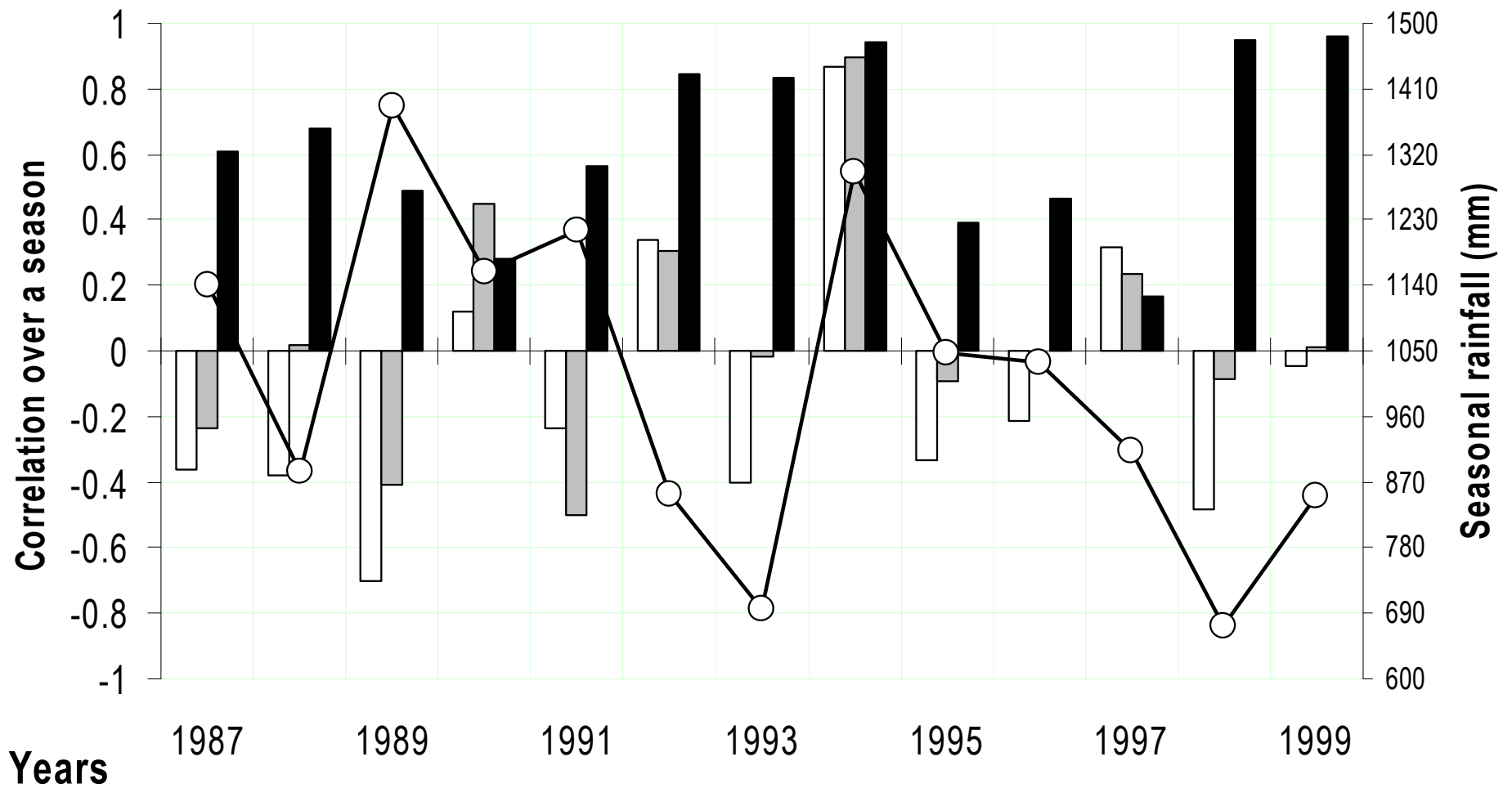
# Using Climate Models for Yield Predictions: Working with Uncertainties



