Example 2— Beef Confinement

- Two groups of 160 steers entering at 500 and leaving at around 750-800.
- Retained for at least 100 days.
- Solid manure, covered stack pad
- Clean out once a year during spring, not incorporated.
- Farmer wants the manure spread evenly.
- See attachment for more information.

<table>
<thead>
<tr>
<th>Field</th>
<th>Acreage</th>
<th>Yield (tons/ac)</th>
<th>P (lbs./ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2- Corn Silage</td>
<td>32</td>
<td>20</td>
<td>120</td>
</tr>
<tr>
<td>H7- Corn Silage</td>
<td>32</td>
<td>20</td>
<td>79</td>
</tr>
</tbody>
</table>
### SOLIDS WORKSHEET 1 - ESTIMATING NUTRIENTS GENERATED PER CONFINEMENT PERIOD

#### 1. Nutrients Generated (As Excreted)

<table>
<thead>
<tr>
<th>Animal Type</th>
<th>Number of Animals</th>
<th>Percent Waste as Solid *</th>
<th>Average Weight (lbs.)</th>
<th>Time Between Clean OutLand Applications (Confine)</th>
<th>Animal Unit Days</th>
<th>N</th>
<th>P2O5</th>
<th>K2O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef all cattle and calves</td>
<td>320</td>
<td>100%</td>
<td>650</td>
<td>1000 x 100</td>
<td>20,000</td>
<td>0.34</td>
<td>7.072</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td>0.21</td>
<td>4.360</td>
<td></td>
</tr>
</tbody>
</table>

**Step 1 Total** = 7.072, 4.360, 5.200 lbs.

#### 2. Manure Generated (As Excreted)

<table>
<thead>
<tr>
<th>Animal Unit Days x Manure A.U. - Volume of Manure (cu.ft.)</th>
<th>20,800 x 1 = 20,800</th>
</tr>
</thead>
</table>

**Step 2 Total** = 20,800 cu.ft.

#### 3. Total Tons

<table>
<thead>
<tr>
<th>Step 2</th>
<th>Conversion Factor</th>
<th>Total Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,800</td>
<td>33</td>
<td>630</td>
</tr>
</tbody>
</table>

**Step 3 Total** = 630 tons

#### 4. Weighted Nutrient Values Before Nutrient Losses

<table>
<thead>
<tr>
<th>Step 4 Total</th>
<th>N</th>
<th>P2O5</th>
<th>K2O</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11.2</td>
<td>6.9</td>
<td>8.3</td>
</tr>
</tbody>
</table>

* The percent of the manure that is handled as a solid.

* Confinement period should be adjusted for animals that are only in confinement for a portion of the day. For example if animals spend 16 hours on pasture and 8 hours in confinement, then the confinement period would be 1/3 of a day or 122 days/year.
### SOLIDS WORKSHEET 2 - NUTRIENT BALANCE

<table>
<thead>
<tr>
<th>Tract</th>
<th>Field No.</th>
<th>Acres</th>
<th>Soil Test P Value (Mehlich 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2</td>
<td>32</td>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>

1. **Crop or Crop Sequence/Rotation**
   - Corn Silage (Ton)

2. **Realistic Yield (Average from 5-10 Years on a per acre basis)**
   - 20.0

3. **Plant Nutrients Needed or Allowed (Ib/ac)**
   - N: 104, P<sub>2</sub>O<sub>5</sub>: 24, K<sub>2</sub>O: 180

4. **Adjusted P<sub>2</sub>O<sub>5</sub> Application Rate According to Threshold**
   - 0

5. **Fertilizer Credits (Ib/ac)**

6. **Plant Nutrients Needed Minus Credits (Ib/ac)**
   - N: 104, P<sub>2</sub>O<sub>5</sub>: 24, K<sub>2</sub>O: 180

7. **Nutrients in Manure (Ib/ac)**
   - Nitrogen: 142, Phosphorus: 9.9, Potassium: 0.3

8. **Percent Nutrients Retained in System**
   - Table 1
     - N: 90%, P<sub>2</sub>O<sub>5</sub>: 95%, K<sub>2</sub>O: 95%

