Computational Agriculture Initiative: Presented by Harold van Es
- See Powerpoint presentation, attached as “INM-CompAG.ppt”.

Precipitation Dataset for the N Leaching Index
- Nutrient management planners have called for a higher resolution precipitation dataset than the county-resolution version currently used with the N Leaching Index (NLI) in Cropware.
- Based on earlier discussions with Karl Czymmek, Art Degaetano, Tibor Horvath, Quirine Ketterings, Harold van Es, Caroline Rasmussen, and Greg Albrecht, Steve DeGloria developed a township-resolution annual and winter precipitation dataset. The description of the dataset and the development method is attached as “NLI Precip-Township Resolution Method-SD DeGloria.doc”.
- In advance of the meeting, Tibor Horvath forwarded a county-resolution precipitation dataset recently developed by NRCS for RUSLE 2. The precipitation data was weighted toward areas of agricultural production within the county and based on the 1971-2000 precipitation dataset (as a note, the 1961-1990 dataset was used to determine the township-resolution subset, because the 1971-2000 dataset has not been released in a usable format for this application). The new county-resolution dataset will be housed in the NRCS Field Office Technical Guide, as well as reside behind the scenes in RUSLE 2.
- Steve DeGloria performed a comparison between the township-resolution data (aggregated to the county-level) and the RUSLE 2, county-resolution data. The results are attached as “Winter and Annual Precip Comparison.xls”
  - Based on the comparison, the annual and winter precipitation means per county seem adequately similar between the datasets, thereby eliminating the need to wait for the 1971-2000 normals to become available for conversion to town-resolution means.
- Precipitation can vary significantly within a county, so pursuing the township-resolution dataset is justified.
  - The township-resolution dataset will be error-checked and circulated to a core group for review. The dataset will be approved by NRCS before incorporation into Cropware v2.0.
  - Cropware users will choose the soil type, the county and the town on field by field basis to make the link between precipitation and hydrologic soil classification (A, B, C, or D) necessary for calculation of the NLI
• NLI values for A, B, C, and D hydrologic class soils will be determined at township-resolution with the new precipitation dataset and a table and/or web-based look-up tool will be offered on the Nutrient Management Spear Program website (www.css.cornell.edu/nmsp) for nutrient management planners not using Cropware.

• NLI values could be computed for each soil hydrologic class based on the 1-km square resolution precipitation surfaces created by DeGloria in ArcView. The resulting maps would allow planners to select an NLI value for a location with higher resolution than the township-level data if so desired. For incorporation into Cropware v2.0, this would require programming additional variables to allow the user to change (override) the calculated NLI value. Such a change will need to be discussed among the Cropware development team.

• General N leaching discussions followed.
  o A need for a national initiative for improved modeling of N leaching and management is necessary.
  o Farmers are not yet grasping the importance of BMPs to limit N leaching. Nutrient management planners have been thoroughly exposed to research justifying both the need for N leaching management and the effectiveness of various management practices, but the trickle-down effect has not yet convinced many farmers to take action (planners have too many accounts, i.e. inadequate income per account, at this stage of the game to be effective coaches here). As a result, a popular ag press article based on the summary of N leaching research (attached as “SWCS N Index.pdf”) was proposed.
  o If all else fails, all manure will be piped to Pete Wright’s house.

• Interesting impacts of global climate change on precipitation via Art Degaetano:
  o Based on the latest climate change literature, annual total precipitation values have not changed much over recent times. But, the events contributing to the annual totals have become concentrated into fewer, stronger storms.

Thanks to Steve DeGloria and Harold van Es for their preparations and presentations.