SNAP-Plus

Bill Pearson, Laura Ward Good, Paul Kaarakka, Larry Bundy, Kevin Erb and Wes Jarrell
Tool Focus

- To develop NM planning software that meets the ‘new’ 2002 NRCS 590 standard for Wisconsin
- CNMP have been mandated on Concentrated Animal Feeding Operations (CAFO) receiving NRCS cost-sharing for manure storage
  - Conservation plan (RUSLE2)
  - NM plan (PI)
  - Record-keeping program (SNAP)
  - Manure management (SNAP)
Most farms have one or two of these components on hand and are often independent of each other.

To integrate several programs (RUSLE2, WI. P Index, P and K balancing, SNAP2000) to simplify NMP development in accordance with WI. NRCS 590 standard.
Tool Focus

- Advantage:
  - Single interface for inputs - SNAP
  - No redundant data entry
  - Consistent data among all programs
  - Bring soil conservation planning and NM together
  - More comprehensive approach, using P Index and RUSLE2, to managing manure and P
  - Facilitate farm level “what-if” experimentation by providing field and farm views and immediate feedback
**SNAP-PLUS**

**Input:** Field by field crop and soil info

**Nutrient application calculator**

**P Index calculator**

**Output:** Fertilizer and manure plan, P Index value, soil loss estimate

**Management Loop** – change tillage, crop, etc. see affect on RUSLE2 soil loss, P Index, P balance.

**RUSLE2 soil loss calculator**
Knowledge and Data Transferability

- Inputs
  - Farmer’s name, county, crops grown and fertilizers
Knowledge and Data Transferability

- **Inputs**
  - Farmer’s name, county, crops grown and fertilizers
  - **Field and soil data imported electronically**
Field and Soil Data Needs

- Field name
- Sub farm name
- FSA tract & field No.
- Acres
- Soil name & symbol
- Slope % and length
- Distance to water from field edge
- Contour, strip cropped, terraces, filter strip
- Distance from manure source
- Soil test results – electronic import
Knowledge and Data Transferability

- **Inputs**
  - Farmer’s name, county, crops grown and fertilizers
  - Field and soil data imported electronically
  - **Manure type & quantity, % collected, analysis, annual volumes**
Knowledge and Data Transferability

- Inputs
  - Farmer’s name, county, crops grown and fertilizers
  - Field and soil data imported electronically
  - Manure type & quantity, % collected, analysis, annual volumes
- Cropping data
  - Crop to be grown
  - Yield goal
  - Tillage type
  - Legume/manure application information
  - Fertilizer application information
### Soil Test Data

<table>
<thead>
<tr>
<th>Year</th>
<th>Soil Test Date</th>
<th>Irrigated</th>
<th>Rotation Length</th>
<th>Crop 1</th>
<th>Crop 2</th>
<th>Yield Goal</th>
<th>Tillage/Residue (%)</th>
<th>Special Crop Needs</th>
<th>Prior Years Legume Credit</th>
<th>Prior Years Manure Credit</th>
<th>Plan Manure Applications</th>
<th>Plan Fertilizer Applications</th>
<th>Total Credits</th>
<th>Nutrient Excess or Deficit</th>
<th>Crop P Removal/P Balance</th>
<th>P Index (Total = Fast + Sol)</th>
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<tr>
<td>2002</td>
<td>11/24/2001</td>
<td></td>
<td></td>
<td>Alfalfa</td>
<td>Alfalfa</td>
<td>1-3</td>
<td>No till</td>
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<td>-30</td>
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<td></td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>-30</td>
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<tr>
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<tr>
<td>2005</td>
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<td>Corn silage</td>
<td>Corn grain</td>
<td>20-25</td>
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<td>-160</td>
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<tr>
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<td>11/20/2004</td>
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<td></td>
<td>Corn grain</td>
<td>Corn grain</td>
<td>130-150</td>
<td>No till</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-160</td>
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</tr>
</tbody>
</table>

**Rotation ave soil loss (Ton/acre):** 6.5

**Rotation ave P Index:** 7.6

**Plan period P Balance:** -135

**Soil Test Date:** missing

**pH:** 2.635370

**OM %:** 2.635579

**P (ppm):** 1.0607

**K (ppm):** 3.7431258

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The time required for this rotation to reach pH 6.8 is 0 w/ 80-89 lime.
Knowledge and Data Transferability

- Outputs
  - Improved N, P, K and manure management
  - Brings soil conservation together with NM
  - Multi-year view facilitates long range planning for manure and P and K balancing
  - User lead to appropriate management practices to decrease cost and/or environmental risks
Knowledge and Data Transferability

- Outputs
  - P based NM plan
  - Rotational soil loss (RUSLE2)
  - Yearly, rotational and whole farm PI
  - P and K balance by year and rotation
  - Record-keeping – program itself serves as a record-keeper
Present Plans

- Complete development Feb. 2004
- Beta test software, feedback incorporated
- Release Summer 2004, downloadable from UW Soil Science website
- Training workshops around the state, Fall and Winter 2004
Future Plans

- GIS data input and map output
- Transfer data to and from commercial GIS software
- Incorporate financial/feed management software
- N and P whole farm balancing software
SNAP-PLUS

University of Wisconsin Extension

- Bill Pearson – 715-346-4187, Bill.Pearson@uwsp.edu
- Kevin Erb – 920-391-4652, kevin.erb@ces.uwex.edu
- Paul Kaarakka – 608-265-9354, kaarakka@wisc.edu
- Larry Bundy – 608-263-2889, lgbundy@facstaff.wisc.edu
- Laura Ward Good – 608-262-9894 lwgood@wisc.edu