



Nitrogen Recommendations for Michigan Sugarbeets

Nitrogen is the most important nutrient to impact yield and quality of sugarbeets.

Management of nitrogen is one of the most important management practices in sugarbeet production. Over applications of nitrogen will result in low quality beets by lowering sugar content and increasing impurities. Not applying enough nitrogen will reduce tonnage and recoverable white sugar per acre. Optimum recommended rates will vary depending on both the amount of residue and type of previous crop. If high soil organic matter exists (> 3%) or manure has been applied nitrogen rates will need to be reduced. A soil nitrate test and/or manure nitrogen test would be recommended to predict nitrogen availability and recommendations.

Nitrogen research conducted by Michigan State University Extension and Michigan Sugar Company has produced some general recommendations that growers can follow to optimize yield and quality. The highest rates of nitrogen are generally used when following high residue crops such as corn or wheat with no legume cover crop. Residues in these crops can actually tie up nitrogen and leave it unavailable until residue is broken down. Nitrogen application rates of 130-160 pounds per acre rates generally are optimum range.

When following low residue legume crops such as dry beans or soybeans, total nitrogen rates can be reduced. Generally nitrogen rates of 90-130 pounds per acre work well. Sugarbeets planted following a wheat/clover plow down can further reduce nitrogen rates. Clover is a legume that can supply some 40 to 60 pounds of additional nitrogen and is excellent in adding organic matter along with improving soil health. Rates of 80-100 pounds nitrogen should be adequate if a good stand of clover is plowed down the fall before.

It is very important in high residue situations that a significant portion of nitrogen be applied up front as pre plant, 2 by 2 starters or preferable in combination. Improved early season growth and increased Recoverable Sugar per Acre (RWSA) often occurs with about 40 pounds of Nitrogen is included in the 2 by 2 starter fertilizer band at planting time. Nitrogen applications should be applied so that the majority, if not all of the nitrogen is available early to the plant. If some of the nitrogen is applied by side dress, these applications should be made relatively early as well. Normally, side dress applications should be made by the 4 to 6 leaf stage.

Ideally when we get into September the sugarbeet plant should be running out of soil nitrogen and redistributing nitrogen from the leaves to the roots. It is desirable at harvest time to have the leaves a lighter green or off color for best quality. Sugarbeet fields slated for early harvest or fields with thin stands should have lower nitrogen rates compared to full season good population beets.

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