

4R Nutrient Stewardship Certification Standard 4R IN

*Requirements for Certification
of Nutrient Service Providers in Indiana*

*Version 2.0
11/20/2020*



Introduction

A Background

The 4R Certification Standard was created under the auspices of the 4R Advisory Committee, members of which are based in Indiana. 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 Indiana 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 Indiana. It builds upon a base of nutrient application strategy and implementation by Hoosier farmers in working with AEM Certified Planners, USDA-Natural Resources Conservation Service, Soil and Water Conservation Districts, and/or Purdue University 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 Indiana. 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 Indiana priorities for water quality based on Purdue University Guidelines (a sufficiency level nutrient recommendation approach; see crop specific links in the References section) and the NRCS-IN 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 Indiana, 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 IN 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 Indiana. 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 four main Sections:

1. Training
2. Recommendations
3. Application
4. Documentation

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 31 auditable evaluation criteria. Of that total: 7 address Initial Training, 9 address Recommendations, 7 address Application, and 8 address Documentation.

Nutrient Service Providers may not be audited on all Standards depending on the services they offer. Each Standard will indicate to the business type that will be audited for that particular standard. “F” indicates those standards for Full Service Providers (recommendation and application), “R” are recommendation-only providers and “A” are application-only providers.

Beginning in Year 1, there are 18 standards. 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. Annual percentage requirements increase each year, as specified in the chart below. Year 1, Year 2 or Year 3 auditable evaluation criteria become mandatory on the year specified and for all subsequent years thereafter. Currently there are 10 auditable evaluation criteria listed as Year 2 requirements, and 3 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 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, Agribusiness Council of Indiana, 317-454-8055, jweldon@inagribiz.org, local program administrator.

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

Purdue University Guidelines

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.

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

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Req. No	Class. No	Requirement	Evidence	% Acres for Each Audit Year	Grower Customer Category	Audit Year
1	T1.1	Nutrient Service Providers, sales, and application staff have undergone an initial training and staff are able to demonstrate knowledge about 4R Nutrient Stewardship and the 4R Certification Program.	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. Educational information and sample presentations available at 4rcertified.org/resources . Other IN based training programs must be approved by Program Administrator.	% Acres Required: N/A	F R A	1
2	T2.1	Certified professionals must have current certification in good standing.	Print-off current credentials and/or certification. Credentials should include one or more of the following: Certified Crop Adviser (CCA), CCA 4R Specialty, USDA-NRCS Comprehensive Nutrient Management Plan (CNMP) Specialist (or TSP), Certified Professional Agronomist (CPAg), or other relevant accreditation from the American Society of Agronomy or National Alliance of Independent Crop Consultants.	% Acres Required: N/A	F R	1
3	R1.1	Soil tests are conducted at least once every four (4) years.	Review of records on file, can be hard copy or electronic. No soil test result may be older than four (4) years old.	% Acres Required: 75/85/100	F R	1
4	R2.1	Soil (analysis) tests are conducted by an accredited lab which includes, at minimum: Phosphorus, Potassium, pH, and soil organic matter.	Review of soil testing records on file, can be hard copy or electronic. All four items must be indicated on the records.	% Acres Required: 75/85/100	F R	1

5	R3.1	Crop yield goals are discussed with the grower and are based on previous crop yield history, which include one or more of the following: farmer relayed information, yields maps, soil potential, plot data, county averages, Farm Service Agency, crop insurance, etc.	Review of records on file, can be hard copy or electronic. Proof of level of crop management may be previous yield history (as provided by the grower), which include: farmer relayed information, yields maps, crop yield by soil potential, plot data, county averages, Farm Service Agency records, crop insurance records, plot yield data, or local adaptive management research. Documentation or records of process used to establish yield goals must be provided.	% Acres Required: 75/85/100	F R	1
6	R4.1	Records of individual fields include, and are reviewed with grower customer, at a minimum include the following: <ul style="list-style-type: none"> • Field boundary, • Current soil test results, • Crop yield goals, • Nutrient recommendations, • Rates of nutrients applied to field, • Scale tickets or work orders, • Billing for the field and/or as applied maps 	Review of records on file, can be hard copy or electronic.	% Acres Required: 75/85/100	F R A	1
7	R5.1	Nutrient recommendations are based on the soil test history of the field and yield goals.	Review of records on file, can be hard copy or electronic. Soil test results must be equal to or less than four (4) years old. If it is a new field without a current soil test, recommendations for P and K are limited to crop removal rates until a soil test is taken. County average yields or previous year actual yields may be used for yield goals.	% Acres Required: 75/85/100	F R	1
8	R6.1	All sources of nutrients are accounted for in the nutrient management recommendation, including but not limited to commercial fertilizers, starter fertilizer, manure/litter, biosolids, cover crops, and the previous crop.	Nutrient recommendations indicate all sources of nutrients in the recommendation records.	% Acres Required: 75/85/100	F R	1

