**Comprehensive Nutrient Management Plan (CNMP)**

**(Version 3, 08/02/2016 Format)**

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation and maintenance information for the AFO.

**Farm/Facility:** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>Facility Address

Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>

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Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>

**Owner/Operator:** Name

Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>

| **Plan Period:** | Beginning and ending dates from plan period |
| --- | --- |

**Certified Comprehensive Nutrient Management Plan (CNMP) Planner**

As a Certified Comprehensive Nutrient Management Plan (CNMP) Planner, I certify that I have reviewed the *Comprehensive Nutrient Management Plan* and that the elements of the documents are technically compatible, reasonable and can be implemented.

Signature: Date:

Name:

Title: TSP Certification Credentials:

**Conservation District (Optional)**

As a Conservation District employee, I have reviewed the *Comprehensive Nutrient Management Plan* and concur that the plan meets the District's conservation goals.

Signature: Date:

Name:

Title:

**Owner/Operator**

As the owner/operator of this CNMP, I, as the decision maker, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed. I understand that I am responsible for keeping all necessary records associated with implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: Date:

Name:

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Section 1. Farmstead (Production Area)

**1.1. Maps of Existing and Planned Farmstead Conservation Practices**

**1.2. Farmstead**Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb> **Conservation Practices – Record of Decisions**

(Include all conservation practices for farmstead agreed upon by landowner.)

Example:

**Conservation Practice Name/Practice Code (i.e. Waste Storage Facility/313)**

| Tract | Land Unit | Planned Amount | Planned Date | Applied Amount | Applied Date |
| --- | --- | --- | --- | --- | --- |
| (None) | Farmstead |  |  |  |  |

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| --- |
| All NRCS conservation practices shall be installed, operated and maintained according to NRCS conservation practice standards and associated technical specifications. |

**1.3. Farmstead Conservation Practices – Implementation Requirements**

(Include any implementation requirements for practices on the Farmstead area that are required to complete assessments – i.e. RUSLE2, Phosphorus Index. Implementation requirements for most practices applied on the farmstead will be completed at the time of the design and not included in the CNMP. Once the design and implementation requirements are completed, provide a copy to the landowner and place a copy in the case file.)

**1.4.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Animal Inventory**

| Animal Group | Type or Production  Phase | Number  of  Animals\* | Average  Weight  (lbs) | Confinement Period | Manure  Collected  (%)† | Storage Where  Manure Will Be  Stored |
| --- | --- | --- | --- | --- | --- | --- |
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\*Average number of animals present in the production facility at any one time

† If manure collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or the production facility is unoccupied one or more times during the confinement period.

**1.5.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Manure Storage**

| Storage ID | Type of Storage | Pumpable or Spreadable  Capacity | Annual Manure  Collected | Maximum  Days of  Storage |
| --- | --- | --- | --- | --- |
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**1.6.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Planned Manure Exports off the Farm**

| Month-  Year | Manure Source | Amount | Receiving Operation | Location |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |

**1.7.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Planned Manure Imports onto the Farm**

| Month-  Year | Manure's Animal Type | Amount | Originating Operation | Location |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |

**1.8.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Planned Internal Transfers of Manure**

| Month-  Year | Manure Source | Amount | Manure Destination |
| --- | --- | --- | --- |
|  |  |  |  |

**1.9 Brief Description of, or Additional Information about Animal Feeding Operation (Optional)**

Section 2. Crop and Pasture (Land Treatment)

**2.1. Maps of Fields, Soils, Application Setbacks, Existing and Planned Crop and Pasture Conservation Practices**

(If the same map is used for the farmstead area, it is not necessary to duplicate that map in this section.)

**2.2. Crop and Pasture**Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb> **Conservation Practices – Record of Decisions**

(Include all conservation practices for Crop and Pasture agreed upon by landowner.)

