

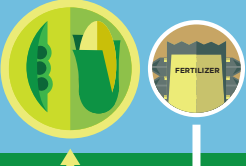
4R FARMERS & THE LAKE

Sustainable Crop Nutrition for the Western Lake Erie Basin

nutrientstewardship.org

Fertilizer Benefits

Fertilizers replenish **soil nutrient supplies** depleted by crop production



Within the watershed, crop harvest removes more **phosphorus** than is being applied as fertilizer and manure.

Fertilizers are key to **food security**



50% of food production is the result of fertilizer use



4R PRINCIPLES OF NUTRIENT STEWARDSHIP

RIGHT SOURCE

Matches fertilizer type to crop needs



- Account for all sources of nutrients in recommendations

RIGHT PLACE

Keeps nutrients where crop can use them



- Utilize variable rate application
- Utilize phosphorus injection, subsurface banding or broadcasting with immediate incorporation
- Don't broadcast apply nutrients without incorporation unless the risk of phosphorus loss is demonstrated to be low
- Apply nutrients using minimum setbacks from sensitive areas

RIGHT RATE

Matches amount of fertilizer to crop needs



- Conduct soil tests regularly in uniform areas less than 25 acres
- Document crop yield goals based on crop history
- Base nutrient application on Tri-State recommendations or adaptive management using soil test and yield goals
- Calibrate nutrient application equipment annually

RIGHT TIME

Makes nutrients available when crops need them



- Don't apply phosphorus on frozen or snow covered ground
- Don't apply phosphorus or nitrogen if a large rainfall is in the weather forecast

WESTERN LAKE ERIE BASIN 4R CERTIFICATION PROGRAM

Program for Agricultural Retailers & Service Providers Implementing the 4Rs

CERTIFICATION PROGRAM GOALS

- Maximize crop nutrient uptake and minimize losses
- Positively impact local water bodies
- Provide up-to-date information on nutrient stewardship
- Help the agricultural sector adapt to new research and technology

TRAINING & EDUCATION REQUIREMENTS

- Retail and service provider staff undergo training and demonstrate knowledge of the 4Rs
- Professionals maintain current certification in good standing
- 4R update training completed every two years
- Provide 4R educational opportunities for growers

MONITORING 4R IMPLEMENTATION

- 3rd party audit of retailer and service provider 4R actions occur every three years
- Audits review training and education, recommendations to growers, and application records



For more information visit 4rcertified.org

4R Evaluation & Research

The fertilizer industry's 4R Research Fund has awarded **\$1.2 Million** to a project team evaluating the 4Rs and their impact on the lake



The Fertilizer Institute and local fertilizer organizations support Heidelberg University's river monitoring stations on tributaries flowing into the Western Lake Erie Basin

4R ADVOCATES

Real People, Real Stories

THE 4R ADVOCATE PROGRAM

Each year the Nutrient Stewardship 4R Advocate program recognizes outstanding agriculture retailers and farmers dedicated to sustainable crop nutrition. These advocates travel the country educating local communities about the 4R principles and the benefits of sustainable farming. Visit nutrientstewardship.com/4r-advocate

BRAND DAIRY FARM

The Brand Dairy Farm is a 400-head dairy farm with 2,500 acres of corn, soybeans, wheat and hay located in Waterloo, Indiana. The farmers work with their nutrient service provider at The Andersons to implement the 4Rs. They strive to be good stewards of the soil, optimizing productivity through no-till farming and to enhance their bottom line by reducing production costs.

