NITROGEN MANAGEMENT EVALUATION TOOL

GLOSSARY

Drainage: Refers to the presence or absence of artificial drainage in a field. If the artificial drainage exists but is no longer functioning properly then "undrained" would be the best way to describe the field.

First-year-corn: Refers to the first year of corn after a well-managed alfalfa or grass sod (or mixture).

Inorganic nitrogen: Is the ammonium form of nitrogen and represents most of the N present in chemical fertilizers and usually 50% or more of the N in manure.

Manure analysis: A laboratory analysis of the nutrient components in a manure sample. At the very least a manure analysis should report percent Total N, percent ammonium-N, percent phosphorus (P), percent potassium (K) and percent solids.

Manure application rate: is the amount of manure applied per acre. This is usually measured in tons or gallons.

Manure application timing: Describes the time of year manure is applied. This information is used, together with manure application method, to estimate the correct amount of inorganic N to credit from the manure.

Manure application method: Describes how quickly manure is incorporated into the soil after it is applied. This information is necessary to estimate the inorganic N credit from the manure.

Nitrogen: Is a soil and plant mobile, essential macro-nutrient for plant growth. It is used within amino acids that build proteins, protoplasm, alkaloids and hormones. It is also used in chlorophyll. The forms preferred for plant uptake are nitrate (NO_3^-) and ammonium (NH_4^+). It is the nutrient that most-often limits productivity in cultivated cropping systems.

Nitrogen credit: A nitrogen credit is a fertilizer equivalent credit of nitrogen given to corn crops from soil, manure applications, a managed sod or soybean crop and sometimes a plowed down cover crop.

Organic nitrogen: The nitrogen combined in organic molecules such as proteins, amines, and amino acids.

Rotation: Crop rotation is the repeated sequence or pattern of crops that a farm plants on a field. Rotations can range from two years (e.g. corn, soybeans, corn, soybeans is a two year rotation) to many years (e.g. 4 corn 4 hay is an eight year rotation). When soil conservation is a concern, rotations with more years of annual hay crops are used.

Sod: A section of perennially-covered surface soil held together by matted roots. A managed sod is one that is cut multiple times and amended with manure or fertilizer. Sod N credits are calibrated for managed sods as opposed to the turn-over of an abandoned or weedy field.

Soil type: New York State has over 600 different soil types. Each soil type has an associated estimated soil N credit, fertilizer use efficiency and yield potential for field corn under drained and undrained soil conditions.

Urea: A water-soluble organic compound, $CO(NH_2)_2$, formed by the metabolism of proteins and excreted in the urine or it is synthesized from ammonia and carbon dioxide and used as fertilizer, in animal feed and in plastics. When it comes into contact with the enzyme urease, found abundantly in soil and feces, it breaks down into carbon dioxide and ammonia.

For more information:
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