**Study Region**  
SE USA

**Length of Study**  
1987-1999 Hind-Cast  
2000-2006 Forecast

**Forecast Products**  
Monthly March-August  
Weather Generator  
Crop management  
Irrigation management  
Crop yields



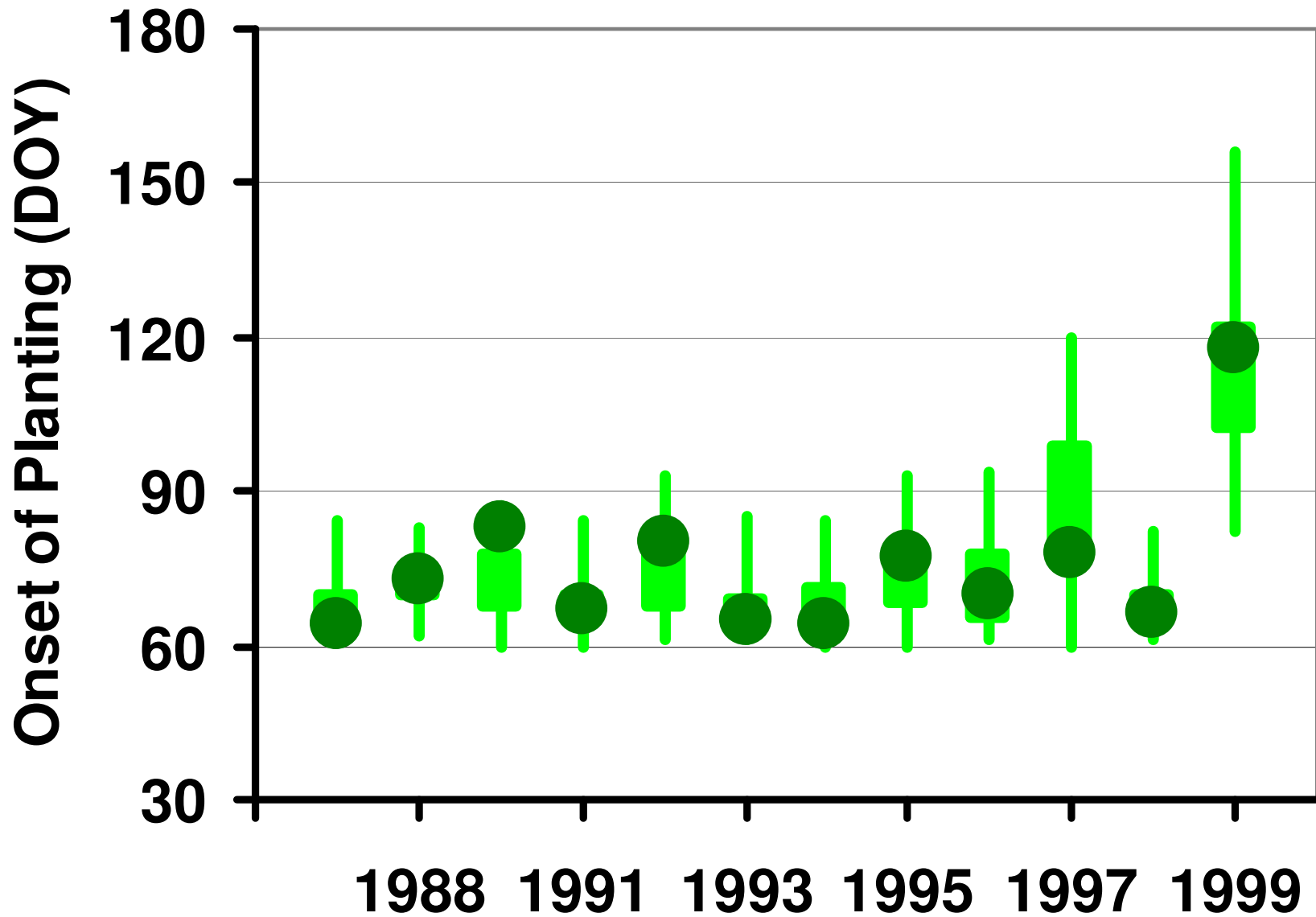
FSU-RSM
  MBC
  k-NN
  Seasonal rainfall total (mm)