Example:

**Conservation Practice Name/Practice Code (i.e. Conservation Crop Rotation/328)**

| Tract | Land Unit | Planned Amount | Planned Date | Applied Amount | Applied Date |
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| All NRCS conservation practices shall be installed, operated and maintained according to NRCS conservation practice standards and associated technical specifications. |

**2.3. Crop and Pasture Conservation Practices – Implementation Requirements**

(Include any implementation requirements for practices on the Crop and Pasture areas that are required to complete assessments – i.e. RUSLE2, Phosphorus Index. Typical practices include: Conservation Cover (327), Conservation Crop Rotation (328), Cover Crop (340), and Residue and Tillage Management (329 or 345), Contour Farming (330), Stripcropping (585), Field Border (386) and Filter Strip (393). Additional implementation requirements will be completed at the time of the practice design and/or specification development and will not be included in this CNMP document. Once the engineering designs and implementation requirements are completed, provide a copy to the landowner and place a copy in the case file.) Attach implementation requirements, as needed.

**2.4.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Predicted Soil Erosion**

**Average water, wind, irrigation, gully and ephemeral erosion estimates**

| Field | Predominant Soil Type | Slope  (%) | Water  (Sheet and Rill)  (t/ac/yr) | Wind  (t/ac/yr) | Irrigation Erosion Controlled  (y/n) | Gully Erosion Controlled  (y/n) | Ephemeral Erosion Controlled  (y/n) | T Factor  (t/ac/yr) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
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**Crop period sheet and rill erosion estimates**

| Field | Crop Year | Primary Crop | Starting Date  (mm/dd/yyyy) | Ending Date  (mm/dd/yyyy) | Crop Period Soil Loss  (t/ac) |
| --- | --- | --- | --- | --- | --- |
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Section 3. Nutrient Management Plan (590)

**3.1. Nitrogen and Phosphorus Risk Analyses Results**

State NameServer=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb> **Phosphorus Index**

| Field | Crop Year | Site Total | Management Total | P Index w/o P Apps | P Index w/ P Apps | P Loss Risk |
| --- | --- | --- | --- | --- | --- | --- |
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**3.2. Manure Application Setback Distances**

**Setback Requirements: (List setback source i.e. NRCS, State, etc.)**

| Feature | Setback Criteria | Setback Distance (Feet) |
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Source:

**3.3.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Soil Test Result Data**

| Field | Test  Year | OM  (%) | P Test Used | P | K | Mg | Ca | Units | Soil  pH | Buffer  pH | CEC  (meq/  100g) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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**3.4.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Manure Nutrient Analyses**

| Manure Source | Dry Matter (%) | Total N | NH4-N | Total  P2O5 | Total  K2O | Avail.  P2O5 | Avail.  K2O | Units | Analysis Source and Date | Alum Treatment Rate  (lbs/1000 sq.ft.) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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(1) Entered analysis may be the average of several individual analyses.

(2) Other footnotes as necessary.

**Field Nutrient Status Details**

(This table is generated in Manure Management Planner (MMP) and can serve as an alternative for sections 3.5, 3.6 and 3.7.)

***Field Nutrient Status Details***

***Plan File:***  ***Last Saved:***

***Operation:***  ***State:***  ***Init. File Rev:***

***Year Field ID Sub ID Nutrient Needs Crop Yield Goal Acres N P2O5 K2O***

Crop Fertilizer Recs Crop

Crop Nutrient Removal Crop

***Date Field ID Sub ID Nutrient Activity Source Equipment/Method Rate Acres N P2O5 K2O***

Fertilizer App Type

Total Nutrients Applied Non-manured Field

Balance After Recs Non-manured Field

Balance After Removal Non-manured Field

***Year Field ID Sub ID Nutrient Needs Crop Yield Goal Acres N P2O5 K2O***

Crop Fertilizer Recs Crop

***Date Field ID Sub ID Nutrient Activity Source Equipment/Method Rate Acres N P2O5 K2O***

Manure App

Fertilizer App

Total Nutrients Applied Spreadable Area

Balance After Recs Spreadable Area

Balance After Removal Spreadable Area

***Date Field ID Sub ID Nutrient Activity Source Equipment/Method Rate Acres N P2O5 K2O***

Fertilizer App

Total Nutrients Applied Non-spreadable Area

Balance After Recs Non-spreadable Area

Balance After Removal Non-spreadable Area

**Notes**

(1) If a field has a non-spreadable area, it is listed in a separate section following the field's spreadable area.

(2) Yield Goal, Rate, N, P2O5 and K2O values are all per acre.

(3) The crop's N fertilizer rec accounts for any N credit from a previous legume crop.

