TIMAC AGRO – EXCELIS MAXX TRIAL

In the soil, the three main forms of nitrogen loss are volatilization, denitrification and leaching. Volatilization is when ammonia (NH_3) is released from the soil surface and into the atmosphere, which is dependent on soil pH, moisture and temperature along with other factors. Denitrification is the conversion of nitrate-nitrogen to nitrous oxide or nitrogen gas, which can then be lost into the atmosphere. Denitrification most commonly occurs in soils that have low oxygen levels (wet soil). Leaching is the downward movement of nitrates, which can lead to groundwater contamination. Between denitrification and leaching losses in the soil, there can be up to 60% loss of total nitrogen in the soil.

In this trial, Excelis Maxx (nitrogen stabilizer) has been added to certain passes in the field to protect the nitrogen against these losses. Excelis Maxx has NBPT to prevent volatilization, and DCD to prevent denitrification and leaching as well as a Phenolic extract to increase the longevity of the NBPT in the soil.

UAN application date: April 9, 2021
Planting date: April 10, 2021
Date of sampling: June 1, 2021 (53 days post-application)

For this grower, this planting was exceptionally early, and not knowing the weather events to come, it was a perfect opportunity to protect the early nitrogen from potential loss. Between the application date and sampling date, there were a total of 11 rain events, 1 snow event, and 3 dates where the temperature fell below 0°C. With these weather conditions, the main forms of nitrogen loss that would have been seen are denitrification and leaching, which is the reasoning behind the testing for remaining nitrates in the soil.

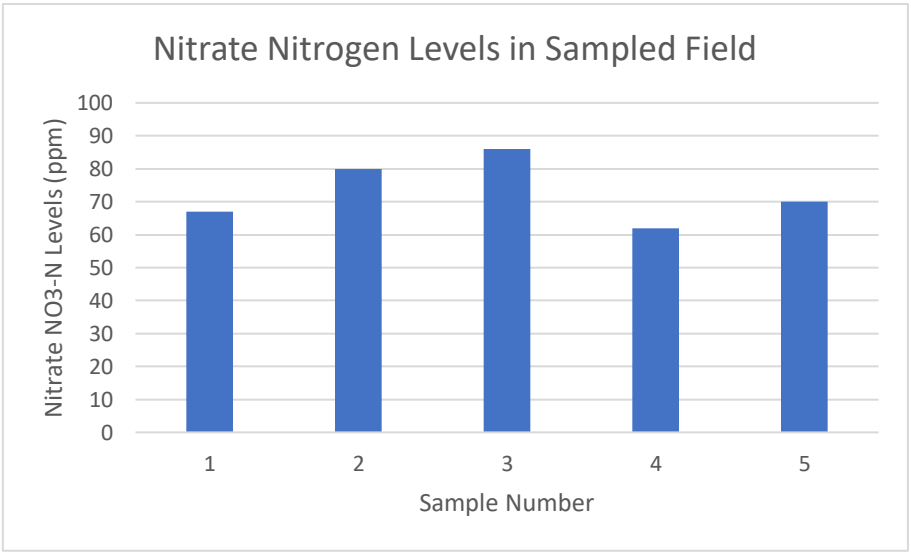
Soil sample test results:

Sample Number	Nitrate NO_3-N (ppm)	Nitrate Nitrogen top 30cm (kg/ha)	Nitrate Nitrogen top 30cm (lbs/ac)
1	67	268	241.2
2	80	320	288
3	86	344	309.6
4	62	248	223.2
5	70	280	252

Emily Robins, June 2021

Corresponding UAN rates to sample numbers:

From the results above, it can be seen that when UAN was applied at the same rate, there is more nitrate nitrogen in the soil. When comparing samples 2 and 3, there is an increase by 7.5%, and an increase by 10% in samples 4 and 5.



We will be continuously working with this grower to record differences in crop development and yield as the season continues.