

4R Nutrient Stewardship Certification Standard 4R NY

*Requirements for Certification
of Nutrient Service Providers in New York State*

Version 2.0

4/1/2019



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Introduction

A Background

The 4R Certification Standard was created under the auspices of the 4R Advisory Committee, members of which are based in New York State. The 4R Advisory Committee members represent a diversity of stakeholders from the business, government, university, and non-governmental sectors with the common goal of maintaining agricultural productivity while also improving the water quality of New York State and its contributing watersheds.

The 4Rs of nutrient stewardship refer to using the Right Source of nutrients at the Right Rate and Right Time in the Right Place (TFI, 2013). 4R Nutrient Stewardship provides a science-based framework for plant nutrition management while also considering site-specific needs of a particular farm (IPNI, 2012).

The 4R Nutrient Stewardship Certification Standard represents an important, agribusiness-led expansion of the broader Agricultural Environmental Management (AEM) framework in New York State. It builds upon a base of nutrient application strategy and implementation by farmers in NYS working with AEM Certified Planners, USDA-Natural Resources Conservation Service, Soil and Water Conservation Districts, and/or Cornell Cooperative Extension.

In creating a 4R Certification Program, the 4R Advisory Committee has sought to provide guidance and direction for a consistent, recognized program for agricultural retailers, agricultural service providers, and certified professionals to help ensure that 4R nutrient management goals are met and that in turn lead to long-term positive impacts on water quality in New York State. While this Standard does not apply to individual growers, on-farm adoption of the recommendations made by Nutrient Service Providers that become certified under this standard is critical to meeting the goal of improved water quality.

In addition to general principles of 4R Nutrient Stewardship (IPNI, 2012), the Standard has incorporated specific criteria for the purpose of addressing New York State priorities for water quality based on Cornell Guidelines (a sufficiency level nutrient recommendation approach; see crop specific links in the References section) and the NRCS-NY Conservation Practice Standard for Nutrient Management (NRCS 590, 2013).

This Standard is intended to support the adoption of 4R Nutrient Stewardship by specifying best practices for nutrient recommendations and nutrient application. The Standard also includes an education component to ensure that new practices related to nutrient stewardship are adopted by the Nutrient Service Providers and shared with their grower customers.

The 4R Advisory Committee members will continue to engage the research community to help identify the most effective conservation and nutrient management practices and anticipate that revisions to the Standard may be necessary on a regular basis to take advantage of the most current research available.

B Scope

The 4R Nutrient Stewardship Program, of which this Standard is a central component, is designed to recognize Nutrient Service Providers who have adopted the principles and practices of 4R Nutrient

Stewardship (IPNI, 2012). This Standard translates 4R Nutrient Stewardship into a set of auditable criteria.

The 4R Nutrient Stewardship Program is voluntary and applies to Nutrient Service Providers working in New York State, including agricultural retailers, agricultural service provider, and certified professionals. Grower customers of the Nutrient Service Providers are **not** included under the scope of the Standard. 4R NY Certified participants must abide by all local, state and federal regulations.

Further information about the scope and certification procedure are provided in the companion documents to the Standard, which include the *Auditor Manual for 4R Nutrient Stewardship Certification, Version 1.0* (for auditors) and the *4R Nutrient Stewardship Certification Manual, Version 1.0* (for Nutrient Service Providers who wish to be certified under the program).

C Goals

The 4R Nutrient Stewardship Certification Standard was drafted as part of an initiative to improve the watershed conditions of New York State. We support the use of 4R concepts both locally and nationally. The Standard was created to address the following goals:

- maximize crop uptake of nutrients and minimize nutrient losses
- create long-term positive impacts on water bodies associated with agricultural production areas, including the reduction of eutrophication and incidence of harmful algal blooms, and to help meet water quality standards
- encourage sharing of the most up-to-date information about responsible nutrient stewardship with Nutrient Service Providers and growers
- help the agricultural sector adapt to new research and technology in the area of nutrient stewardship

D Structure and Implementation

The Standard is divided into three main Sections:

1. Initial Training and Ongoing Education
2. Monitoring of 4R Implementation
3. Nutrient Recommendations and Application

Sections 1 and 2 apply to all types of Nutrient Service Providers pursuing certification in the program. Parts of Section 3 may not be applicable for those Nutrient Service Providers that either only make recommendations for nutrient use *or* only carry out nutrient application.

Within each Section, requirements are subdivided into groups based on related subject matter. Each group consists of auditable evaluation criteria, which form the basis of the Standard. There are a total of 42 auditable evaluation criteria. Of that total: 6 address Initial Training and Ongoing Education, 3 address Monitoring of 4R Implementation, 33 address Nutrient Recommendations and Application.

