**Components of a Nutrient Management Plan (NMP):**

**Field Maps & Land Base:**

* Include aerial site photograph(s)/imagery or site maps(s), and a soil survey map of fields that will receive application of manure, compost, other wastes, fertilizer, or any other source of nutrients;
* Document site specific conservation practices to be implemented, including as appropriate buffers or other practices that control runoff of pollutants to waters of the state;
	+ Field maps shall show that buffer zones of perennial vegetation are maintained between annual croplands and the top of the bank of adjoining surface waters. Croplands should be buffered from adjoining surface waters by at least 25 ft and from ditches by at least 10 ft;
* Soil information such as soil type surface texture, pH, drainage class, permeability, available water capacity, depth to water table, restrictive features, and flooding and/or ponding frequency should be included;
* Location of designated sensitive areas and the associated nutrient application restrictions and setbacks should be included.

**Soil and Tissue Sampling and Testing:**

* Fields receiving mechanical application of nutrients shall have soil tested every three years (if MFO or LFO), and every five years (if SFO).
* At least one third of all fields must have a soil test less than three years old when developing the nutrient management plan. A soil test 3-5 years old may be used for developing the nutrient management plan if application rates of nutrients will be planned at a rate no greater than the phosphorus removal rate and revised accordingly within 1 year based on current soil tests.
* Soil samples shall be collected and prepared according to UVM guidance or standard industry practice.
* Soil testing shall be conducted using Modified Morgan Extract for available phosphorus and aluminum.
* Soil tests, at a minimum, shall include:
	+ Available phosphorus;
	+ Reactive aluminum; and,
	+ pH.
* If pertinent to monitoring or amending the annual nutrient budget, soil shall be tested for:
	+ Electrical conductivity (EC); and/or,
	+ Soil organic matter.
* Plant tissue sampling and testing may be used in conjunction with soil tests. Where used, shall be done in accordance with UVM standards or recommendations.

**Manure Sampling & Adequate Storage:**

* Every waste storage facility shall be sampled for nutrient content analysis prior to preparing the nutrient management plan, and yearly thereafter.
* Samples from waste storage facilities must be representative of the waste stored in that facility.
* Document adequate storage of manure, compost, and other wastes, including procedures to ensure proper operation and maintenance of the storage facilities;

**Management of Production Area:**

* Document that confined animals within the production area do not have direct contact with waters of the state (if MFO or LFO);
* Document proper management of mortalities (i.e., dead animals) to ensure that they are not disposed of in a liquid manure, stormwater, waste storage, or treatment system that is not specifically designed to treat animal mortalities;
* Document that clean water is diverted, as appropriate, from the production area; and,
* Document that chemicals and other contaminants handled on-site are not disposed of in any manure, compost, waste, or stormwater storage or treatment system unless specifically designed to treat such chemicals and other contaminants.

**Nutrient Application Rates:**

* Nutrient recommendations (lbs. N, P2O5, and K2O per acre) shall be made based on and not exceeding the University of Vermont Nutrient Recommendations for Field Crops in Vermont (and/or industry practice when recognized by the university) using current soil test results, realistic yield goals, and management capabilities. Other university recommendations for nitrogen and potassium, that are appropriate for the geographic area, may be used.
* The timing and method of nutrient application shall correspond as closely as possible with plant nutrient uptake characteristics, while considering cropping system limitations, weather and climatic conditions, and field accessibility.
* Include current and/or planned plant production sequence or crop rotation;
* Document recommended method and time of incorporation of manure, compost, and other wastes in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, compost, and other wastes.
* All land receiving application of nutrients shall have a risk assessment for potential nitrogen transport into ground water using the Leaching Index. All land receiving application of nutrients shall have a risk assessment for potential phosphorus transport into waters of the state using the Vermont Phosphorus Index.
* Nutrient applications shall be consistent with results of the Vermont Phosphorus Index.
* Conservation practices for nitrogen management shall be recommended and implemented based on the results of the Leaching Index.
* Soil amendments shall be applied, as needed, to adjust soil pH to the specific range of the crop for optimum availability and utilization of nutrients.
* No manure, compost, or other wastes shall be applied within vegetative buffers.
* Use of fertilizer for the establishment and maintenance of the vegetative buffer is allowed.

**Soil Health Management:**

* Yearly soil loss shall not exceed T (of the dominant soil type) as determined by RUSLE 2 (Revised Universal Soil Loss Equation 2). If a rotation is needed to meet T, that rotation shall not exceed 10 years in length.
* Tillage shall not occur in a vegetative buffer except for the establishment or maintenance of the buffer.
* Harvesting the buffer as a perennial crop is allowed.
* Other conservation practices shall be implemented as necessary to reduce runoff of pollutants to waters of the state.

**Groundwater Requirements:**

* Private wells shall be protected by a 50 ft nutrient setback. Manure application, fertilizer application, and pasturing of livestock shall not occur within 50 ft of a private well.
* When the Leaching Index is greater than 10 directly adjacent to a private well, the nutrient setback distance shall be increased to 100 ft.

**Record Keeping:**

* Soil, manure, and plant tissue test results shall be kept on-farm for at least 5 years.
* Document dates and method(s) of nutrient applications, source of nutrients, and rates of application;
* Must include weather conditions and soil moisture at the time of application, lapsed time to manure incorporation, and rainfall or irrigation event;
* Document crops planted, planting and harvest dates, yields, nutrient analyses of harvested biomass, and crop residues removed;
* Indicate dates of plan review, name of reviewer, and recommended changes resulting from the review;
* Identify all enhanced efficiency fertilizer products used.