(4) If a field has more than one manure application in the same crop year, or if the total area covered that year is less than or greater than the field's area, a field average is

used in calculating balances. This field average is the sum of each manure application's area times its per-acre amount of nutrient applied, divided by the field's area.

(5) Any positive P2O5 or K2O balance is carried over to the next year. Available N not utilized in the current crop year is assumed lost.

¤ Indicates a custom fertilizer recommendation in the Crop Fertilizer Recs columns.

ª Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.

**3.5.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Planned Crops and Fertilizer Recommendations**

| Field | Crop  Year | Planned Crop | Yield  Goal  (per ac) | N  Rec  (lbs/ac) | P2O5  Rec  (lbs/ac) | K2O  Rec  (lbs/ac) | N  Removed  (lbs/ac) | P2O5  Removed  (lbs/ac) | K2O  Removed  (lbs/ac) | Custom Fert. Rec. Source |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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\* Unharvested cover crop or first crop in double-crop system.

† Custom fertilizer recommendation.

**3.6.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Planned Nutrient Applications (Manure-spreadable Area)**

| Field | App. Month | Target Crop | Nutrient Source | Application Method | Rate Basis | Rate/Acre | Loads, Speed or Time | Total Amount Applied | Acres Cov. | Avail N  (lbs/ac) | Avail P2O5  (lbs/ac) | Avail K2O  (lbs/ac) |
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**Planned Nutrient Applications (Non-manure-spreadable Area)**

| Field | App. Month | Target Crop | Nutrient Source | Application Method | Rate Basis | Rate/Acre | Total Amount Applied | Acres Cov. | Avail N  (lbs/ac) | Avail P2O5  (lbs/ac) | Avail K2O  (lbs/ac) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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**3.7.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Field Nutrient Balance (Manure-spreadable Area)**

| Year | Field | Size | Crop | Yield Goal | Fertilizer Recs1 | | | Nutrients Applied2 | | | Balance After Recs3 | | | Balance After Removal4 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Acres |  | /Acre | N  lbs/ac | P2O5  lbs/ac | K2O  lbs/ac | N  lbs/ac | P2O5  lbs/ac | K2O  lbs/ac | N  lbs/ac | P2O5  lbs/ac | K2O  lbs/ac | P2O5  lbs/ac | K2O  lbs/ac |
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**Field Nutrient Balance (Non-manure-spreadable Area)**

| Year | Field | Size | Crop | Yield Goal | Fertilizer Recs1 | | | Nutrients Applied2 | | | Balance After Recs3 | | | Balance After Removal4 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Acres |  | /Acre | N  lbs/ac | P2O5  lbs/ac | K2O  lbs/ac | N  lbs/ac | P2O5  lbs/ac | K2O  lbs/ac | N  lbs/ac | P2O5  lbs/ac | K2O  lbs/ac | P2O5  lbs/ac | K2O  lbs/ac |
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1 Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.

2 Nutrients Applied are the nutrients expected to be available to the crop from that year's manure applications plus nutrients from that year's commercial fertilizer applications and nitrates from irrigation water. With a double-crop year, the total nutrients applied for both crops and the year's balances are listed on the second crop's line.

3 For N, Nutrients Applied minus Fertilizer Recs for indicated crop year. Also includes amount of residual N expected to become available that year from prior years' manure applications. For P2O5 and K2O, Nutrients Applied minus Fertilizer Recs *through* the indicated crop year, with positive balances carried forward to subsequent years. Negative values indicate a potential need to apply additional nutrients.

4 Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.

¤ Indicates a custom fertilizer recommendation in the Fertilizer Recs column.

ª Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.

† Indicates in the Balance After Recs N column that the value includes residual N expected to become available that year from prior years' manure applications.

