





# NUTRENT MANAGEMENT

### SOURCE

Farmers may apply commercial fertilizers, manure, soil amendments, or organic-by-products to provide the nutrients plants need. When determining the nutrient source that's best for your operation, here are some things to consider:

**Best Match:** Choose the right nutrient sources to best match the needs of your crop and soil while minimizing the site-specific risk of nutrient loss. Needs vary depending on your local soil & climate conditions, specific crop, & conservation practices you implement such as reduced tillage, no-till, or cover crops.

**Utilization Needs:** Select nutrients based on your utilization needs. If you have a new planting, you may need a delayed uptake just after seed germination. Or, you may have an established crop that's ready to take up nutrients immediately.

**Testing:** Test to confirm key nutrient needs for your soil & plants. Soil tests can help you identify the key nutrients your soil needs so you can make an informed decision on the correct fertilizer & the right quantity for your crops. Testing is the most reliable way to determine what your soil and crop needs to select the best nutrient source.

#### METHOD

For effective nutrient management, method of application can make all the difference. When determining how & where you apply nutrients, here are some things to consider:

Injection: Getting nutrients down below the surface of the soil & into the root zone of your crop increases the plant's ability to access them. Injecting nutrients is one way to deliver them exactly where they're needed.

Incorporation: Specific sites may require nutrients to be incorporated into the soil, not just broadcast on the surface, for plants to adequately access them and to reduce the risk of nutrient loss in runoff events. This can be true whether you practice no-till or not.

Other practices combined: If incorporation or injection are not practical, combine in-field conservation practices with edgeof-field practices to reduce nutrient losses.

GPS & other tech: Different parts of your land may have different nutrient requirements. GPS & variable rate application are some technologies that can help apply the right amounts of nutrients in the right places.

#### ASSESSMENT

Each plot of land is different. A key part of nutrient management planning is assessing the site-specific conditions of your land and operation to determine what is needed. All conditions must be considered, because each affects the others. As changes are made to your operation, the on-site conditions should be reassessed, and the plan should be adjusted accordingly.

Certified Nutrient Management Planning: A certified nutrient management planner can analyze your specific land conditions, perform a risk assessment and draft a nutrient management plan that is tailored to your land.

Current or planned practices: Current or planned practices like no-till, or conservation tillage, should be assessed to determine how they might affect nutrient requirements & reduce nutrient losses.

Testing: Testing & analysis can tell you what nutrients are already present in the soil, soil amendment, or plant, to determine what nutrients are needed.

#### RATE

Many factors affect the amount of nutrients your crop needs. When determining the amount or rate for your application, here are some things to consider:

Testing: Having your soil, plants, and, if necessary, nutrient source tested will let you know what nutrients are needed, and how much you should apply given your specific source.

Soil health practices, such as no-till or cover crops: These conservation practices naturally increase soil organic matter and biological processes, and thereby may reduce your fertilizer needs.

Technology: Variable rate application technology, for example, can improve nutrient efficiency by delivering specific amounts according to historic yields and soil-test nutrient levels.

#### TIMING

Appropriately timing the application of nutrients is critical. When determining when to apply nutrients, here are some things to consider:

Crop demand: Nutrients should be applied when crops need them most to maximize uptake and effectiveness. You may split-apply nitrogen, for instance, to deliver nutrients at targeted times during growing season.

Weather & seasonal conditions: Application of fertilizer immediately before a large rainfall could contribute to nutrient runoff.

Technology available: Technologies such as precision guidance systems allow producers to apply fertilizer to actively growing crops.

Testing: Tissue testing is a valuable diagnostic tool that can aid in managing soil fertility. Routine tissue testing on corn, soybeans, and other crops is often carried out mid-season to determine whether the crop has a sufficient nutrient supply.

## LEARN MORE

- Reach out to your local USDA-NRCS office for more information on creating a nutrient plan for your land or to have testing done
- Scan the QR code below to learn more about nutrient planning through USDA-NRCS