In most cases, a Nutrient Service Provider will offer nutrient recommendations or nutrient application services or both to multiple farms. Other auditable evaluation criteria have specific percent acreage requirements which indicate the percent of total farms acres treated by the Nutrient Service Provider,

or are designated as Year 2 or Year 3 requirements. Year 2 or Year 3 auditable evaluation criteria become mandatory on the year specified and for all subsequent years thereafter. Currently there are 9 auditable evaluation criteria listed as Year 2 requirements, and 5 auditable evaluation criteria listed as Year 3 requirements.

Using the Standard as the normative reference, audits will be conducted by third-party auditors to determine whether a specified agricultural retailer, agricultural service provider, or crop adviser, acting as a Nutrient Service Provider, has met the requirements of the Standard. The degree of conformance to the Standard will be assessed by the auditor, who will evaluate each auditable evaluation criterion, as: Comply, Not Comply, In Review, or Not Applicable.

The certification program will be on a three-year audit cycle. For a Nutrient Service Provider new to the program, an onsite audit of the Nutrient Service Provider will be conducted on the first and second years of the audit cycle. If the Nutrient Service Provider performs well during the second year of the audit cycle, it may be possible to submit a desk audit progress report in lieu of an onsite audit at the time of the third year of the audit cycle. For subsequent audit years, an onsite audit will be required for the first year and depending on the performance of the Nutrient Service Provider, a progress report may be submitted in lieu of an onsite audit for the second and third years of the audit cycle.

Further information about the audit and certification process is presented in the *Auditor Manual for 4R Nutrient Stewardship Certification, Version 1.0* (for auditors) and the *4R Nutrient Stewardship Certification Manual, Version 1.0* (for Nutrient Service Providers who wish to be certified under the program).

E Contact

Questions about the 4R Nutrient Stewardship Certification Program or this document should be directed to the Program Administrator, New York State Agribusiness Association, 315-986-9320, nysaba@rochester.rr.com, local program administrator.

Terms and Definitions

4R: An approach for best nutrient management practices developed globally by the fertilizer industry (IPNI, 2012). “4R” refers to the “Right source, applied at the Right rate, at the Right time in the Right place.” The philosophy of the 4R approach is to base nutrient recommendations and application on scientific principles, including site-specific considerations and adaptive management, with the goal of improved sustainability.

Adaptive Management: An ongoing process of developing improved practices for efficient production and resource conservation by use of participatory learning through continuous, systematic assessment. For the purposes of the Standard, the demonstration of adaptive management includes documented on-farm data showing reasonable expectation of improved crop yield without increased risk of harm to water quality.

Agricultural Environmental Management: A voluntary, incentive-based framework that helps farmers make common-sense, cost-effective, and science-based decisions to meet business objectives while protecting and conserving New York State’s natural resources (www.nys-soilandwater.org/aem, 2018).

Agricultural Retailer: An entity that sells agricultural services or inputs.

Agricultural Service Provider: An entity that provides agronomic services related to agricultural production.

Audit Report: The report prepared by a third-party auditor in years during which there is an onsite audit (*see also* “Progress Report”).

Auditable Evaluation Criteria: Normative statements used by auditors to evaluate compliance to a standard.

Certification: The process by which an accredited or authorized person or organization (often a third party) will follow established procedures to assess the conformity against an applicable performance standard. When adequate conformity to the standard has been verified, the accredited or authorized person or organization will attest in writing that a product, process or service conforms to specified requirements.

Certification Body: An independent, third-party organization that will follow established procedures for assessing conformity against an applicable standard to determine certification status of a product, process, or service (*see also* “Certification”).

Certified Crop Adviser: A crop adviser certified through the Northeast Region Certified Crop Adviser Program under the International Certified Crop Adviser Program of the American Society of Agronomy.

Certified Professional: An individual that has the designation of at least one of the following: Certified Crop Adviser (CCA), New York State Agricultural Environmental Management (NYS AEM) Certified Planner, USDA-NRCS Comprehensive Nutrient Management Plan (CNMP) or Nutrient Management

(NNP) Specialist, Certified Professional Agronomist (CPAg), or other relevant accreditation from the American Society of Agronomy or National Alliance of Independent Crop Consultants.

Comprehensive Nutrient Management Plan (CNMP): A CNMP is a conservation plan to, at a minimum, guide an animal feeding operation (AFO) to meet NRCS quality criteria for water quality and soil erosion. The CNMP encompasses the farmstead facilities/production areas and the land treatment areas under control of the AFO owner or operator, whether owned, rented, or leased, and to which manure or process wastewater is, or might be, applied.

Continuing Education Unit (CEU): One (1) CEU is defined as one (1) hour of quality contact time in training or other qualifying activity addressing the continuing education criterion. For the purposes of the Standard, a qualifying CEU must be approved by a Certified Crop Adviser (CCA) state board.

Cover Crop: A crop grown for the protection and enrichment of the soil.

Crop Adviser: An individual who provides advice to grower customers about crop management and inputs.

