

Dairy National Air Emissions Monitoring Study Update

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Dairy's air quality challenges

- Federal and state regulations
 - Clean Air Act (CAA)
 - Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
 - Emergency Planning and Community Right-To-Know Act (EPCRA)
- Lack of dairy data



Why Dairy is Participating in the Air Consent Agreement

- To develop dairy air data
- To provide protection against enforcement and lawsuits
- To develop a system all dairy farmers can use to determine their emissions

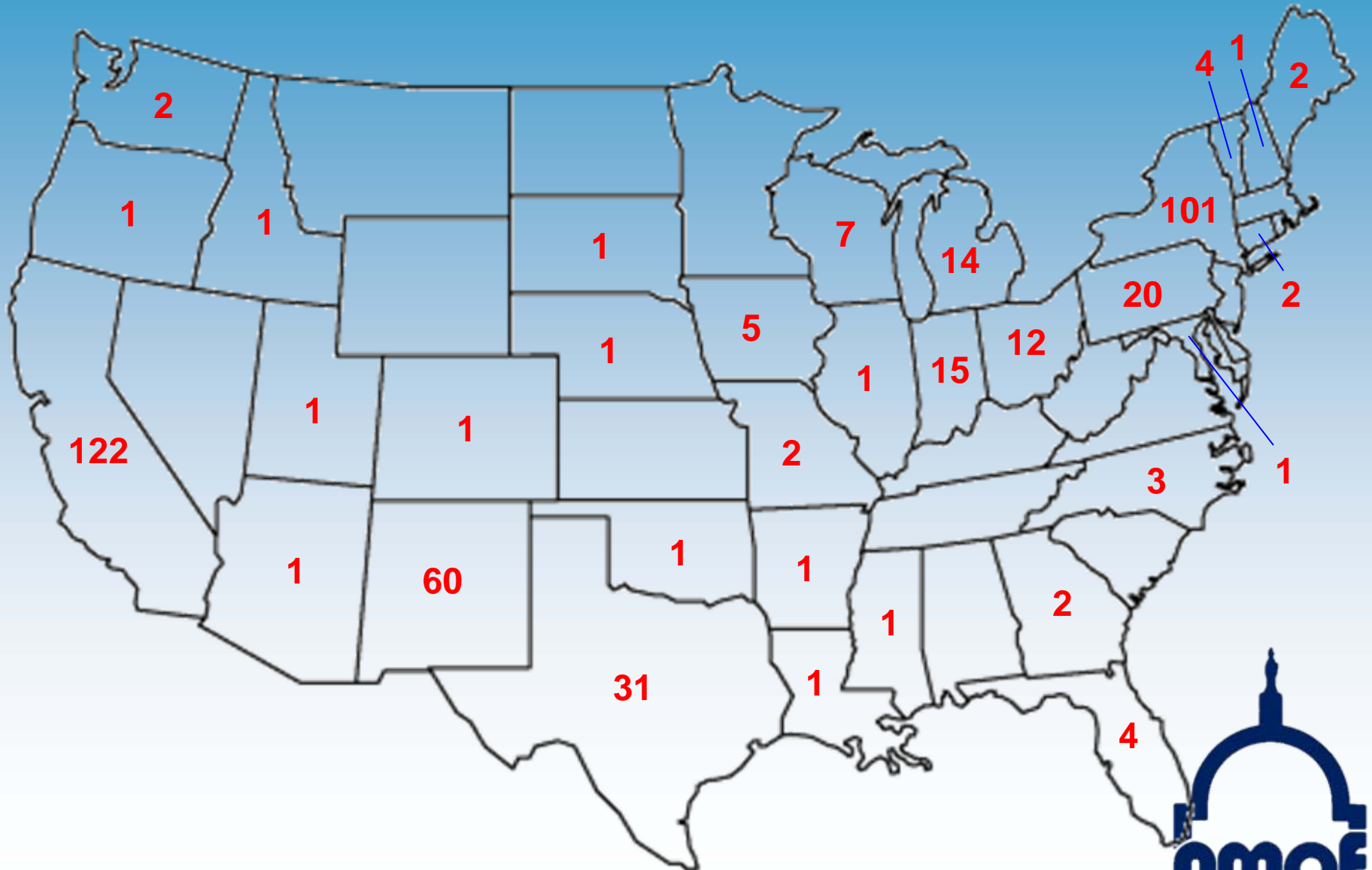


Dairy Air Consent Agreement Participation

- 599 dairy farms signed-up initially
 - 572 final owned by 468 producers
- Located in 34 states



