AMT Partnership Requested Topics

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Partnership Requested Topics

CROP	ANIMAL	MANURE	INORGANIC FERTILIZER	MODELING
Crop nutrient application	Reevaluate animal types	Dissolved Air Flocculants (DAF).	Soil and Water Extractable Phosphorus	Nutrient Application
Agricultural plant categories	Feeding operations	Manure Storage	Fertilizer breakdown	Land Use
Legume nitrogen fixation	Size	Nitrogen mineralization	Revisit AAPFCO NH4 to NO3	Cover factors
Timing of crop nutrient applications		Transport	Biologicals	Evaluation of alternative agricultural data sources
Crop uptake vs removal		Storage and handling losses		Model Structure
Double cropping				
Climate change effects on crop types				

Crop (1 of 2)

Crop nutrient application

- Simplifying the algorithm for assigning nutrients to each crop type so we can move away from real life practices

Agricultural plant categories

- The term crop is a general term and includes items that are not agronomically considered a crop, like hay, pasture, and turfgrass in urban areas.

Legume nitrogen fixation

- The amount of nitrogen fixed by leguminous crops has been debated we need to ensure this is accurate.

Timing of crop nutrient applications

- The nutrient application timing is based on agronomic practices of split application. CAST functions on an average annual basis. We need to evaluate the merits of a time average application strategy when we do not model at the farm scale.

Crop (2 of 2)

Double cropping

- Update major field crops acceptable for double cropping and the acreage areas for double cropping

Climate change and crop types

- Incorporate climate change estimates into agricultural forecasting in order to incorporate changes to crop types.

Crop uptake vs removal

- Reevaluate the current crop removal values associated with crop types in CAST.

Animal

Reevaluate animal types

- The list of animal types may no longer align with those used by the National Agricultural Statistical Service. This needs to be consistent across time since 1985.

Feeding operations

- The acres and locations of production area (afo/cafo) could be determined using the land cover data.

Size

- Current data regarding animal size utilizes data is potentially outdated and needs to be revisited.

Manure

Dissolved Air Flocculants (DAF).

- This material is captured from poultry houses' air emission systems and then washed into wastewater. We need to evaluate the impacts of this material.

Manure Storage

- Evaluate ammonia volatilization during manure storage as well as address nutrient species composition over time during manure storage.

Nitrogen mineralization

- Examine N mineralization from the previous year and its impact on soil nutrient content. The model stands by its own for each year.

Transport

- Current accounting for manure transport is not comprehensive and requires better data to be accurately represented.

Storage and handling losses

- Calculate handling and storage losses of manure.

Inorganic Fertilizer

Soil and Water Extractable Phosphorus

- Examine potential data sources for soil and water extractable phosphorus and collect improved data.

Fertilizer breakdown

- Change the prepared inorganic fertilizer data so that it is an amount for each state, rather than an amount that is watershed wide.

Revisit AAPFCO NH4 to NO3

- Compare association of American plant food control officials fertilizer species to calculate the actual ratio of ammonium to nitrate (Compare to 75/25 split assumed)

Biologicals

- We will examine the potential use of biological fertilizers, pesticides, stimulants amongst others as agricultural supplements.

Modeling

Nutrient Application

- In phase 6 the nutrient application model became very complex decreasing transparency. There is widespread desire to find a simplified nutrient application model.

Land Use

- Utilize updated high resolution land satellite imagery while reevaluating if current land use classifications should be altered to more accurately represent land uses.

Cover factors

- Determine if additional soil data sources are available or utilized by other groups that could cover the watershed. Examine if land group mappings need adjusting to reflect any changes to CAST land uses.

Agricultural data sources

- This topic refers to all applicable data investigations that can improve upon existing agricultural data or topics.

Model Structure

- We would like to ensure that the model processes are transparent, a large part of this relies on a broad audience being able to understand what the model is doing. We will examine the potential for different ways to ensure this is the case.

We will need to rank these

Please see the survey to rank each of these topics

- Look over each topic and provide a ranking
- Rankings will determine the group timeline

Questions?