Desk Audit: Assessing conformance to a standard through off-site review of documents and records. A desk audit is usually conducted at the location of the auditor, as opposed to the location of the auditee (*see also* "Field Audit," "Office Audit").

Eutrophication: The enrichment of water bodies with nutrients that stimulates proliferation of aquatic plant life.

Field Audit: The process of assessing conformance to a standard through an onsite visit to a place of agricultural production of the auditee (*see also* "Field Audit," "Office Audit").

Frozen Ground: For the purposes of this Standard, frozen ground occurs when soil conditions are such that tillage or nutrient incorporation and/or injection after application are not possible at the time of nutrient application, and will not be possible within the next 48 hours as a result of frozen conditions.

Grower Customer: Individual growers or farmers who are clients of the Nutrient Service Provider and receive either a nutrient recommendation from the Nutrient Service Provider, or have nutrients applied by the Nutrient Service Provider.

Nutrient: Elements required by the plant for optimum growth and productivity.

Nutrient Application Strategy: A written, documented plan to implement 4R concepts.

Nutrient Service Provider: General term that refers to entities covered under the scope of the 4R Nutrient Stewardship Standard, including agricultural retailers, agricultural service providers, and certified professionals. For the purposes of the Standard, the relevant functions of Nutrient Service Providers are to provide nutrient recommendations and/or apply nutrients for grower customers.

Nutrient Stewardship: Planning and implementation of practices designed to manage crop nutrition for improved efficiency of crop production systems and optimization of nutrient use (*see* "4R").

Office Audit: Assessing conformance to a standard through review of documents and records without direct field observations. An office audit is typically conducted at the work location of the program participant and entails both document review and interview (*see also* “Field Audit,” “Office Audit”).

Progress Report: The report that is required from the Nutrient Service Provider in years during which there is no onsite audit (*also see* “Audit Report”). A progress report will be evaluated through a desk audit.

Environmentally Sensitive Area: Area that has an elevated potential for nutrient loss and offsite environmental impacts. These areas should be managed carefully to minimize such offsite environmental impacts. Impacts include: loss of plant and animal species, growth of undesirable plant and animal species, poor drinking water quality (taste, odor), loss of a fishery, etc. Examples of environmentally-sensitive areas include: highly-erodible land, floodplains, wellheads, steep slopes, concentrated flows/draws in fields, and sinkholes. (Cornell University, Nutrient Management, Competency Area 6: Nutrient Management and Planning. PO 52)

Setback: The spatial zone established between the edge of a crop field to an identifiable feature such as a water body for the purpose of protecting the feature from adverse impacts.

Snow-covered: For the purposes of this Standard, snow-covered ground occurs when soil cannot be seen because of snow cover.

Standard: In general, the normative reference by which a decision to award certification is made. For the purposes of this document, when capitalized, “Standard” refers to the specific guidelines and references established in the 4R Nutrient Stewardship Program.

Sufficiency Level Nutrient Recommendation: A nutrient recommendation that plans fertilizer applications based on the likelihood of a crop yield response given soil test data and yield response studies. The Sufficiency approach is most commonly used by Land Grant Universities (including Cornell University) and their laboratories and is the recommendation system used in the New York State 4R Nutrient Stewardship Certification Standard.

Variable Rate Application (VRA): Application of nutrient according to site-specific rate requirements, as opposed to uniformly throughout a field.

References

Certification Program References

4R Nutrient Stewardship Certification Manual, Version 1.0

Auditor Manual for 4R Nutrient Stewardship Certification, Version 1.0

Primary External References

Cornell Guidelines

Cornell Fruit Program. *Cornell Fruit Resources*. <https://fruit.cornell.edu>. Accessed April 2018.

Cornell Nutrient Management Spear Program. *Cornell Nutrient Guidelines for Field Crops*. <http://nmsp.cals.cornell.edu/guidelines/nutrientguide.html>. Accessed April 2018.

Cornell Turfgrass Program. *Cornell Turfgrass*. <http://turf.cals.cornell.edu>. Accessed April 2018.

Cornell Vegetable Program. *Cornell Vegetables*. www.vegetables.cornell.edu. Accessed April 2018.

Cornell University. *Cornell University, Nutrient Management, Competency Area 6: Nutrient Management and Planning, PO 52*. <https://courses2.cit.cornell.edu>. Accessed April 2018.

International Plant Nutrition Institute (IPNI). *4R Plant Nutrition: A Manual for Improving the Management of Plant Nutrition*. North American Version. Norcross, GA, 2012.

International Plant Nutrition Institute (IPNI). *4R Nutrient Stewardship Portal*. <http://www.ipni.net/4R>. Accessed February 2013.