Dairy Sign-Ups



Dairy Air Emissions Monitoring Study



- Cost = \$5 million
- Study Details
 - Six dairies in six states
 - IN, WI, NY, CA, TX, WA
 - Different types of operation
 - Free stalls and corral
 - Mechanical and natural ventilation
 - Scraped and flushed
 - Lagoons and basins



Dairy Air Emissions Monitoring Study *(continued)*

- Monitor for VOCs, NH_3 , H_2S , TSP, PM_{10} , $\text{PM}_{2.5}$
- Two years of continuous barn emission data
- Manure storages monitored every season
- Comprehensive Real -Time Emission Data
 - Ammonia
 - Hydrogen sulfide
 - Carbon dioxide (PIR)
 - PM_{10}

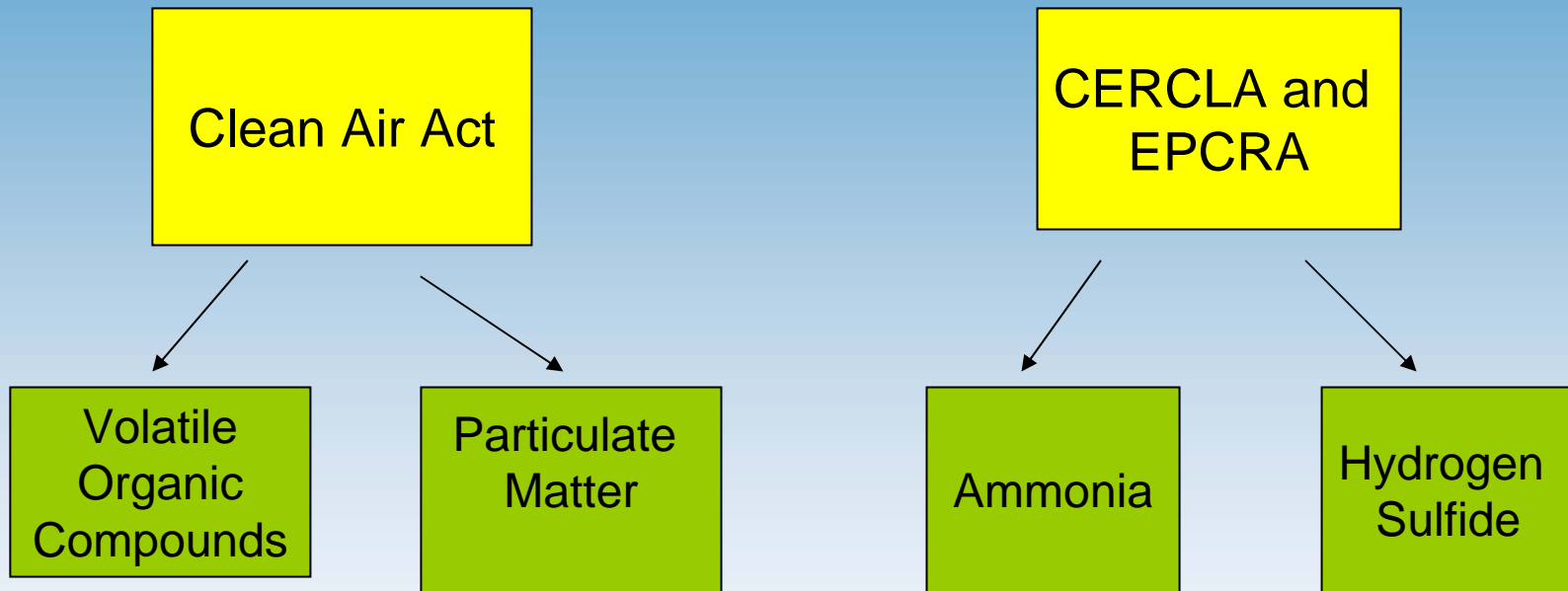


Dairy Air Emissions Monitoring Study *(continued)*

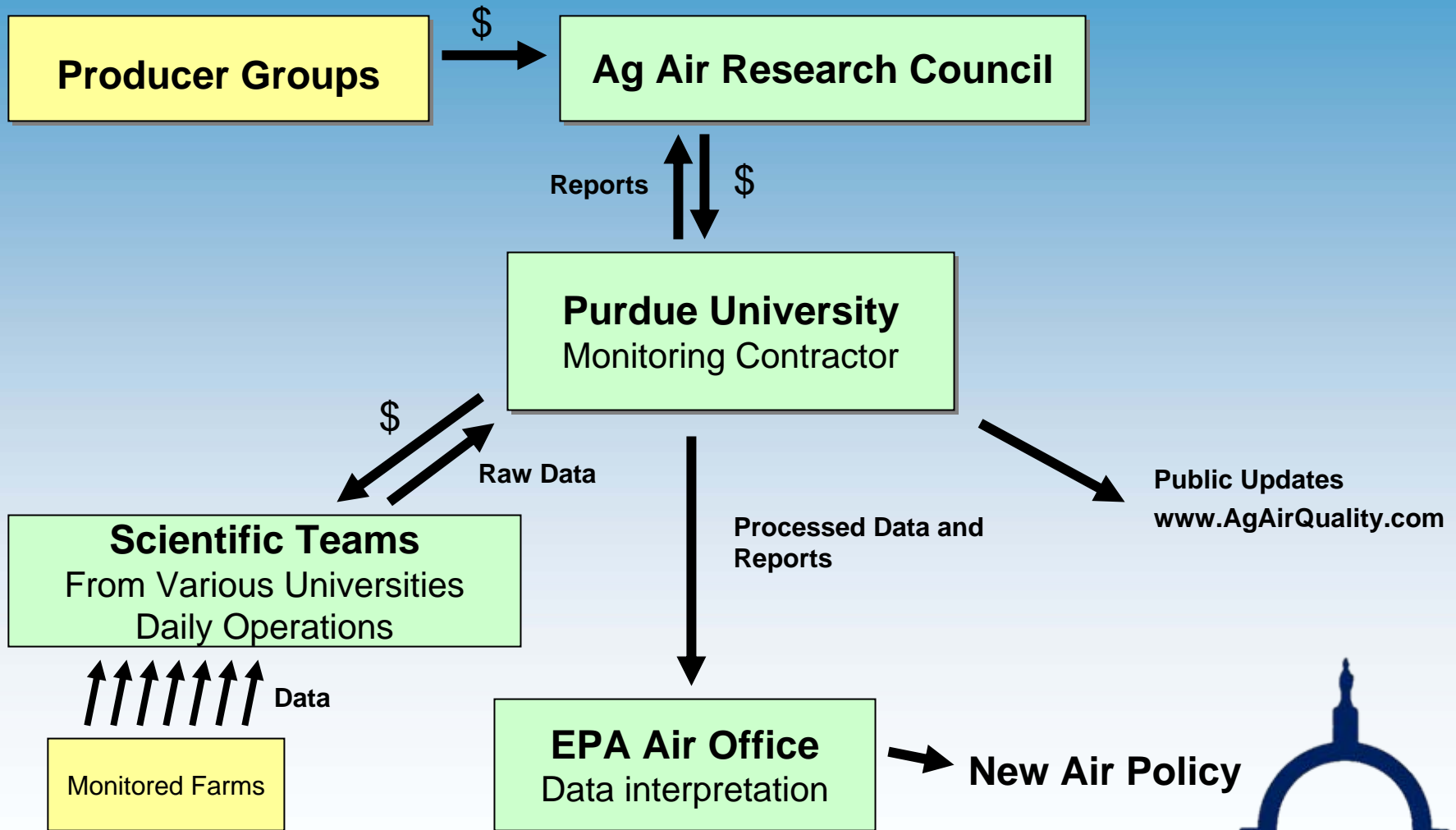
- Integrated Sampling
 - Volatile Organic Compounds
 - PM2.5
- Air density temperature, pressure, humidity
- Wind and air velocity



Why this information is needed



Conduct of the Study



What is AARC? What does it do?

- AARC is legal entity
- lets contracts;
- administers funds;
- holds titles to mobile labs;
- audits expenses and budgets;
- Will coordinate equipment use/disposal after study is complete.



