

Collaborative Research on Cotton Production in Thermo-limited Regions of the High Plains:

Economic Team Update

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Gaps from an Economic Perspective

1. There is a need for consistency in reporting field data. Example, units for water resource capacity was gpm/acre from some folks and gpm from other folks.
 - Visited with and on track with Jourdan Bell and Jonathan Aguilar
2. We need to focus on SDI production functions so that economic modeling can incorporate SDI out comes more realistically. Bill Golden proposed to send out a production function for well irrigation and have the experts in cotton production modify it for more limited irrigation. This has some risks.
 - Work in progress on production functions
3. We need a crop modeler to calibrated a crop model with our field research data and then run the model with a plastic mulch to stop evaporation or some other way to reduce evaporation from the soil so as to model SDI more realistically.
 - Working with Louis Baumhardt and Srini Ale
 - Our production functions require lint yield, seasonal precipitation, seasonal irrigation, and seasonal heat units

Gaps from an Economic Perspective (cont.)

4. We need a crop modeler to calibrate a crop model with our field research data and then run 100 year simulations with climate change weather data as input.
 - We will use what we learn from 1&2
 - Model is developed with 500 simulations – need to include climate data
 - Question: Is there correlation between seasonal precipitation and seasonal heat units?

5. We need to know what yield will result from a certain amount of total water use, but this question is complicated by:
 - Fall contracts that pre-determine area irrigated and management
 - Insurance programs that may drive unnecessary irrigation
 - Farmer behavior variations that affect the production function
 - Variability in well capacities available to farmers and within season reductions in capacity
 - The risk variance in the production function

Thank you!