National Oceanic and Atmospheric Administration (NOAA). *National Weather Service*. <http://www.weather.gov/>. Accessed April 2013.***

Natural Resources Conservation Service (NRCS). *Conservation Practice Standard - Nutrient Management (Ac.) Code 590*. <https://efotg.sc.egov.usda.gov/references/public/NY/nyps590.pdf>. Accessed April 2018.

Natural Resources Conservation Service (NRCS). *Field Office Technical Guide Locator* http://efotg.sc.egov.usda.gov/efotg_locator.aspx Accessed April 2013.

New York State Soil and Water Conservation Committee. *Agricultural Environmental Management*. www.nys-soilandwater.org/aem. Accessed April 2018.

The Fertilizer Institute (TFI). *Nutrient Stewardship | The Right Time for Nutrient Stewardship Is Right Now*. <http://www.nutrientstewardship.com> Accessed February 2013.

Standard Requirements - 1: Initial Training and Ongoing Education

Unless otherwise specified, 75% of grower customers' acreage of the Nutrient Service Provider must meet the requirements specified by the auditable evaluation criteria during every audit year in order to achieve conformance with the Standard.

1 Initial Training and Ongoing Education

Overview: Nutrient Service Providers must be educated and trained on the principles of 4R Nutrient Stewardship. 4R NY Certified NSPs must provide an educational component for their growers. An ancillary goal of the requirement for education and training on 4R Nutrient Stewardship is to support the adoption of new research and technologies for nutrient management.

1.1 Initial Training of Nutrient Service Providers, Sales, and Application Staff

1.1.1 Each NSP will be considered for certification by location. They must have a Northeast Region Certified Crop Adviser on staff or under contract for their 4R NY activities. The NRCCA will serve as the designated technical trainer for the NSP. (Year 1 *REQUIREMENT* for Full Service Provider, Recommendation only Provider, and Application only Provider.) Evidence of accomplishment a NRCCA number will be provided. This requirement must be fully met in order to be eligible for a future desk audit.

1.1.2 Nutrient Service Providers 4R representatives (NRCCA, Sales, Applicator) have undergone an initial training and staff are able to demonstrate knowledge about 4R Nutrient Stewardship and the 4R Certification Program, said training to include curriculum provided by 4R NY NSC. *Percentage of acres required is not applicable.* (Year 1 *REQUIREMENT* for Full Service Provider, Recommendation only Provider, and Application only Provider.) Evidence of accomplishment will be meeting agendas, education log, or materials indicating 4R concepts and topics (Right Rate, Time, Place and Source) were covered, roster of those in attendance. Can be an interview with various staff. This requirement must be fully met in order to be eligible for a future desk audit.

1.2 Ongoing Education and Training of Nutrient Service Providers, Sales, and Application Staff

1.2.1 Nutrient Service Providers 4R designated NRCCA attend a training at least once every two years on the practices and principles of 4R Nutrient Stewardship, soil sampling and testing techniques, and/or nutrient water interaction. This is demonstrated through a minimum of five approved CEUs of relevant training. *Percentage of acres required is not applicable.* (YEAR 2 *REQUIREMENT* for Full Service Provider and Recommendation only Provider.) This is demonstrated through a minimum of five approved CEUs of relevant training.

1.2.2 The designated technical trainer will provide the Nutrient Service Providers sales and application staff with training at least once every two years on 4R Nutrient Stewardship. *Percentage of acres required is not applicable.* (YEAR 2 *REQUIREMENT* for Full Service Provider and Recommendation only Provider.)

This is demonstrated through a minimum of two hours of relevant training approved by the program administrator.

1.3 Education and Training of Grower Customers

Unless otherwise specified, 75% of grower customers' acreage of the Nutrient Service Provider must meet the requirements specified by the auditable evaluation criteria during every audit year in order to achieve conformance with the Standard.

1.3.1 Nutrient Service Provider has conveyed informational materials on 4R Nutrient Stewardship to all grower customers. *Percentage of acres required is not applicable. (YEAR 2 REQUIREMENT for Full Service Provider, Recommendation only Provider, and Application Only Provider.)*

Evidence of compliance is signature by grower, OR proof of attendance at a company sponsored 4R Nutrient Stewardship educational event, OR proof of distribution of materials via mailing list.

1.3.2 Nutrient Service Provider has sponsored or directly provided a training session on 4R Nutrient Stewardship that is available for all grower customers. *Percentage of acres required is not applicable. (YEAR 2 REQUIREMENT for Full Service Provider, Recommendation only Provider, and Application Only Provider.)*

Evidence of compliance is an agenda of the company-sponsored event showing training on 4R Nutrient Stewardship approved by the Program Administrator for at least 0.5 Continuing Education Unit.

Standard Requirements - 2: Monitoring of 4R Implementation

Unless otherwise specified, 75% of grower customers' acreage of the Nutrient Service Provider must meet the requirements specified by the auditable evaluation criteria during every audit year in order to achieve conformance with the Standard.

