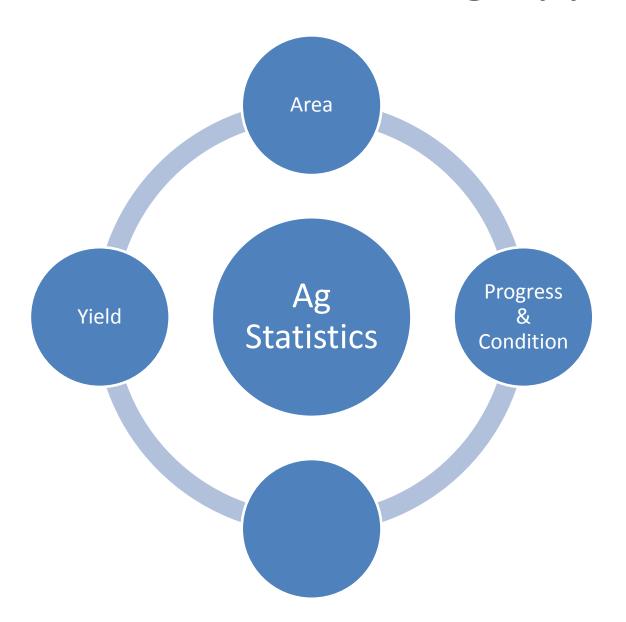
USDA/National Agricultural Statistics Service

SMAP Application Benefits

Rick Mueller/Larry Beard/Zhengwei Yang 10/14/11



NASS Remote Sensing Apps







NASS SMAP Program Goals

- Leverage scientific and technological advances to produce and disseminate important foundational geospatial data to measure ag soil moisture
- Utilize near real-time remote sensing and modeled data to supplement and enhance official reports, statistics, and products
- Deliver advanced remote sensing science with objective, repeatable, transparent best practices methods and measures
- Reduce NASS respondent & staff burden





Current Soil Moisture Program

- Volunteer based weekly qualitative observations
 - Throughout growing season
- Topsoil (surface to 6" depth) and Subsoil (>6" 3-4')

Southern Low Plain

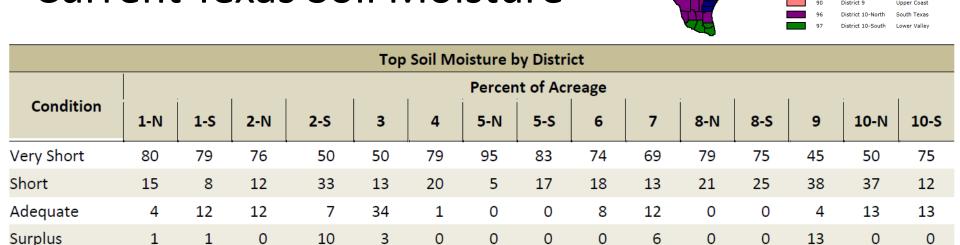
Blacklands

Edwards Plateau

District 3 District 4

- Very Short, Short, Adequate, Surplus
- State level summarization

Current Texas Soil Moisture



Importance to NASS

Total NASS Subscribers by Report		
Title	Subscribers	
Crop Production	10095	
Acreage	9152	
Crop Progress	9134	
Crop Production Annual Summary	9026	
Agricultural Prices	7830	
Agricultural Prices Summary	7624	
Prospective Plantings	7512	
Grain Stocks	7109	

NASS has a well established dissemination service to the rural, agricultural, commodity, and academic sectors, with a mission designed to provide timely, accurate, and unbiased critical decision support information to all parties at the same time.

	<u> </u>
Crop Values Annual Summary	5349
Dairy Products Prices	4635
United States and Canadian Cattle	4496
Livestock Slaughter	4493
Hogs and Pigs	4464
Agricultural Land Values	4429
Dairy Products	4252
Livestock Slaughter Annual Summary	4117
Dairy Products Annual Summary	4050
Milk Production	3908
Agricultural Chemical Usage - Field Crops and Potatoes	3722
Cold Storage	3565

Challenges

- To produce higher spatial resolution products for surface and root-zone soil moisture monitoring
- Large scale ground truth calibration quantify NASS' soil moisture condition and correlate it with sensor measurements
- Large scale ground truth validation





Requirements

- Objective and quantitative soil moisture measures
- High resolution national geospatial coverage
 - Sub county
 - Georeferenced
- Automatic data collection, processing, and publishing
- Online visualization & dissemination
- Consistent, reliable, efficient, and low cost
- Remote sensing based monitoring system!





Collaboration/Integration is Key

- Enhance and modernize the current soil moisture method
 - Target the highest feasible level of spatial/spectral resolution
 - NASS "Early Adopter" first step
- Incorporate seasonal crop-specific parameters
 - Integrate Cropland Data Layer
 - Integrate National Crop Progress Monitoring System
 - GMU CSISS & NASA
 - Develop National Crop Condition Monitoring System
 - GMU/CSISS & NASA
 - NASS RS Yield program
 - Support Evaporative Stress Index R & D
 - Hydrology & Remote Sensing Lab/ARS
- Dissemination via NASS OGC Portal





5 Year Dream

Weekly Soil Moisture Updates via Live OGC/Mapping Services on NASS Geospatial Portal

CropScape - Cropland Data Layer

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