Revised Timeline for NAEMS

- 8-06 Purdue submitted to EPA the completed QAPP for approval.
- 11-06 EPA approved the QAPP
- 12-06 AARC and Purdue executed performance contract for study
- 12-06 AARC members funded their portions of NAEMS
- 4-07 Monitoring study begins
- 5-09 Study ends
- 11-10 EPA publishes “Look Up Charts”
- 3-11 Participating producers certify their compliance

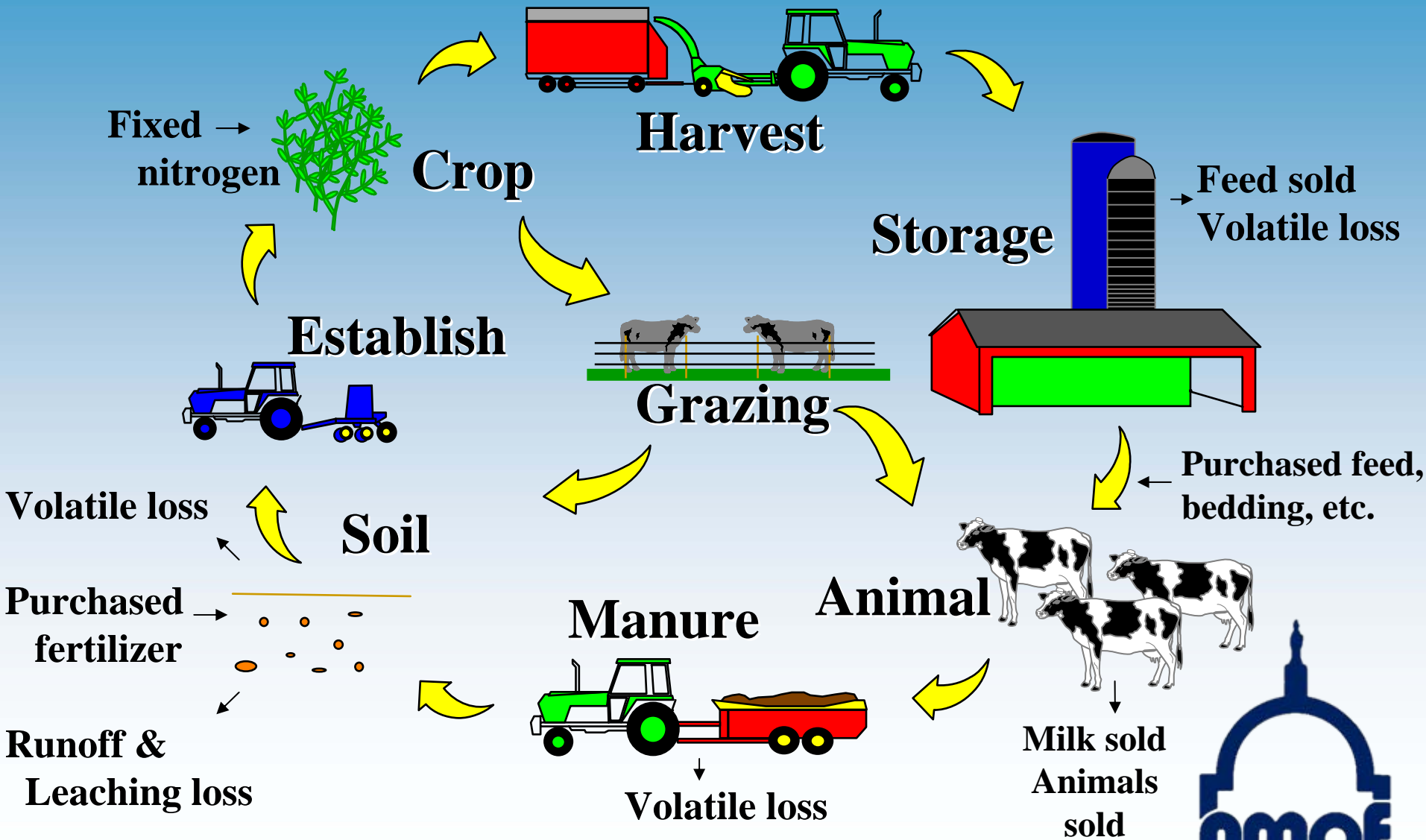


Process-Based Model

- Purpose – a tool for dairy producers to estimate their on-farm emissions
- Possible ways to mitigate emissions



Process-Based Model Approach



From Al Rotz, USDA ARS



Questions?

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