2 Monitoring of 4R Implementation

Overview: The implementation of 4R principles and practices are recorded and monitored, including annual summary totals of fertilizer products applied. Records of implementation are checked by the Nutrient Service Provider to evaluate progress of the implementation of 4R principle and practices over time.

2.1 Monitoring of 4R Implementation

2.1.1 Nutrient Service Providers will record a list of grower customers and number of acres in the following categories: full service, recommendation only, application only, and an estimate of all other acres. (Year 1 REQUIREMENT for Full Service Provider, Recommendation only Provider, and Application Only Provider.)

Evidence of compliance is provided through review of records on file, can be hard copy or electronic. The NSP will record and submit a list of grower customers and acres per each in the

following categories: Full Service, Recommendation only, and Application only. An estimate of these three categories' acres as a percentage of total business will be recorded in the NSP's audit application.

2.1.2 Acres related to monitoring of 4R implementation must include information about the watershed where the farms are located. (*YEAR 3 REQUIREMENT* for Full Service Provider, Recommendation only Provider, and Application Only Provider.)

Evidence is to identify by watershed name or supply GIS data layer and/or hard copy map.

2.1.3 Nutrient Service Provider maintains a grower customers' signature that confirms their support of 4R Nutrient Stewardship. *The grower signatures must represent at least 70% of the acres. (YEAR 3 REQUIREMENT* for Full Service Provider, Recommendation only Provider, and Application Only Provider.)

Evidence is Grower Signature Sheet. The grower signatures must represent at least 70% of the acres, as outlines in the grower customer list.

Standard Requirements - 3: Nutrient Recommendations & Application

Unless otherwise specified, 75% of grower customers' acreage of the Nutrient Service Provider must meet the requirements specified by the auditable evaluation criteria during every audit year in order to achieve conformance with the Standard.

3 Nutrient Recommendations and Application

Overview: Nutrient recommendations and application are made with the goal of maximizing crop uptake and minimizing nutrient losses to the environment. Records are maintained on grower customers' nutrient recommendations and nutrient application. Soil testing plays an important role in the development of well-founded nutrient recommendations and such testing must be based on appropriate sampling frequency, intensity, and analysis. Documented crop yield potential must be included in the recommendation. At a minimum to achieve water quality goals, nitrogen and phosphorus recommendations and application conducted by the nutrient service provider must be consistent with the sufficiency level nutrient recommendation approach of the Cornell Nutrient Guidelines, or other recommendations recognized and supported by a land-grant university if Cornell Nutrient Guidelines do not exist for a particular crop. These guidelines allow for adaptive management based on documented on-farm data showing reasonable expectation of improved crop yield without increased risk of harm to water quality. Nitrogen and phosphorus recommendations and application conducted by the nutrient service provider must observe setback requirements to surface waters and other features when surface-applied on fields without a growing crop. All sources of nutrients must be accounted for in the recommendation, and the recommendation must be reviewed by a certified professional. Variable Rate Application is used when justified.

3.1 Records for Recommendations and/or Application

3.1.1 Nutrient Service Provider maintains records related to all grower customers' nutrient recommendations/applications. (Year 1 *REQUIREMENT* for Full Service Provider, Recommendation only Provider, and Application only Provider.)

This requirement must be fully met in order to be eligible for a future desk audit.

Evidence is review of records on file, can be hard copy or electronic. Fertilizer recommendations and applied scale ticket or as applied map.

3.1.2 Records related to grower customers are kept confidential by the Nutrient Service Provider and are made available for review during an audit. (Year 1 *REQUIREMENT* for Full Service Provider, Recommendation only Provider, and Application only Provider.)

Evidence is confidentiality statement with NSP and auditor signatures. Records are kept confidential by NSP as demonstrated with computer codes, file cabinets, or "safe" rooms or confidentiality agreement with the grower customer.

3.1.3 Nutrient Service Provider keeps onsite list and/or copies (either electronic or hard-copy) of relevant national, state, or local laws related to nutrient recommendations and application. (Year 1 *REQUIREMENT* for Full Service Provider, Recommendation only Provider, and Application only Provider.)

Evidence is review of records on file, can be hard copy or electronic including: CAFO permitted farms (www.dec.ny.gov/permits/6285.html), NRCS 590 Standard if on a farm currently operating with State and/or federal cost-share program funds, (<https://efotg.sc.egov.usda.gov/references/public/NY/nyps590.pdf>), and NYS Environmental Conservation Law (ECL) that prohibits contravening water quality (It is a violation of the ECL to either cause or contribute to a violation of water quality standards as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR), NYS Agriculture and Markets Law Article 10, regarding sales and analysis of fertilizer (www.agriculture.ny.gov/PI/commodities.html), and watershed rules and regulations where applicable.