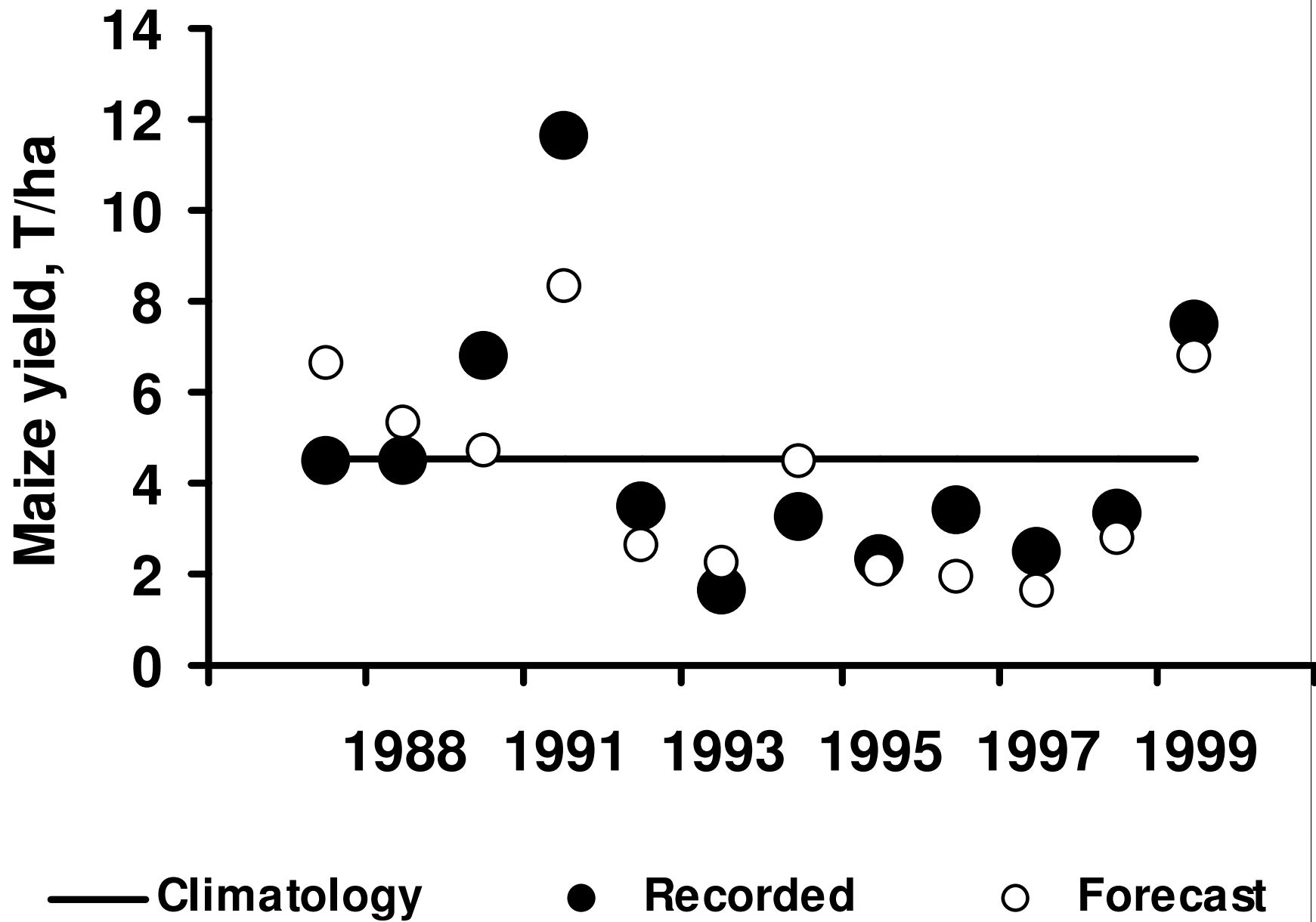
**Temporal linear correlation skill comparison among the FSU-RSM, the mean bias correction (MBC), and the k-nearest neighbor method at Tifton, Georgia with the station observed March through August monthly rainfall.**

