What are your current sources of information?

- **Publications**
  - Cornell Guidelines
  - NRAES
  - The Furrow (JD Pub)
  - Rural Futures
- **Websites**
  - Spear
  - NRCS, SWCD
- **Extension**
  - Cornell
- **Individuals**
- **Training sessions & materials**
  - Cornell
  - NRCS
- **List Serves** - need lists of all agencies also...integrate them

What information do you need that you are not getting?

- **More definitive information** - need better guidelines to form prof. judgment.
- **Value of CNMP** to the farm - Farmers don’t see the value. What are economics? Why should a producer do it? Non-economic benefits?
- **Effectiveness of BMP** - Are BMP effective?

Best Way for University to Reach Stakeholders?

- Electronically
  - Listserves
  - Mass email
  - Websites
  - Electronic newsletter
- Farm Visits
- Meetings
- Magazines
- Radio, TV

Research Priorities

- **Health issues** - Nitrates and pathogens
- **Copper** and other heavy metal loading
- **Sludge** – Nutrient accounting for sludge
- **Air quality** – Economic solutions to odors
**N**- mineralization
  - Uptake of N with fall planted cover crops
  - N needs on 1st year corn
  - N Leaching

**P** and **P** Index work should continue; also P management
  - Impact of high P on environment
  - Impact of high P on pastures
  - Soil Specific P saturation levels
  - Stratification of P in soils – effect of tillage and environmental consequence

**Economics** of NMP.

**High yielding crops.** What are fertility & cultural practices, environmental impact?

**Manure**
  - Methane digestion
  - Composting. Composting dead animals.
  - Nutrient availability – Fall apps etc.
  - Nutrient value
  - Environment
  - Labor requirements
  - Neighbor relations
  - Marketing
  - Concentrate Source treatment new technology

**BMP Validation.**
  - Buffer strips
  - Silage leachate etc
  - Effectiveness of Buffers.
  - Cover crop effectiveness

**Crop Rotations** for meeting T

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**Maintain accurate soil test conversions**

**Nutrient loss from tile drainage**

Re-visit earlier crop response studies on nutrients to validate the nutrient recommendations.

Validate yield potentials and what the risks may be by pushing them.

More work on minimum tillage and how it fits into dairy (CAFO)

**Extension Priorities**

**Quick communication** of new information across agencies to all stakeholders

**Dissemination of non-CU research** - Perhaps have the CCA conference bring in more external speakers. Combine with PSU?

**Record keeping** - Database/Record keeping system for whole farm including feeding and forage systems

**Engineering** - CU should disseminate basic engineering education

**Education related to controversial issues** (GMO)
• **Integration of information** – There is a need for more well-rounded information, less strict division by subject area

• **Tailor** delivery to large and small farms

• **Emphasis on crop quality**

• **Strengthen locally-based research and education**

• **Educational materials** for farmer friendly plans
  
  o CAFO Plans need to be better defined. – Different review teams have different interpretations. Laundry list not enough – need a template or example plan. Plans are taking too long to develop because of the uncertainty in requirements.
  
  o We need help in how to organize and present plans to farmers; they are overloaded with documents.
  
  o Need two sets of plans: planner level (how to) and farmer level (value and how to incorporate into management plan). Problem: farmers want to know what to do: how much, when and where. Plans don’t really say this in a straightforward way and there is too much “supporting” info that clouds the issue.

• **Professional judgment** - how do you develop and use? Need guidelines for using it; many lack the confidence in using it – legal issues, etc; not much of a comfort level for using professional judgment.

• **Animal husbandry** – A cookbook of good operating practices similar to NRCS Standards. Is the CHAPS stuff applicable to all size operations?

• **Rotation tools** - Better info on how to meet feed needs without exposing land to erosion risk (T) or nutrient losses?

• Farmer education on **P index, PI vs. Risk Level**

**Teaching Priorities**

• Make sure you address the needs for a comprehensive (nonspecialized) education. Good entrepreneurial skills.

• Focus on practical field application of scientific principles Practical knowledge needed:
  
  o Communication -(listening, writing, can work with people)
  
  o cropping systems
  
  o machinery
  
  o manure
  
  o soils –sampling techniques
  
  o timeliness
  
  o applied computer skills
  
  o economics
  
  o construction knowledge

• Scientific skills needed:
  
  o Need a broad education
  
  o Math
  
  o Engineering; Hydrology
  
  o Chemistry
  
  o Microbiology
  
  o Agronomy; soils, soil conservation; natural resource conservation.
  
  o Pest management
  
  o Animal science; feeds and feeding
- Management skills – farm business management.
- GIS, Aerial photography
- Rural Sociology; History of environ laws; understanding Ag policy

**Special Projects**
- Integrated nutrient management planning with prerequisite courses work study
- Industry/extension internships. Mentors from industry-job shadowing.
- Learning what sales / consulting means
- On-farm experience
- Independent study….develop a CNMP
- Stakeholders should be involved in courses

**Other skills**
- Broad holistic view of farm management
- Ability to analyze a farm of any shape
- Basic understanding of BMPs
- Speak a second language (Spanish)
- Openness and experience with alternative strategies
- Custom application course

**Create a “Crops Fellows” program**
- Provide cross training -livestock-soils-crops.
- Troubleshooting skills beyond the specialization (animal specialists should also know a little about crops)