Weekly Spring Newsletter

April 27, 2018

CaroVail

This Issue

Locations

Auburn

55 Columbus St Auburn, NY 13021

800-492-4929

315-253-7379

Bernardston

472 Northfield Road

Bernardston, MA 01337

413-648-9900

Niverville

831 Route 28 Niverville, NY 12130

800-852-8012

518-784-9166

Oriskany Falls

8341 US State Rt 20

Oriskany Falls, NY 13425

888-991-9292

315-841-3201

Salem

4134 State Rt 22 Salem, NY 12865

800-390-1930

518-854-9446

Tri Valley Crop Center

337 State Hwy 162

Sprakers, NY 12166

800-800-4289

518-673-5336

Miller Spraying

8624 State Route 26

Lowville, NY 13367

315-376-6509

The Importance of Feeding P & K to Soybeans

Phosphorus (P)

If the soil Phosphorus level is low, the impact on yield can be significant. When it comes to Phosphorus, always think "Roots Early" and "Reproduction Later". Getting roots moving early (with "plant ready" P) is very important for crop establishment and, thus, for overall plant health.

Should environmental conditions become stressful this early, out of the gate development is especially important. The demand for Phosphorus is greatest during the Reproductive stages; pod and seed development. Soybeans remove approximately .8 lb (per bushel) of P_2O_5. So, for a 60 bushel/acre soybean crop, approximately 90 lbs of MAP (or 48 lbs of P_2O_5) would be required.

Potassium (K)

Adequate Potassium levels are important to maximize soybean yield potential. The primary roles of Potassium are associated with movement of water, nutrients, and carbohydrates within the plant. All of these are fundamentally important for early growth and production of protein. These functions are vital for plant strength and, thus, warding off disease and insects.

Potassium is also important for a plant's ability to efficiently absorb water and Nitrogen from the soil. The demand for Potassium is greatest during flowering through early pod development and it's for this reason that it's such a critical nutrient.

For more information and discussion about specific fertilizer blend formulations for Soybeans (including Sulfur and Zinc), please contact your local CaroVail location.

Left – Potassium Deficient Soybeans

Right – Phosphorus Deficient Soybeans

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Ammonium Thiosulfate vs. Ammonium Sulfate

There tends to be some confusion when it comes to understanding Ammonium Thiosulfate (ATS) vs. regular Ammonium Sulfate (AS). So, the first question is – what is Ammonium Thiosulfate?

ATS is a highly soluble form of sulfur. Thiosulfate is different from sulfate because it oxidizes in the soil to sulfate over a one to three-week period. This prevents the sulfur from leaching, and therefore, less sulfur loss. When sulfur is applied in the plain sulfate form, it is subject to leaching.

Thiosulfate is a universally proven nitrification inhibitor when blended with UAN. This allows for the N to be kept in the ammonium form for longer, preventing N loss. Using a 10% ATS 90% UAN ratio can be used to slow down the nitrification process. 1 gallon of ATS is nearly 3 lbs of sulfur, while 1 gallon is AS is about .9 lbs of sulfur.

ATS has 26% sulfur, while plain AS has 9% sulfur, therefore, ATS contains much more sulfur than AS. It is recommended to put more total S on crops when the opportunity arises. Using a 26% sulfur source (ATS) over a 9% sulfur source (AS) will allow for more sulfur to be added to the crop. Sulfur is one of the 18 essential nutrients that are needed for plants to complete their life cycles, and one of the 9 macronutrients. It is essential for regulating photosynthesis and nitrogen fixation, and sulfur deficient plants will grow more slowly and have delayed maturity. See the photo below from Cornell University that shows the amount of estimated sulfur removal from NYS field crops.

Table 1: Sulfur removal estimates for New York field crops.

Crop	S removal
Corn silage	0.693 lbs S/ton of silage (35% DM)
Shell corn*	0.048 lbs S/bu of grain (85% DM)
Ear corn*	0.057 lbs S/bu of grain (85% DM)
Alfalfa hay	4.88 lbs S/ton of hay (90% DM)
Alfalfa silage	1.72 lbs S/ton of silage (35%DM)
Grass hay	3.11 lbs S/ton of hay (90% DM)
Grass haylage	1.44 lbs S/ton of silage (35% DM)
Soybeans*	0.16 lbs S/bu of soybean (87% DM)

*Assuming a test weight of 56 lbs/bu for shelled corn, 68 lbs/bu for ear corn, and 60 lbs/bu for soybeans.

Weekly Weather Report

	Approx. Weekly Rainfall (in)	Avg. Expected High Temp Next Week (F)	Avg. Expected Low Temp Next Week (F)	GDD (Base 50) since Jan 1	GDD (Base 50) since Mar 1	GDD (Base 50) since Apr 1	GDD (Base 50) since May 1
Auburn	2.4	61	45	15.8	10.3	10.3	-
Bernardston	.49	66	46	29.5	18.3	18.3	-
Lowville	~6.03	53	41	12.9	10.3	10.3	
Niverville	.9	64	47	27.9	10.9	10.9	-
Oriskany Falls	3.42	58	43	24.7	12.5	12.5	-
Salem	1.1	63	46	23.7	11.5	11.5	-
TVCC	1.09	60	45	20.1	14.4	14.4	-

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Spring 2018

While we have finally had a few warm Spring days, the United States corn planting is stagnant at the 5% plant mark. Texas and North Carolina have more than half of their crop planted, but the rest of the country is falling behind the national average of 14%. No two seasons, at least in a row, are the same. With the snow having just melted in the Northeast, the rainfall forecast, and the cooler air temperatures, the soil temperatures are remaining low. We measured 42.5F this morning in Central New York.

Keep a close eye on winter grain crops as they begin to green up and show progress. It is important to watch for weed and disease pressure – as we have already seen some Powdery Mildew and Snow Mold this year on small grains. Quackgrass, winter annuals, cover crops, and potential no-till ground should be evaluated for burndown applications prior to annual crop plantings.

Measuring soil temperatures to 4” gives a better picture of the growing medium conditions. Although this is beyond the desired planting depth of between 1.75 – 2.5 inches, nutrients become more available as the soil warms and mineralization and soil microbial activity accelerates.

With planters hitting the fields, remember soil to seed contact and good seed bed are both critically important in establishing all crops. With all types of planting, from full-till to no-till, the soil needs to provide an optimum growing environment. Soil temperature, soil moisture, and the placement and availability of soil nutrients will impact outcomes. Soil temperature of 50F is where seed germination will occur. The root (radicle) and shoot (coleoptile) will begin to emerge. The seed, however, will begin to absorb moisture at temperatures lower than 50F up to 30% of its weight. Left too long in this condition will result in seed root rot and poor stands. Potentially week root systems will also result.

This may be getting repetitious, but keep the 4Rs of Nutrient Stewardship in mind when making crop nutrient decisions. Consider the **Right Source** of nutrients to ensure a balanced supply of essential nutrients. Consider all sources in plant available forms that suit individual soil properties. Considering the **Right Rate**; assessing crop varieties, realistic yield goals, soil supply (soil test), and plant demands is essential for choosing the correct rate. Consider the **Right Time**; make sure the application and nutrient selections match the dynamic of crop uptake, soil supply, nutrient loss risks, and field operation logistics. Lastly, make sure they are in the **Right Place** as proper placement of nutrients will address soil and root dynamics, root activity, growth stages, nutrient movement in the soil, and specific crop needs at various plant development periods.

Remember, planting season draws into long hours. **Stay Safe and Alert! Take a break!**

Two Inch Soil Temperature Map

Found at http://newa.cornell.edu/index.php?page=soil-temperature-map