3.1.4 4R Nutrient Application Strategy records supplied to the grower customer include the following, as applicable:

- soil test results,
- map(s) with field identifiers, field boundaries, sensitive areas, and application setbacks,
 - Note: sensitive areas and application setbacks may be documented in table form if preferred, and
- nutrient recommendations for the current crop, including units of nutrients to apply to each management zone and/or field, timing, and method.

(Year 1 *REQUIREMENT* for Full Service Provider, Recommendation only Provider, and Application only Provider.)

Evidence is review of records on file, can be hard copy or electronic. May review grower signature sheet.

3.1.5 Records of individual fields include, at minimum:

- map(s) with field identifiers, field boundaries, sensitive areas, and application setbacks,
 - Note: sensitive areas and application setbacks may be documented in table form if preferred,
- current (within three years) soil test results,
- current crop and crop rotations for the fields,
- nitrogen credits (examples: including any potential sod N, cover crop N, soil N, and N from prior manure applications used in the recommendations),
- documented yield potential used for making recommendations, and
- nutrient recommendations for the current crop, including units of nutrients to apply to each management zone and/or field, timing, and method,

Note, current 590 Plan or CNMP documentation can replace need for the Nutrient Application Strategy records of individual fields outlined, above. (Year 1 *REQUIREMENT* for Full Service Provider, and Recommendation only Provider.)

Evidence is review of records on file, can be hard copy or electronic. Current 590 Plan or CNMP documentation can replace need for Nutrient Application Strategy records of individual fields outlined. If 3.1.4 is met, only the evidence of the yield goals used in making the fertility recommendation needs to be evaluated.

3.1.6 For applications made by the Nutrient Service Provider, records of nutrient application include at minimum:

- fertilizer/nutrient sources,
- method of application,
- rate of application,
- time of application,
- a field map showing locations of application,
- weather (temperature and precipitation) conditions at the time of application, and
- weather forecast for the 12 hours following application. For the purposes of the Standard, the weather forecast should be obtained from NOAA. (*YEAR 2 REQUIREMENT for Full Service Provider, and Application only Provider.*)

Evidence is review of records on file, can be hard copy or electronic. See 3.5.8 for NOAA weather forecast expectations and limits.

3.1.7 Application records shall not exceed recommendations for custom-applied acres. (Year 1 *REQUIREMENT* for Full Service Provider and Application only Provider.)

Review of records on file, can be hard copy or electronic. Fertilizer recommendations and applied scale ticket or as-applied map.

3.2 Maps for Recommendations and/or Application

3.2.1 Field maps must include information about field identification, sensitive areas, field boundaries, and setbacks. Geographic Information Systems (GIS) preferred. (*YEAR 2 REQUIREMENT for Full Service Providers, Recommendation only Provider, and Application only Provider.*)

Evidence is review of records on file, can be hard copy or electronic. There may be multiple field maps to ensure all the information is outlined.

3.2.2 To better manage nutrients in the fields, data layers (e.g., sensitive areas, yield data, soil test data, soil type) of digital field maps can be combined in an analysis. *At least 10% of the total farm acres treated by Nutrient Service Provider must meet Criterion 3.2.2. (YEAR 3 REQUIREMENT for Full Service Providers, Recommendation only Provider, and Application only Provider.)*

Evidence is information in any usable/ readable electronic format. Maps must be provided. At least 10% of the total farm acres treated by the Nutrient Service Provider must meet Criterion 3.2.2.

3.3 Soil Tests for Recommendations and/or Application

3.3.1 To use Cornell Guidelines, soil samples shall be analyzed using the Morgan extraction method or by a lab and method with an established Cornell soil test conversion to Morgan equivalent soil test values (<http://nmsp.cals.cornell.edu/publications/soilconversion.html>). The soil nutrient analyses shall include, at minimum: organic matter, phosphorus, potassium, aluminum, calcium, magnesium, pH, and cation exchange capacity. (YEAR 1 REQUIREMENT for Full Service Provider and Recommendation only Provider.) This requirement must be fully met in order to be eligible for a future desk audit.

Evidence is review of soil testing records on file, can be hard copy or electronic. All items must be indicated on records.

3.3.2 Soil tests are conducted at least once every three years. (YEAR 1 REQUIREMENT for Full Service Provider and Recommendation only Provider.)

Evidence is review of records on file, can be hard copy or electronic. No soil test result may be older than 3-years-old.

3.3.3 Individual field soil samples are taken from relatively uniform areas no larger than approximately 15 acres. (YEAR 2 REQUIREMENT for Full Service Provider and Recommendation only Provider.)

Evidence is review of records on file, can be hard copy or electronic. Maps indicating acres represented in sample must be provided.

3.3.4 Geo-referenced soil test results are included in records. *At least 35% of the total farm acres treated by Nutrient Service Provider must meet Criterion 3.3.4. (YEAR 3 REQUIREMENT for Full Service Provider and Recommendation only Provider.)*

Evidence is review of records on file, hard copy or electronic. Maps must be provided. 35% of full service and applied fields over 20 acres must meet this criterion.

