4R MID-ATLANTIC 4R Nutrient Stewardship Scorecard

Are you applying your fertilizer nutrients at the Right time, Right place, Right rate, and getting those nutrients from the Right source? These are the 4 "R"s of nutrient stewardship. Not all 4R practices make sense on all fields, but they often benefit farm productivity and profitability.

Use the attached worksheet to evaluate your farm's adoption of 4R best-practices. Seeing where your answers fall along the spectrum of "Exceptional" to "Minimal" nutrient stewardship will show you the next step to take (moving from right to left). Your lowest-scoring areas deserve special focus.

If you have questions about 4R nutrient stewardship, the attached scorecard, or the resources listed on this sheet, please contact Su Fanok with the Pennsylvania 4R Alliance at sfanok@tnc.org.

Decision tools

Use these tools to help make nutrient management decisions for your operation.

- Determine Cover Crop & Soil Organic Matter Nitrogen Credits — bit.ly/3Spk4LP
- Nutrient Removal Calculator — bit.ly/3Q5vmmP
- Manure Rate Calculator — bit.ly/3Q73sqs
- *What's Manure Worth?* Calculator — bit.ly/3SrJ5pv

Financial & technical assistance

Cost-share and other assistance opportunities exist to advance 4R Nutrient Stewardship on your farm. Please contact your county's Natural Resource Conservation Service (NRCS) office or Soil Conservation District for more information. (NRCS practice 590 *Nutrient Management* is most relevant to 4R Nutrient Stewardship; however, many supplementary practices also apply.)

- NRCS offices — offices.sc.egov.usda.gov/locator/app
- Conservation district offices
  - Delaware — nacdnet.org/state/delaware
  - Maryland — nacdnet.org/state/maryland
  - Pennsylvania — nacdnet.org/state/pennsylvania

4R Nutrient Stewardship resources

Learn more about 4R and join us in promoting best practices for nutrient use efficiency, farm profitability, and water quality!

- Mid-Atlantic 4R Association — 4rmidatlantic.com
  - Delaware-Maryland 4R Alliance — 4rmidatlantic.com/about/delaware-maryland-4r-alliance
  - Pennsylvania 4R Alliance — 4rmidatlantic.com/about/pennsylvania-4r-alliance
  - Video library — bit.ly/4rvideo
- 4R Farming — 4rfarming.org
- 4R Nutrient Stewardship — nutrientstewardship.org

State regulations

Learn about your state's regulations related to nutrient management.

- Delaware — agriculture.delaware.gov/nutrient-management
- Maryland — mda.maryland.gov/resource_conservation/Pages/farmer_information.aspx
- Pennsylvania — extension.psu.edu/programs/nutrient-management

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GENERAL MANAGEMENT (Circle or mark a response for each question)

Exceptional	Advanced	Improving	Minimal
Do you follow your *nutrient management plan* recommendations?			
Yes	Usually	Have plan but do not use it	Do not have plan
How often do you take soil samples (including pre-sidedress nitrate tests)?			
At least yearly	Every 2-4 years	Every 5-10 years	Never
How densely do you take soil samples?			
One for every <5 acres	One for every 5-20 acres	One for every 20-40 acres	One for 40+ acres
How do you manage your fertilizer rates?			
Variable rate applications based on soil tests	Use one rate for whole fields based on soil tests	Use same rate for more than one field based on soil tests	Fertilizer applications not based on soil tests
When do you take plant-tissue samples (including chlorophyll meter tests)?			
Before in-season applications	Only for micronutrients	If a problem is suspected	Never
How often do you calibrate your fertilizer equipment (e.g. spreaders, sprayers)?			
Multiple times in season	Yearly	Every few years	Never
How do you fertilize for micronutrients?			
Regularly apply micronutrients based on soil or tissue tests	Apply micronutrients based on agronomic recommendations	Test or apply only when a problem is suspected	Never test or apply micronutrients
How actively do you manage soil pH?			
Monitor pH regularly **AND** apply lime regularly	Only test pH & apply lime if a problem is observed	pH monitored but lime is not applied	Apply lime without testing pH **OR** do not monitor pH

NITROGEN MANAGEMENT

Exceptional	Advanced	Improving	Minimal
How often do you apply nitrogen fertilizer to corn, small grains, or other grass crops?			
At 3 times (including 2 in-season applications)	Twice (including an in-season application)	Once, at or around seeding	Once, in the season (e.g. Fall) prior to seeding
How do you determine the rate of nitrogen fertilizer for your corn?			
Based on in-season testing **AND** nitrogen modeling	Based on in-season testing (e.g. pre-sidedress nitrate test)	Based on pre-plant test **OR** an agronomy guidebook	Best guess based on past experiences
How do you apply most of your nitrogen fertilizer?			
Injected, subsurface-banded, **OR** surface-applied with a nitrogen stabilizer product	Incorporated within 1 day of application	Incorporated within 1 week of application	Surface-applied without incorporation
Do you use nitrogen stabilization products – urease or nitrification inhibitors – when appropriate?			
Always	Usually	Rarely	Never

MANURE MANAGEMENT (Skip if you do not apply manure or biosolids)

Exceptional	Advanced	Improving	Minimal
Where do you apply manure or biosolids?			
On fields with an actively growing crop	On fields with crop residue covering >25% of soil	On flood-prone, excessively drained, or poorly drained areas	Within 35 feet of waterways **OR** in places restricted by the P-Index
How do you determine your application rate for manure or biosolids?			
Phosphorus does not exceed current crop's need	Phosphorus does not exceed 2 years of anticipated crop removal	Based on nitrogen requirement of crop	Rate is not determined by actual soil fertility or anticipated crop needs
When do you incorporate manure or biosolids?			
Injected or placed directly into the soil	Tilled-in on day of application	Tilled-in within 1 week of application	Manure not incorporated
How do you determine the nutrient content of manure or biosolids?			
Each batch of manure is sampled before application	Manure is sampled every year	Manure is sampled at least every 3 years	Manure is not sampled

PHOSPHORUS MANAGEMENT

Exceptional	Advanced	Improving	Minimal
How do you determine your phosphorus fertilizer rate?			
Phosphorus does not exceed current crop's need **AND** risk of loss from field is evaluated (e.g. with P-Index tool)	Phosphorus does not exceed 2 years of anticipated crop removal **AND** risk of loss from field is evaluated	Phosphorus rate based on cropping needs but risk of loss from field is not evaluated (e.g. with a P-Index tool)	Rate is not determined by actual soil fertility or anticipated crop needs
When do you apply most of your phosphorus fertilizer?			
During growing season	At planting	Before ground freezes after harvest	On frozen or snow-covered soil
How do you apply most of your phosphorus fertilizer?			
Placed directly into the soil or subsurface-banded	Incorporated with conservation tillage before runoff occurs	Incorporated with conventional tillage **OR** surface-applied in low-runoff areas	Surface-applied in high-runoff areas **OR** onto filter strips or other waterways

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