



CROP
Grape



GROWER
Bitner Vineyards



FARM
Bitner Vineyards



FIELD
Bitner Vineyards

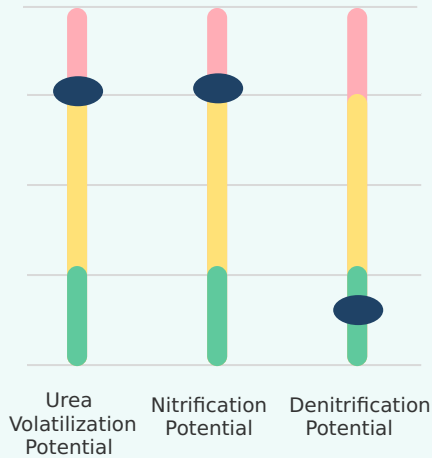


SAMPLING DATES
09/13/2024

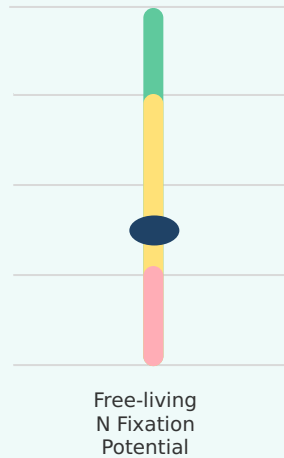
Field Summary

Regional Benchmark Used

Biological N Loss
(Peak Value)



Biological N
Fixation (Min Value)



● Measured Value

Guidance

Biological N Loss

• Urea Volatilization Potential

The use of a urease inhibitor or slow-release nitrogen fertilizers are strongly recommended to reduce the rate of urea decomposition and subsequent N volatilization.

• Nitrification Potential

The use of nitrification inhibitors or slow-release nitrogen fertilizers are strongly recommended to reduce the rate of nitrification.

• Denitrification Potential

The use of nitrification inhibitors, slow-release nitrogen fertilizers and split applications may reduce the risk of N loss from denitrification.

Biological N Fixation

• Free-living N Fixation Potential

Application of products containing free-living N-fixers may help increase the rate of biological nitrogen fixation in the soil.

Field Average Chemistry Levels

Ammonium	3.2 ppm
CEC	34.0 meq/100 g
Organic Matter	2.2 %
pH	7.8

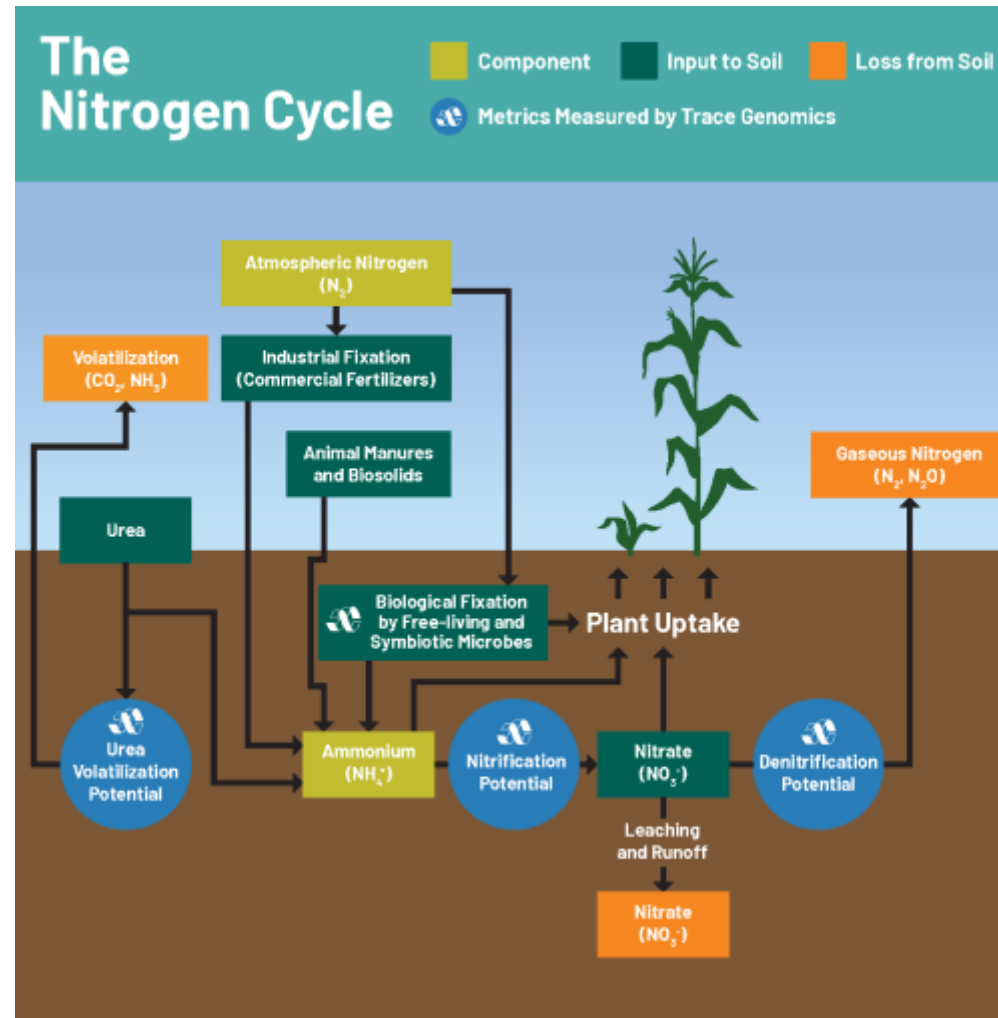
Notes

Nitrogen Loss Indicators

Urea Volatilization Potential: In the presence of the enzyme urease, urea breaks down into carbon dioxide and anhydrous ammonia. A urease inhibitor delays this breakdown, and slow-release nitrogen fertilizers protect the urea fertilizer from exposure to urease. Urea volatilization potential represents the abundance of genes in a sample responsible for converting urea to ammonia.

Nitrification Potential: This is the biological oxidation of ammonium to nitrite and nitrate by a group of microorganisms called nitrifiers. Nitrate is available for plant uptake, and excess nitrate is subject to leaching or denitrification. Nitrification potential is a sum of all nitrifiers identified in a sample.

Denitrification Potential: This is the conversion of soil nitrate into nitrogen gases. This process is mediated by soil microbes and is best managed by limiting the amount of nitrate in the soil with the use of nitrification inhibitors, slow-release nitrogen and split applications of nitrogen. Denitrification potential represents the abundance of genes responsible for transforming nitrate into nitrogen gasses.



Nitrogen Gain Indicators

Symbiotic N-Fixation Potential:
Legume and pulse crops (soybean, alfalfa, dry beans, cowpea, chickpea, lentil) form a symbiotic relationship with host-specific, nitrogen-fixing bacteria. Seed-applied inoculants are used to enhance the population of nitrogen-fixing bacteria. The Symbiotic N-Fixation Potential represents the abundance of the microbe that forms a symbiotic relationship with the specified crop. The following are reported in crop-specific TraceN reports:

- Soybean - *Bradyrhizobium japonicum*
- Chickpea - *Mesorhizobium ciceri*
- Pea and lentil - *Rhizobium leguminosarum*
- Alfalfa - *Sinorhizobium meliloti*

Free-living N-Fixation Potential:
Within the soil, there are microbes with the ability to fix nitrogen independently. The Free-living N-Fixation Potential is a measurement of the abundance of microbial genes in a sample responsible for this form of nitrogen fixation.