9	R7.1	Nutrients are applied according to a written nutrient recommendation that has been prepared within the prior two (2) years.	Records of application will be compared to the recommendations on file. Only applicable to the full-service providers.	% Acres Required: 75/85/100	F A	1
10	A1.1	Phosphorus is neither applied nor recommended to be applied at rates that exceed Tri-State fertilizer recommendations for corn, soybeans, alfalfa and wheat and specialty crops and the total application does not exceed the quantity needed for the next two (2) years of planned crops. A bordering state land grant university fertilizer recommendations may also be used. This does not apply to starter fertilizer.	Records will be compared to Tri-State fertilizer recommendations, or a bordering State land grant university. Field averages will be used to evaluate this criteria. Records of individual soil test will be compared to land grant recommendations or equivalent tool. Variable rate application recommendations should be validated that the software is following the land grant guidelines or results of adaptive management.	% Acres Required: 75/85/100	F R A	1
11	A2.1	Recommended nutrient application levels of nitrogen fall within suggested/ recommended limits specified by nutrient application recommendations recognized by a land-grant university in Indiana or surrounding State, allowing for adaptive management based on documented on-farm data showing reasonable expectation of improved crop yield without increased risk of harm to water quality.	Records will be compared to Tri State Fertilizer Recommendations or bordering Land Grant University Fertilizer Guidelines or equivalent tool. If above these levels, data from adaptive management research must be presented justifying the different recommendation. Field averages will be used to evaluate this criteria.	% Acres Required: 75/85/100	F R	1
12	A3.1	For spring-planted crops, right time for nitrogen to be applied is normally before, at or after planting. When fall applications of nitrogen [including phosphate sources containing nitrogen] are made or recommended, growers are informed about the risk, amount, and fate of nitrogen losses associated with the application. With this in mind, fall application of nitrogen fertilizer above 50 pounds per acre is not recommended for spring planted crops, unless: - Soil temperatures less than 50 degrees - Use of nitrogen stabilizers	Signatures of grower customers on file. Rate is based on typical rates as applied with fall application of typical nitrogen and phosphate sources; research will be reviewed and conducted to determine if this amount needs to be revised. Records of application will be compared to the recommendations on file. Only applicable to the full-service customers.	% Acres Required: 75/85/100	F A	1

13	A4.1	All nutrient application equipment must be calibrated, at least annually.	Calibration (i.e., maintenance) records indicating equipment service date and any maintenance/service required. Follow manufacturer's guidelines.	% Acres Required: N/A	F R A	1
14	D1.1	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.	Review of records on file, can be hard copy or electronic and should be updated when needed. Program administrator will provide a list of current laws and regulations	% Acres Required: N/A	F R A	1
15	D2.1	Nutrient Service Providers will record a list of grower customers and number of acres in the following categories: full service, recommendation only, and application only.	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 that fall into these categories: full service, recommendation only, and application only.	% Acres Required: 75/85/100	F R A	1
16	D3.1	Nutrient recommendations have been reviewed and acknowledged in writing by the grower/customer.	Signatures of grower customers on file either on a signature sheet, nutrient management plan or equivalent document.	% Acres Required: 75/85/100	F R	1
17	D4.1	Nutrient recommendations for each grower have been approved and signed by a Certified Professional.	Signatures of Certified Professional for each grower customer is on file, certifying that they approve the nutrient recommendation.	% Acres Required: 75/85/100	F R	1
18	D5.1	Nutrient service provider maintains records for all growers related to soil tests, nutrient recommendations, and applications for a minimum of 4 years.	Review of records on file, can be hard copy or electronic. Fertilizer recommendations and applied scale ticket or as-applied map.	% Acres Required: 75/85/100	F R A	1
19	T3.2	Nutrient service providers, or any staff providing nutrient recommendations, attend a training, at least once every three (3) years on the practices and principles of 4R Nutrient Stewardship, soil sampling and testing techniques, and/or nutrient water interaction.	If the staff person is a CCA, then proof of active status is sufficient. If not a CCA, evidence of attendance at educational based training programs listed on page 1 will be required.	% Acres Required: N/A	F R	2

