



Nutrient management



Nutrient management involves determining the appropriate rates, timing, source and methods of fertilizer application for crop nutrition. Taking into account the science of soil, crop, weather and hydrologic factors, nutrient management also aims to reduce nutrient loss from the field to improve profitability for the farmer, and water quality for society.

4Rs of Nutrient Stewardship

1 Right Source	2 Right Rate	3 Right Time	4 Right Place
Matching the right fertilizer for your crops' needs	Matching the right amount of fertilizer for your crops' needs	Making the fertilizer available when needed by the crop	Applying the fertilizer where it is available for the crop and less prone to loss

Factors that affect nutrient management

Soil Fertility

Use results from a soil lab to determine the current available amounts of nutrients in the soil and actively manage soil pH. Availability of certain nutrients or chemicals in the soil can impact the availability of other nutrients. Using the same lab and the same sampling points every time you test is important. Variations in test methods can affect recommendations.

Soil Texture

How fine- or coarse-textured soil is can impact how readily a soil can retain or lose nutrients.

Crop

Soil fertility and fertilizer needs vary by crop.

Weather

Temperature and moisture can have large impacts on both the loss of nutrients from the soil and the availability of nutrients to a crop.

Source

Fertilizer options can vary by region, cost, and available application equipment.

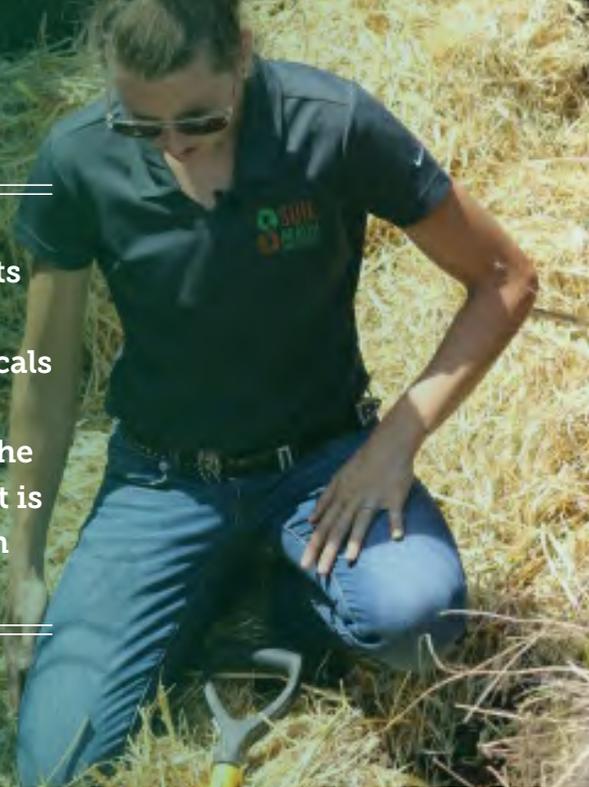
Equipment

Available equipment can impact the best source, rates, placement, and timing for a fertilizer.

Geographic Recommendations

Many state extension services provide local and regional recommendations for fertilizers. Some agronomists may offer recommendations based on local on-farm research.

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Additional considerations

Regulations

Local and state regulations may dictate the timing, source, rate, and placement of fertilizers. Reference the state-specific NRCS standard for nutrient management (590 Nutrient Management).

Precision Agriculture (Variable Rate Technology)

Precision agriculture, or variable rate technology, provides the opportunity to manage nutrients differently for every acre. For example, it may make sense to shift fertilizer from areas that have high fertility or high risk of nutrient loss to those with low fertility and low risk of nutrient loss allowing for greater return on investment with fertilizer.

Nutrient Management Plans

Certain geographies and livestock operations are required to establish Nutrient Management Plans which may have further restrictions on fertilizer or manure applications. Sometimes these are not required but are incentivized. They must be written by a Certified Crop Advisor registered within your state who is also a Technical Service Provider with the USDA's Natural Resources Conservation Service.

A grower can formulate their own Nutrient Management Plan to be organized and ready to work with their supplier. This allows the option to customize it to your operation with the option to change it as necessary. Set attainable economically minded goals for raising soil fertility in low testing fields as well as plan which fields would have the most advantage of higher fertilizer applications and which have lower requirements.

Know your national, state, and local regulations on nutrient management before making a plan and applying fertilizer. Visit soilhealthpartnership.org to learn more about soil nutrient management.



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