3.3.5 Soil tests and procedures must be able to meet Cornell Guidelines. (YEAR 1 REQUIREMENT for Full Service Provider and Recommendation only Provider.)

To use Cornell Guidelines, soil samples shall be analyzed using the Morgan extraction method or by a lab and method with an established Cornell soil test conversion to Morgan equivalent soil test values. (<http://nmsp.cals.cornell.edu/publications/soilconversion.html>)

Evidence is review of records on file, hard copy or electronic.

3.4 Crop Yield Determination and Monitoring

3.4.1 Crop yields are discussed with the grower. (YEAR 1 REQUIREMENT for Full Service Provider and Recommendation only Provider.)

Evidence is review of records on file, can be hard copy or electronic. Proof of level of crop management may be previous yield history, county averages, or local adaptive management research. Discussion about the process and some documentation or records of process. Grower Signature Sheet.

3.4.2 Yield potential is discussed with the grower and is based on previous crop yield history and/or soil potential. (YEAR 1 REQUIREMENT for Full Service Provider and Recommendation only Provider.)

Evidence is by Grower Signature Sheet.

3.5 Nutrient Recommendations and/or Application made by the NSP (General) includes the following.

3.5.1 Nutrient recommendations are based on the soil test history of the field, including results from the most recent soil test. (YEAR 1 REQUIREMENT for Full Service Provider and Recommendation only Provider.)

Evidence is review of records on file, can be hard copy or electronic. Soil test results must be equal to or less than 3-years-old. If it is a new field, county averages, drainage, and soil type may be used.

3.5.2 Recommended nutrient application levels are at or below guidelines specified by Cornell Nutrient Guidelines, or other recommendations recognized and supported by a land-grant university if Cornell Nutrient Guidelines do not exist for a particular crop. These guidelines allow for adaptive management based on documented on-farm data showing reasonable expectation of improved crop yield without increased risk of harm to water quality. (YEAR 1 REQUIREMENT for Full Service Provider and Recommendation only Provider.) This requirement must be fully met in order to be eligible for a future desk audit.

Evidence is records to be compared to Cornell Nutrient Guidelines first. If above these levels, data from adaptive management research must be presented justifying the different recommendation. Field averages will be used to evaluate this criterion. Records will be compared to Cornell Guidelines. Software tools for variable rate application recommendations should validate that the software is following the Cornell Guidelines or results of adaptive management.

3.5.3 All sources of nutrients are accounted for in the nutrient management recommendation, including but not limited to commercial fertilizers, manure, biosolids, cover crops, and the previous crop, according to Cornell Nutrient Guidelines. (YEAR 1 REQUIREMENT for Full Service Provider and Recommendation only Provider.)

Evidence is nutrient recommendations indicate all sources of nutrients in the recommendation records. Credits are given to all sources of nutrients applied.

3.5.4 If manure is applied, manure analyses must follow land-grant university guidance regarding required analyses and/or include, at minimum: total nitrogen (N), ammonium N, total

phosphorus (P) or P₂O₅, total potassium (K) or K₂O, and percent solids. The manure nutrient data used in the recommendations may be a rolling average of manure nutrient analyses, where such analyses are performed at least once per calendar year. (YEAR 1 REQUIREMENT is Full Service Provider and Recommendation only Provider.)

Evidence is manure nutrient analysis records, hard copy or electronic, will be reviewed if manure is applied on fields where recommendations are made or nutrients applied.

3.5.5 Phosphorus injection, subsurface banding, or broadcasting with immediate incorporation are recommended as preferred placement methods unless conditions exist in requirement 3.5.6. (YEAR 1 REQUIREMENT is Full Service Provider, Recommendation only Provider, and Application only Provider.)

Evidence is recommendation records indicate the preferred placement. Statement on phosphorus placement given/mailed to grower customers or grower customer signature indicating understanding. If incorporation should not occur due to sensitive area (e.g., slope, stream) or cannot occur (e.g., growing crop) due to existing conditions in requirement 3.5.6.

3.5.6 Commercial phosphorus fertilizer shall not be recommended or applied to frozen or snow-covered ground. In addition, phosphorus fertilizer needs to be incorporated as soon as practical in recommendations and application, except in the following conditions:

- a) the field has been in continuous no-till for at least three years, or
- b) the field has a cover crop or growing crop, or
- c) the risk for phosphorus loss to surface waters has been demonstrated to be low, according to the NY Phosphorus Runoff Index risk assessment procedure.

(YEAR 1 REQUIREMENT is Full Service Provider, Recommendation only Provider, and Application only Provider.) Requirement must be fully met in order to have a desk audit.

Evidence is recommendation records indicate the preferred placement. Statement on phosphorus placement given, mailed, included on cover sheet to grower customer or grower customer signature indicating understanding.

