

“Uff Da” That’s a Lot of Potash!

Can You Change %K on the Base Saturation?

This winter we have been getting questions from farmers about base saturation and cation ratios in the soil. The farmers had attended meetings where they were told that a soil must have a certain %K, (4-8%) on the base saturation to achieve high yields. At some of these meetings, farmers were told they needed to apply high rates of potassium fertilizer to their soil in order increase the %K to 4-8% of the base saturation.

With all research in the past 50 years showing that the Base Saturation and Cation Ratio concepts are myths and do not increase yields, some people still hang onto to this bad research from the 50’s. To help farmers see the silliness of the base saturation concept, we did a simple project to show just “one” of the flaws in this failed concept. In this demonstration project we had three locations in ND, MN and MB where we applied rates of potassium fertilizer from 50 to 1000 lb/a K_2O (1666 lb/a potash material).

We called this project the “Uff Da” project because my Norwegian grandfather, who farmed in southern Minnesota 60 years ago, would have looked at this high rate of fertilizer and said “Uff Da” that’s a lot of potash! In this project the potash was applied and tilled into the soil before seeding and we collected soil samples after harvest. The figures show how the K ppm in the soil increased greatly as the rate of potassium increased from 50 lb/a to 1000 lb/a K_2O . (The K soil test worked fine.) The other figures show how the %K, calculated for the base saturation increased only a little, even when 1000 lb/a K_2O was applied! These small increases in the %K on the base saturation were not nearly enough to get to the magical 4-8 %K proposed by believers in base saturation. (I guess we should have had applied more than 1000 lb/a K_2O - Ha Ha!).

This simple demonstration project, shows farmer some basic facts:

1. Increasing the %K on the base saturation of a routine soil test requires extremely high rates of potash fertilizer (1,000 lb/a was not enough to get the % K to 4%).
2. Farmers have way too much common sense to think that more than 1000 lb/a K_2O is needed to get high crop yields.
3. Soils with a K soil test level over 160 ppm, generally supply plenty of potassium to achieve high yields (use tissue test to confirm sufficient K in plant tissue)
4. Farmers should not worry about the %K in their soil, they should be concerned about the K ppm soil test level. If farmers are wondering about the K status of their crop, they can use a tissue test to be sure it is sufficient.
5. There are lots of good reasons to apply potassium fertilizer, but %Base Saturation and Cation ratios are “NOT” good reasons to apply more potash! (time to get out of the 50’s)