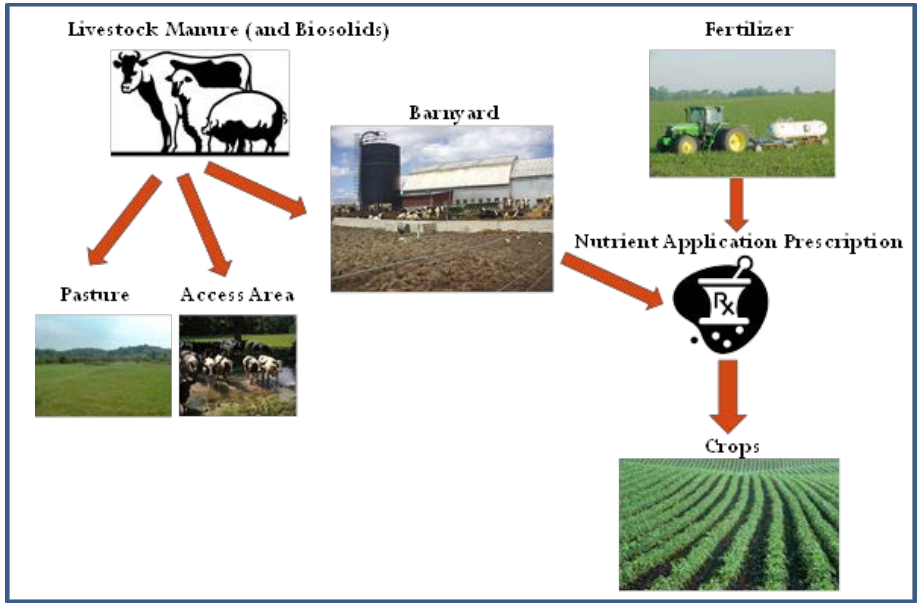
STAC Review of Nutrient Inputs to the Watershed Model



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Overview Presentation to STAC

Charge Questions in Brief

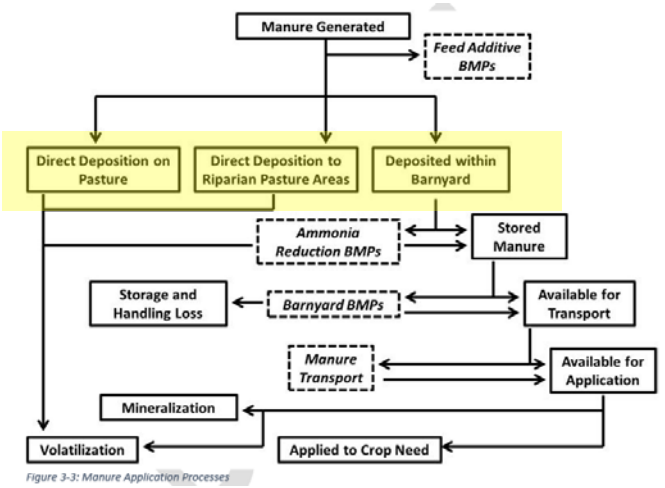
1. Methods used to estimate **total manure and fertilizer available for application** to agricultural lands
2. Methods used to **distribute applications** to crops, hay and pasture
3. Method used to estimate **double-cropped acres**
4. Method used for **agricultural forecasting**
5. Sufficiency of the documentation
6. Other comments or concerns
7. Additional data or findings to consider

Context of the Review

- Moving target
  - Decisions were being made concurrent with our review
  - Documentation was in draft form
  - Three broad categories of reviewer comments

Improve consistency in parameter evaluation across states

- Distribution of generated manure (#4)
- Crop prioritization for manure application (#10)
- Rate of allowable fertilizer application above the application goal (#11)
- RUSLE2 “c” sub-factors (#18)



- Accepted
- Misinterpretation
- Future consideration
- Under review

Incorporate/update data from existing sources

- Nutritive content of manure by animal type and storage component (#1, #6)
- Use AAPFCO data to calculate fertilizer ammonia and nitrate-N (#12)

- Include references and justifications for all sets of created inputs, both hard and soft (#17)

- Accepted
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Modify data transformations and assumptions

- Accepted
- Misinterpretation
- Future consideration
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- Available NO3-N in animal manure (#2)
- Credit for previous years mineralization (#3)
- Credit direct deposition on pasture (#5)
- Calculate storage and handling losses before ammonia loss (#7)
- Modify prioritization rules on use of crop application curves (#8, #9)
- Investigate plateauing relationships between higher levels of fertilizer and crop yields (#13)
- Refine list of “Major Field Cropland Harvested Area” crop types used to define double-cropped acreage (#14)
- Include a climate change factor in the ag forecasting method (#15)
- Do not validate alpha and beta forecasting factors for cropland based on livestock data (#16)
- Apply buffer credit to the upland land use, rather than to all ag land uses (#19)

  Under review by WTWG
- Modify riparian pasture manure (DD) delivered to streams by 0.74 for TN and 0.38 for TP (#20)

  Accepted with modification

Suggested Additional Useful Data (#21)

- Mine state NM plans to better characterize local farming practices, manure/fertilizer application rates and timing, crop goals and actual yields.
- Conduct a survey of fertilizer retailers
- Update manure production figures by animal type
- Support applied research to improve nutrient and land management details, including representation of rotational land management
- Conduct a literature review to better represent non-major crop maximum yields