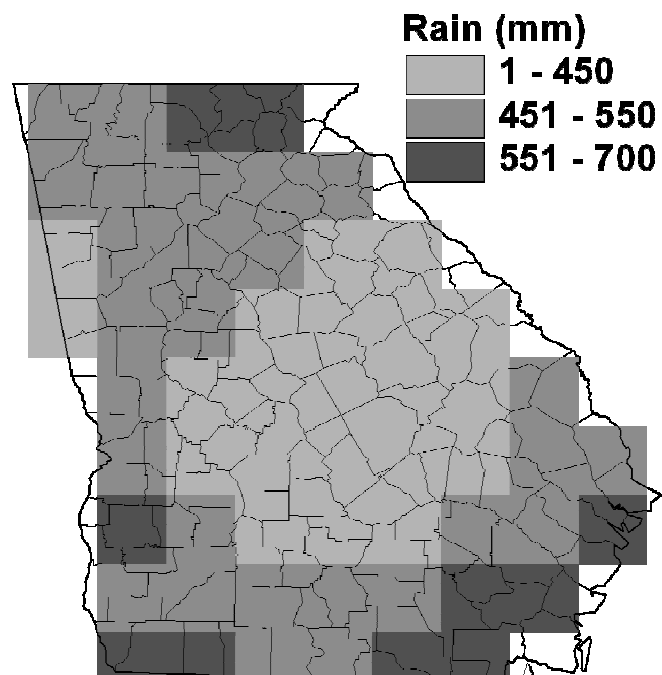
Variable, Monthly	Rsq- Raw	Rsq- Corrected
Rainfall	~0	0.32
Maximum Temp	0.86	0.98
Minimum Temp	0.84	0.98
Radiation	0.42	0.95



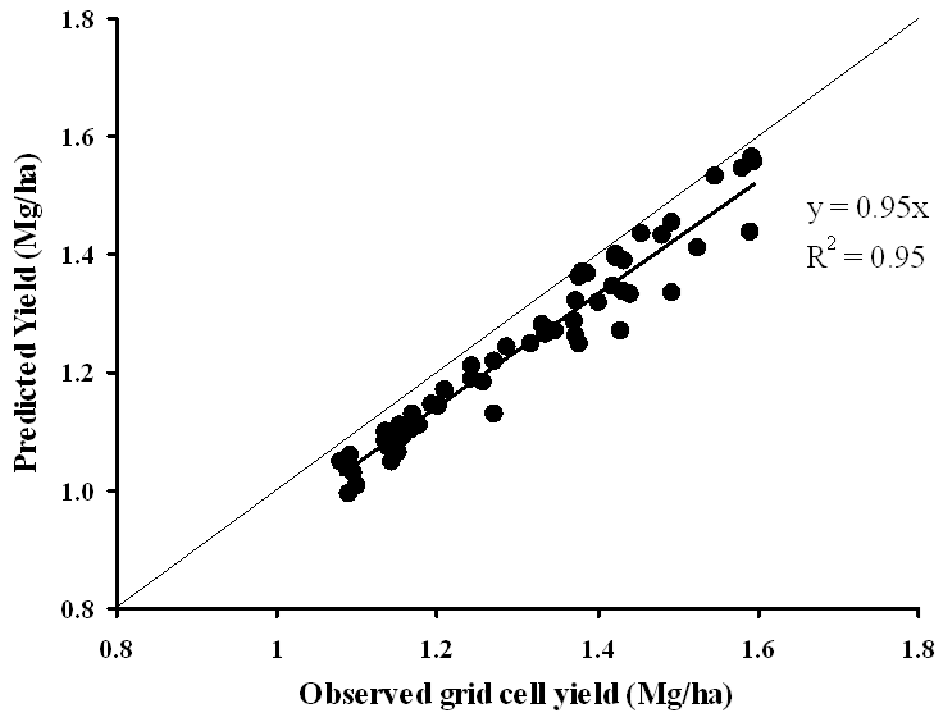
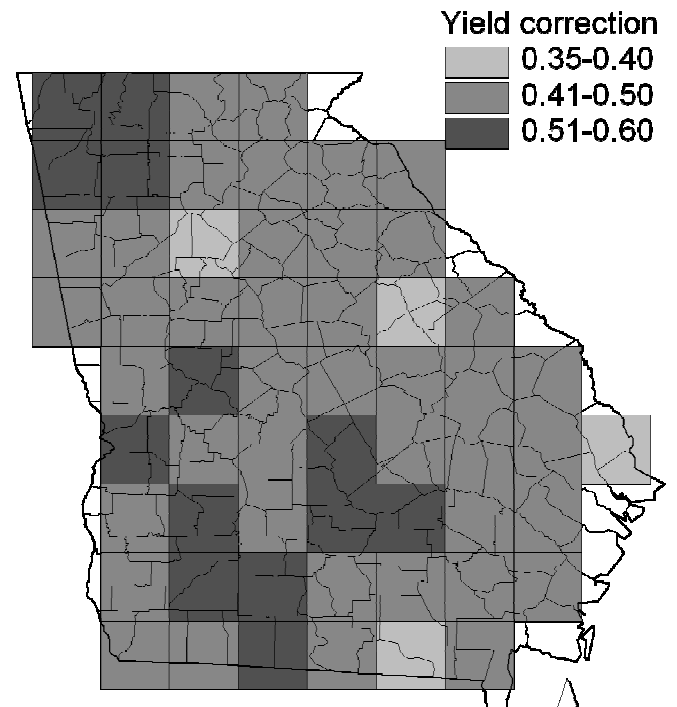
# 10-Ensembles