9. **Net Retained Nutrients in Manure (Ib/ac)**
   - N: 9.0, P<sub>2</sub>O<sub>5</sub>: 6.6, K<sub>2</sub>O: 7.8

10. **Percent of Available Nutrients**
    - Table 2
     - N: 90%, P<sub>2</sub>O<sub>5</sub>: 80%, K<sub>2</sub>O: 100%

11. **Net Available Nutrients (Ib/ac)**
    - N: 3.1, P<sub>2</sub>O<sub>5</sub>: 5.3, K<sub>2</sub>O: 7.8

12. **Application Rate (Ib/ac)**
    - 10

13. **Net Application Amount for All Nutrients (Ib/ac)**
    - N: 31, P<sub>2</sub>O<sub>5</sub>: 53, K<sub>2</sub>O: 78

14. **Nutrient Needs (–) or Surpluses (+) (Ib/ac)**
    - Tons Available: 630, Tons Applied in Field: 320, Balance: 310

Enter Lab Results Here to Override Calculations From Worksheet 1 on Step 7

**Chosen Application Rate MUST ENTER**

Go to Worksheet 3 Solids
### SOLIDS WORKSHEET 2 - NUTRIENT BALANCE

<table>
<thead>
<tr>
<th>Tract</th>
<th>Field No.</th>
<th>Acres</th>
<th>Soil Test P Value (Mehlich 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H7</td>
<td>32</td>
<td></td>
<td>79</td>
</tr>
</tbody>
</table>

1. Crop or Crop Sequence/Rotation
   - Corn Silage (Ton)

2. Realistic Yield (Average from 5-10 Years on a per acre basis)
   - 20.0

3. Plant Nutrients Needed or Allowed (lbs/acre)
   - N: 194
   - P₂O₅: 72
   - K₂O: 160

4. Adjusted P₂O₅ Application Rate According to Threshold
   - 0

5. Fertilizer Credits (lbs/acre)
   - 0

6. Plant Nutrients Needed Minus Credits (lbs/acre)
   - N: 194
   - P₂O₅: 72
   - K₂O: 160

7. Nutrients in Manure (lbs/ton)
   - N: 1.2
   - P₂O₅: 6.9
   - K₂O: 8.3

8. Percent Nutrients Retained in System
   - N: 80%
   - P₂O₅: 95%
   - K₂O: 95%

9. Net Retained Nutrients in Manure (lbs/ton)
   - N: 5.0
   - P₂O₅: 6.6
   - K₂O: 7.8

10. Percent of Available Nutrients
    - Enter Table 2 value for N
    - N: 35%
    - P₂O₅: 60%
    - K₂O: 100%

11. Net Available Nutrients (lbs/ton)
    - N: 3.1
    - P₂O₅: 5.3
    - K₂O: 7.8

12. Application Rate (ton/acre)
    - Enter chosen Application Rate in box on right
    - Application limitations may apply
    - 10

13. Net Application Amount for All Nutrients (lbs/acre)
    - N: 31
    - P₂O₅: 53
    - K₂O: 76

14. Nutrient Needs [-] or Surpluses [+] (lbs/acre)
    - N: -83
    - P₂O₅: -19
    - K₂O: -82

Tons Available: 310 - Tons Applied in Field: 320 = Balance: Applied more than Available

Go to Worksheet 3 Solids
<table>
<thead>
<tr>
<th>Field No.</th>
<th>Acres</th>
<th>Soil Test Phosphorus (STP)</th>
<th>Crop Rotation/Sequence</th>
<th>Planned Application Date or Timing</th>
<th>Planned Application Rate[^2] (tons/ac)</th>
<th>Solid or Commercial Fertilizer (S or C)</th>
<th>Actual Application Date</th>
<th>Actual Application Rate[^2] (tons/ac)</th>
<th>Weather at Time of Application[^3] (Cloudy, Raining, Sunny)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2</td>
<td>32</td>
<td>120</td>
<td>Corn Silage (Ton)</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>24 Hours Before</td>
</tr>
<tr>
<td>H7</td>
<td>32</td>
<td>79</td>
<td>Corn Silage (Ton)</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>24 Hours After</td>
</tr>
</tbody>
</table>