3.5.7 Commercial nitrogen fertilizer shall not be recommended or applied in the fall for a spring planted crop or on snow-covered ground. In addition, nitrogen fertilizer needs to be incorporated as soon as practical in recommendations and application, except in the following conditions:

- a) the field has been in continuous no-till for at least three years or
- b) the field has a cover crop or growing crop.

(YEAR 1 REQUIREMENT is Full Service Provider, Recommendation only Provider, and Application only Provider.)

Recommendations reflect these requirements. This information is required to be on the Grower Signature sheet.

3.5.8 Broadcast applications of nitrogen and phosphorus without incorporation are neither made nor recommended when the NOAA forecast indicates *more than* a 50% chance of one inch or more of rainfall beginning in the *next* 12 hours. If urea is broadcast and not incorporated within 24 hours, it is recommended to be applied with a urease inhibitor. At least 80% of the total farm acres treated by Nutrient Service Provider must meet Criterion 3.5.8. (YEAR 3 REQUIREMENT is Full Service Provider, Recommendation only Provider, and Application only Provider.)

Evidence is NOAA forecast (hourly weather forecast graph or table) for the nearest town available to the fields is printed as required in 3.5.8.

3.5.9 Nutrients are applied according to a written Nutrient Recommendation that has been prepared within the prior 2 years. (YEAR 1 REQUIREMENT is Full Service Provider, Recommendation only Provider, and Application only Provider.) Requirement must be fully met in order to have a desk audit.

Evidence is presence of written Nutrient Recommendation prepared in the last 2 years for F, R, and A. Records of application for A.

3.5.10 Discussion on nitrogen management includes options of split application, nitrification inhibitors, and slow release technologies, especially when considering incorporating nitrogen fertilizers in the spring before planting. (YEAR 2 REQUIREMENT is Full Service Provider, and Recommendation only Provider.)

Evidence is Grower Signature Sheet. Auditor interview and observation.

3.6 Setbacks for Recommendations and/or Application (adapted from NRCS 590)

3.6.1 Commercial nitrogen and phosphorus fertilizer recommendations and/or application adhere to minimum setbacks from all sensitive areas, such as surface inlets, well heads, gullies, karst features, and surface waters specified in applicable national, state, or local laws. (YEAR 1 REQUIREMENT is Full Service Provider, Recommendation only Provider, and Application only Provider.)

Evidence is records of application recommendations and actual applied maps or spreading tickets.

3.6.2 Commercial nitrogen and/or phosphorus fertilizer recommendations and/or application must adhere to the following setback options from sensitive areas when broadcast applications are made to fields without a growing crop or prior to 30 days from planting.

The minimum spreading setback requirement for surface waters, surface inlets, and gullies is:

- a 100-foot setback or
- a 35-foot setback, where the entire setback width is a vegetated buffer.

The minimum spreading setback requirement for wells and down-gradient springs is:

- a 100-foot setback.

The minimum spreading setback requirement for down-gradient karst features, such as sinkholes, is:

- a 100-foot setback.

(YEAR 1 REQUIREMENT is Full Service Provider, Recommendation only Provider, and Application only Provider.)

Evidence is setbacks are discussed in meetings in year one (1). In subsequent years signatures of grower customers will be on file or included on customer's application/recommendation cover sheet or maps.

3.6.3 If operating near a public water supply (surface water or wellhead), employ additional setbacks as required by state and local rules. (YEAR 1 REQUIREMENT is Full Service Provider, Recommendation only Provider, and Application only Provider.)
Evidence is setbacks discussed in meeting in year one (1), in subsequent years signatures of grower customers will be on file or included on customer's application/recommendation cover sheet or maps.

3.7 Review of Recommendations

3.7.1 Nutrient recommendations have been reviewed and acknowledged in writing by the grower customer. (YEAR 1 REQUIREMENT is Full Service Provider and Recommendation only Provider.)
Evidence is Grower Customer Signature sheet.

3.7.2 Nutrient recommendations for each grower customer have been approved and signed by a Certified Professional. (YEAR 1 REQUIREMENT is Full Service Provider and Recommendation only Provider.)
Evidence is signatures of Certified Professional for each grower customer is on file, certifying that they approve the nutrient recommendation.

3.8 Application Equipment and Technology

3.8.1 All nutrient application equipment must be calibrated, at least annually. *Percentage of acres required is not applicable.* (YEAR 1 REQUIREMENT is Full Service Provider and Recommendation only Provider.)
Evidence is calibration (i.e., maintenance) records indicating equipment service date and any maintenance/service required.

3.8.2 The use of Variable Rate Technology is encouraged to apply nutrients. (YEAR 1 REQUIREMENT is Full Service Provider and Application only Provider.)
Evidence is NSP meeting agenda or written information provided to grower client.