**3.8.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Manure Inventory Annual Summary (Optional)**

| Manure Source | Plan Period | On Hand  at Start of  Period | Total  Generated | Total  Imported | Total  Transferred  In | Total  Applied | Total  Exported | Total  Transferred Out | On Hand  at End of  Period | Units |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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**3.9.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Fertilizer Material Annual Summary (Optional)**

| Product Analysis | Plan Period | Product  Needed  Sep - Dec | Product  Needed  Jan - Aug | Total  Product  Needed | Units |
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**3.10.** Server=Access.Application; Open=EquipQry.mdb; Run=RunQuery, Equipment Query, <ExportedDataMdb>**Plan Nutrient Balance (Manure-spreadable Area)**

|  | N  (lbs) | P2O5  (lbs) | K2O  (lbs) |
| --- | --- | --- | --- |
| Total Manure Nutrients on Hand at Start of Plan1 |  |  |  |
| Total Manure Nutrients Collected2 |  |  |  |
| Total Manure Nutrients Imported3 |  |  |  |
| Total Manure Nutrients Exported4 |  |  |  |
| Total Manure Nutrients Gained/Lost in Transfer5 |  |  |  |
| Total Manure Nutrients on Hand at End of Plan6 |  |  |  |
| Total Manure Nutrients Applied7 |  |  |  |
| Available Manure Nutrients Applied (Utilized by plan's crops)8 |  |  |  |
| Available Manure Nutrients Applied (Not utilized by plan's crops) |  |  |  |
| Commercial Fertilizer Nutrients Applied (Utilized by plan's crops)9 |  |  |  |
|  |  |  |  |
| Available Nutrients Applied (Manure and fertilizer; utilized by plan's crops)10 |  |  |  |
| Nutrient Utilization Potential11 |  |  |  |
| Nutrient Balance of Spreadable Acres12\* |  |  |  |
| Average Nutrient Balance per Spreadable Acre per Year13\* |  |  |  |

1. Total manure nutrients present in storage(s) at the beginning of the plan.

2. Total manure nutrients collected on the farm.

3. Total manure nutrients imported onto the farm.

4. Total manure nutrients exported from the farm to an external operation.

5. Changes in total manure nutrients due to internal transfers between storage units with differing analyses.

6. Total manure nutrients present in storage(s) at the end of plan.

7. Total nutrients present in land-applied manure. *Losses due to rate, timing and method of application are not included in these values.*

8. Available manure nutrients applied on the farm based on rate, time and method of application. Based on total manure nutrients applied (row 7) after accounting for state-specific nutrient losses due to rate, time and method of application. Nutrients which will not be utilized by crops in the plan (row 9) are excluded from these values.

9.Nutrients applied as commercial fertilizers and nitrates contained in irrigation water. Nutrients that will not be utilized by crops in the plan (row 11) are excluded from these values.

10. Sum of available manure nutrients applied (row 8) and commercial fertilizer nutrients applied (row 10).

11. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. P2O5 and K2O values generally are based on fertilizer recommendations or crop removal (whichever is greatest).

12. Available nutrients applied (row 12) minus crop nutrient utilization potential (row 13). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.

13. Average per acre nutrient balance, calculated by dividing nutrient balance of spreadable acres (row 14) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

\* Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for P2O5 and/or K2O do not necessarily indicate that the plan was not developed properly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low potential P-loss risk based on the risk assessment tool used by the state. Negative values for P2O5 and K2O indicate that planned applications to some fields are less than crop removal rates.

**Plan Nutrient Balance (Non-manure-spreadable Area)**

|  | N  (lbs) | P2O5  (lbs) | K2O  (lbs) |
| --- | --- | --- | --- |
| Commercial Fertilizer Nutrients Applied1 |  |  |  |
| Nutrient Utilization Potential2 |  |  |  |
| Nutrient Balance of Non-spreadable Acres3\* |  |  |  |
| Average Nutrient Balance per Non-spreadable Acre per Year4\* |  |  |  |

1. Nutrients applied as commercial fertilizers and nitrates contained in irrigation water.

2. Based on crop fertilizer recommendations.

3. Commercial fertilizer nutrients applied (row 1) minus crop nutrient utilization potential (row 2). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.

4. Calculated by dividing nutrient balance of non-spreadable acres (row 3) by number of non-spreadable acres in plan. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

\* Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. Positive values for P2O5 and/or K2O do not necessarily indicate that the plan was not developed properly. For example, multiple year applications may have been planned during the final plan year(s) and these nutrients will not be utilized by crops in the current plan. Negative values for P2O5 and K2O indicate that applications to some fields may have been delayed to allow the producer to apply the nutrients in accordance with their fertilization schedule.