20	T4.2	All personnel taking soil samples must undergo initial training to provide consistent procedures of taking representative and accurate soil samples.	An initial training for all staff taking soil samples, this includes any seasonal staff taking soil samples. Training records and training process documentation on file. For recommended best management practices for soil sampling procedures, visit https://www.extension.purdue.edu/extmedia/AY/AY-368-w.pdf .	% Acres Required: N/A	F R	2
21	T5.2	Discussion with grower customers on nitrogen Best Management Practices include options of split application, nitrification and urease inhibitors, slow release technologies, timing, placement, rates, and sources.	Signatures of grower customers on file or direct education mailings to all customers.	% Acres Required: 75/85/100	F R A	2
22	T6.2	Discussion with grower customers on phosphorus Best Management Practices include VRT technology, timing, placement, rates, and sources.	Signature of grower customers on file or direct education mailing to all customers	% Acres Required: 75/85/100	F R A	2
23	T7.2	Nutrient service provider has sponsored or directly provided a training session on 4R Nutrient Stewardship that is available for all grower customers and has conveyed by mail or electronic distribution information on 4R Nutrient Stewardship annually to all customers.	Agenda of the company-sponsored educational event shows training on 4R Nutrient Stewardship approved by the Program Administrator for at least half hour agenda item.	% Acres Required: 75/85/100	F R A	2
24	R8.2	Soil tests are taken from relatively uniform areas no larger than 20 acres.	Review of records on file, can be hard copy or electronic. Maps indicating acres represented in sample must be provided. All areas sampled must be smaller than 20 acres. (See NRCS 590 criteria).	% Acres Required: 75/85/100	F R	2

25	R9.2	If manure is applied, manure analysis must follow land grant university guidance regarding required analysis and/or include, at minimum: total nitrogen (N), total phosphorus (P) or P2O5, total potassium (K) or K2O, and percent solids	Manure nutrient analysis records (hard copy or electronic) will be reviewed if manure is applied on fields where recommendations are made or fertilizer applied. If an analysis is not available, book values from the Purdue University or NRCS will be accepted. Refer to IDEM CFO/CAFO rules and regulations.	% Acres Required: 75/85/100	F R A	2
26	A5.2	Phosphorus injection, subsurface banding, or broadcasting with immediate incorporation are the recommended placement methods	Recommendation records indicate the preferred placement. Statement on phosphorus placement given/mailed to grower customers or grower customer signature indicating understanding. Disregard this standard if requirements meet standard A7.3.	% Acres Required: 75/85/100	F R A	2
27	D6.2	Records of nutrient application include at minimum: <ul style="list-style-type: none"> •method of application; •time of application; •field map showing locations of application; •weather (temperature and precipitation) conditions at the time of application 	Review of records on file, can be hard copy or electronic.	% Acres Required: 75/85/100	F A	2
28	D7.2	Environmentally sensitive areas (such as inlets, well heads, areas of concentrated flow, gullies, and water bodies where nutrient application may occur) are documented and discussed with the grower customer.	Convey the process conducted to identify sensitive areas, show examples on field maps of identified sensitive areas. NSP must follow all laws related to setbacks for manure (IDEM/OISC)	% Acres Required: 75/85/100	F R A	2

29	A6.3	<p>Recommended situations where incorporation of broadcast applications of phosphate isn't required are:</p> <p>a) NOAA forecast of a rainfall event involving no more than an inch of rain beginning in the next 12 hours,</p> <p>b) the field has been in continuous no-till for at least three years, or</p> <p>c) has a cover crop or growing crop</p>	<p>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.</p>	<p>% Acres Required: 75/85/100</p>	F R A	3
30	A7.3	<p>Phosphorus and nitrogen applications to be made on frozen or snow-covered ground are discouraged. If applications are made, consideration is given to:</p> <ul style="list-style-type: none"> • Increased setbacks from water • Minimal cover or field residue • Reducing application rate where possible 	<p>Recommendation records indicate the preferred timing. Frozen ground is defined: soil frozen to a depth that does not allow for the proper placement and incorporation of fertilizer. Snow covered ground is defined: when soil cannot be seen because of snow cover.</p>	<p>% Acres Required: 75/85/100</p>	F R A	3
31	D8.3	<p>Digital field map data layers must be able to be generated that can be combined in an analysis to better target nutrients in the fields. Possible data layers may include: sensitive areas (e.g. surface water, inlets, wells, areas of concentrated flow, etc.), yield data, soil test data, soil type, HUC watershed codes, tile or topographic maps, digital/sensor imagery, EC data, N modelling, etc.</p>	<p>Review of records on file, can be hard copy or electronic. This information can be in any useable/readable electronic format. Maps may be provided. This data may be in digital format and generated on site at time of audit. If yield data is not available, county yield averages must be incorporated into data layers. As applied maps must show sensitive areas that were protected during application. Refer to sensitive area definition in the NRCS 590 standard.</p>	<p>% Acres Required: 75/85/100</p>	F R A	3