

Section 11 Example: Producer Instructions and Adjustments

Crop Nutrient Requirement Calculations

- All calculations are repeated annually based upon updated information on yields, previous crops, previous years manure applications, and commercial fertilizer application plans.

Application Rates

- Manure analysis is completed at least annually.
- Each field application rate is adjusted annually based on crop nutrient requirements, the results of the most recent P-Index, manure analysis, and the method of application.

Timing of Manure Application. Manure applications timing shall be adjusted to match a crop production year starting and ending in November for row crops. Timing will be adjusted to consider:

- Soil moisture conditions. Manure application timing may be adjusted if soil moisture levels present a risk for runoff or tile drains are flowing.
- Weather conditions and forecast. Forecasted precipitation suggests a potential for significant field runoff.
- Planned crop rotation is modified.

Solid Manure Spreader Calibration

$$\text{Rate per acre (T/ac)} = \frac{\text{Spreader Capacity T} \times 43560}{(\text{Width} \times \text{Travel Distance})}$$

* Distance moved over in field with each pass through field.

Example: 20 ton manure solids spreader makes a pass every 6 30" corn rows (15 feet) and empties spreader in 2400 feet is applying 24 tons per acre.

$$\text{Rate per acre} = \frac{20 \text{ ton} \times 43560}{(15' \times 2400')} = 24 \text{ ton /acre}$$

Irrigation Application Calibration

- a. Estimate pumping time: _____ hours
- b. Estimate water flow rate: _____ gallons per minute
- c. Estimate acres covered: _____ acres
- d. Estimate application rate:

$$\text{Inches (or ac-in/ac)} = \frac{\text{Pumping Time} \times \text{Flow Rate}}{\text{Acres} \times 450} = \frac{\text{X}}{\text{X} \times 450} = \text{_____ in.}$$

Records for cropping system nutrient plan

- Records are to be maintained which summarize verifiable yields, the results of the P-Index, previous crops, previous manure applications, and commercial fertilizer applied for all fields that will potentially receive manure.
- Records of manure analysis and the method of application on each field receiving manure shall also be maintained.

| Recommended Records, Inspections, Logs | Sample Record |
|--|---|
| Strategic Plans/Records | |
| Standard operating procedures for: Soil testing Manure sample collection P Index Results | Section 6 of Strategic Plan |
| Annual or Continuously Updated Records Most items should be completed for each field or management area | |
| Field Nutrient Balance: a. Crop Available manure nutrient credit b. Annual pre-season plan for field-specific nitrogen and phosphorus balance summarizing planned crops, yields, nutrient credits for all nutrient sources). c. Post-season summary of crops grown, actual yields and nutrient balance Application Plan for equipment operator: a. Annual application plan identifying location, rate, form, method, and timing for manure and fertilizer. b. Post season summary of manure and fertilizer application rate Field specific nutrient application record: a. Date, rate, method and weather conditions (24 hours prior and following application) for manure application. b. Date and rate of fertilizer application c. Irrigation water use and nitrate analysis Testing and monitoring a. Field specific soil test results b. Manure source specific test results Application equipment records a. Application equipment calibration results b. Irrigation equipment checklist for backflow protection c. Irrigation equipment maintenance log Report of all manure spills resulting from land application to permitting authority (phone notification in 24 hours and written report within 5 days...check with your permitting authority for possible differences in reporting times for your individual state. Annual Report (Submitted to permitting authority by January 31 of each year) a. Total number of acres of land that are covered by this facility's nutrient management plan b. Total number of acres of land where manure, litter, or process wastewater generated at this facility was spread. Include only land application areas that are under the control of this CAFO facility. c. Is the facility's nutrient management plan developed or approved by a certified nutrient management planner? d. Amount of manure, litter, and process wastewater that were generated at the facility in the 12 month period covered by this report. | Part A, B, and C Of Annual Plan (Sections 12-14) or Annual Pre-Season Plan and Post- Season Summary for N and P (Heartland ¹ – pg 26-27) Equipment Operators Nutrient Applicators Plan (Heartland ¹ – pg 29) Solid Manure And Irrigation Field Application Record (Heartland ¹ – pg 30 & 32) Attach Lab Summary & Enter into Part B, Crop Available Nutrients (pg 6) Solid Manure Spreader Calibration & Maintenance (Heartland ¹ – pg 35-36, 39-40) Livestock Waste Discharge Notification (Heartland ¹ – pg 21-22) Annual NPDES Report (Heartland ¹ – pg 45-47) |

¹ Heartland refers to Heartland Regional Water Quality project publication "Records Checklist and Samples for Animal Feeding Operations" found at <http://www.heartlandwq.iastate.edu/ManureManagement/recordkeeping/checklistandforms/planrecordschecklist>.