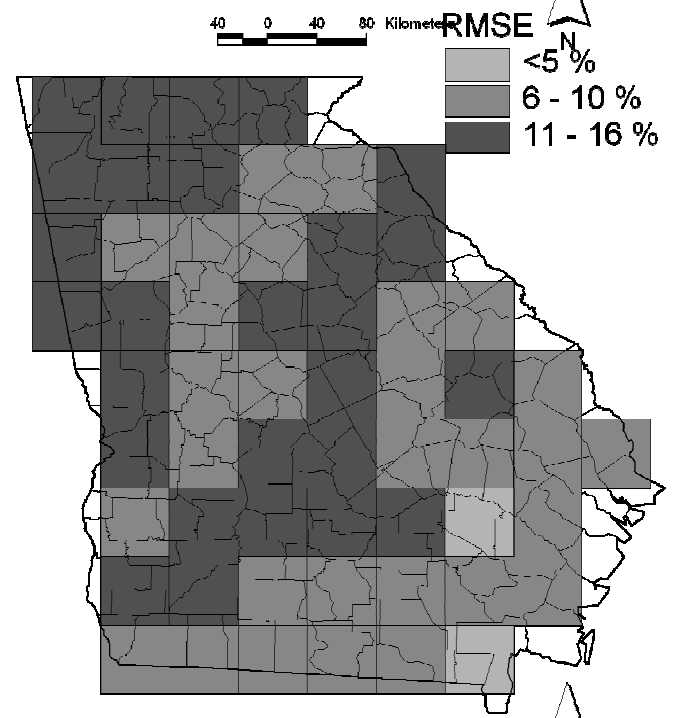




**Validation 0-6**  
**~ 154,000 Sq Km**



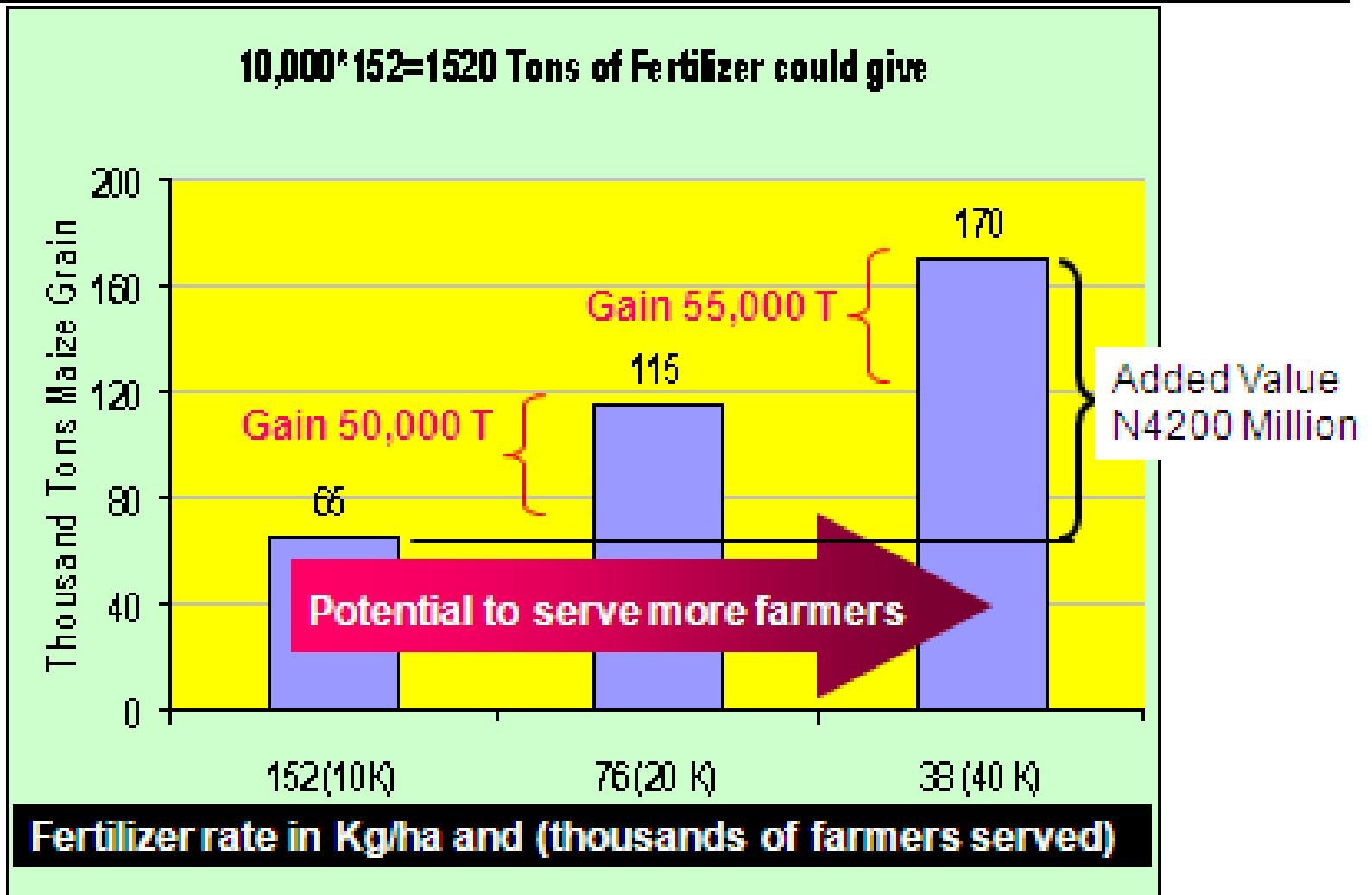
40 0 40 80 Kilometers



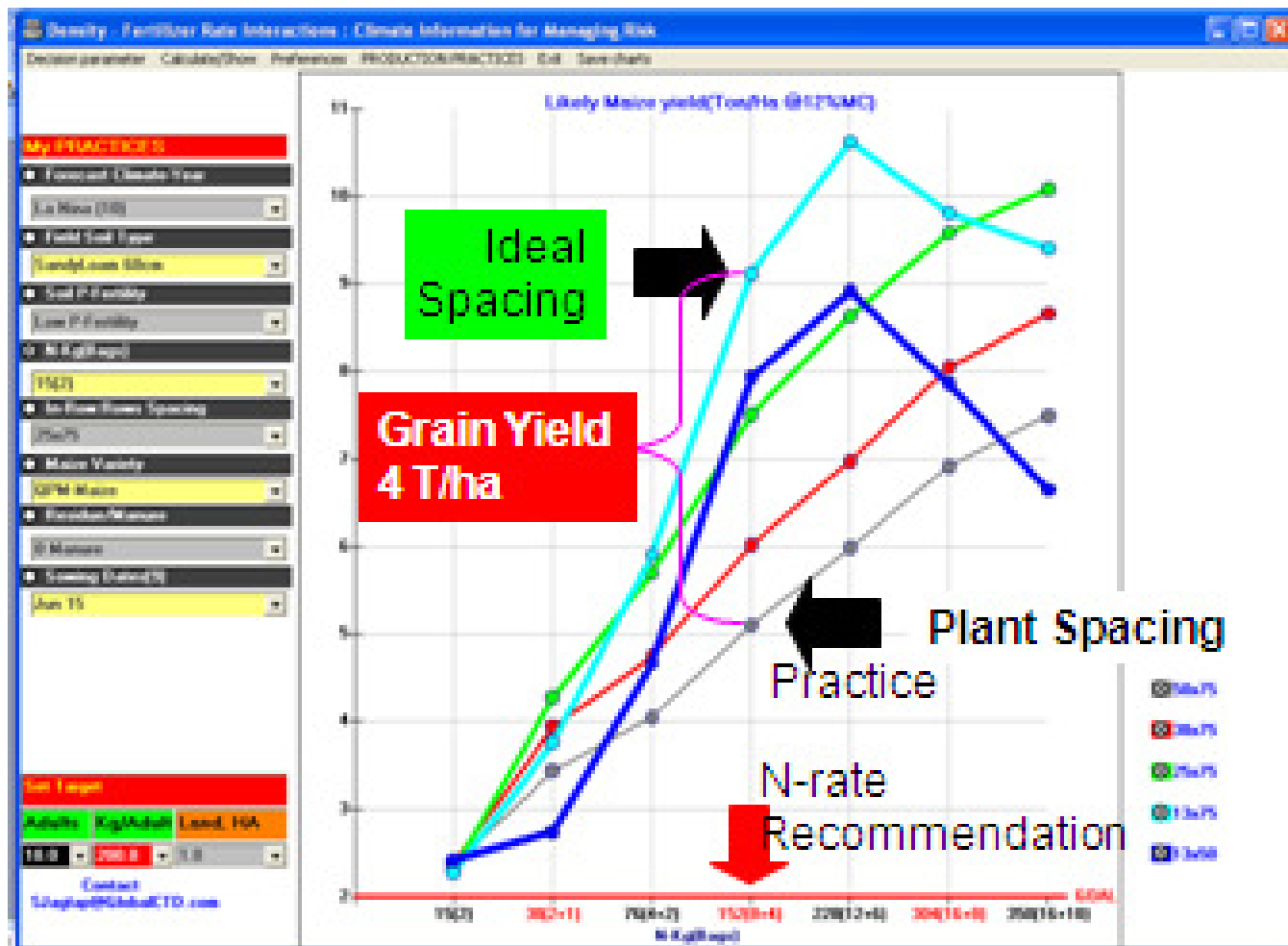
## Seasonal Rainfall Prediction – Nigeria case study

Forecast	2008	2009	2010	2011
Onset	?	66%	79%	81%
End-of-Rain	?	85%	83%	93%
Rainfall	?	76%	68%	95%

# Adjusting fertilizer rate, there is potential to increase production and serve more farmers



# Tools for Agricultural Extension Advisors



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**1980-2012: 60+ Countries**

**I'll be working in India here after**

**+91 773 8899 302**

