



Best Management Practices for Corral Acres

Leaving unharvested sugarbeets in the field this fall will present some management concerns for rotational crops in 2017. Questions, such as the best type of tillage method for rapid root degradation, best rotational crops following unharvested beets and the fertility adjustments needed on these crops are on the minds of every Minn-Dak Farmers Cooperative grower. While it is unlikely that production problems should arise for any crop in 2017, the following information may provide answers to many of these common questions and help maximize yield potential of crops planted next spring on fields or portions of fields with 'Corral' sugarbeet acres.

What is the Best Tillage Practice for Unharvested Sugarbeets?

The answer is simple – NONE AT ALL!!! Past tillage practices during PIK programs and other years where Mother Nature prohibited all the beets from being delivered included anything from chisel plows, heavy disks, field cultivators and even vertical tillage units. It is important to keep in mind that each tillage operation costs roughly \$6-9 per acre and has disadvantages. A very common misconception is that a tillage implement will 'chop up, spread out and bury' the unharvested beets. With this theory in mind, it is important to note that you will never get the beets more uniformly distributed across the field than they are right now – evenly spaced apart between and within each planted row. If your intention is to bury the beets to promote rapid degradation, consider that each beet (if left alone) is like an iceberg where over 90% of its mass is be-

low the surface – you'll never achieve as much soil-to-plant contact per individual root with any tillage implement. Since these types of tillage operations leave a lot of beets on the soil surface, not only do they fail to deteriorate over the winter, if spring flooding occurs you are sure to find them plugging up ditches and culverts.

Leave the Tops On or Take Them Off?

My recommendation would be to take the tops off. The beet tops act as an insulation blanket for the unharvested roots, removal of this thermal barrier will expose the beets to more freeze/thaw cycles than they would experience with the tops intact thereby speeding up the degradation cycle. Running the defoliator (or a flail-shredder) over the unharvested beets will also help the beet tops deteriorate leaving less foliage material come spring and will aid in the release of nitrogen for the subsequent crop(s). This released nitrogen will be available very early in the spring of 2017.

Will Leaving Beets in the Field Screw Up My Fertility Program?

The short answer is no, but the area(s) in question will definitely be impacted by the unharvested beets - You'll have to determine if abandoned acreage is large enough to justify separate management practices for next year's crop. Keep in mind that fall 2016 soil testing will not give an accurate index of nutrient availability come spring 2017 in area where beets were abandoned. Consider the following (next page):

Nitrogen - Research has shown that for each ton of beets with yellow tops that is left unharvested, about 5-6 lbs/a of soil nitrogen will be tied up. This ratio is a little less for beets with green tops, but it still exists. A good rule of thumb is that for each ton of roots with green tops left unharvested, roughly 2 lbs/a of soil nitrogen will be tied up. Considering the record 30+ ton/a yields of 2016, more than 60 lbs/a of nitrogen could be tied up going into next spring. With this in mind, it will be best to apply your nitrogen fertilizer as close to planting next spring to help reduce immobilization.

Phosphorus – It is advisable to utilize past phosphorus soil test data on unharvested beet acres to fertilize fields for 2017. Research has shown that banded applications of phosphorus in the spring will be most effective following unharvested beets.

Potassium - No additional potassium fertilizer should be needed – just follow your normal soil test

Sulfur – It's pretty unlikely, but a sulfur deficiency might occur early in the spring. If symptoms start to appear don't worry, they'll be very short-lived as crops roots tap into subsoil sulfur supplies.

What Crop Should I Consider After Corral Acres...

With the above fertility considerations in mind, here are some rotational crops to contemplate for the 2017 season:



SOYBEANS are the ideal crop choice as they have no nitrogen management concerns. You'll need to establish a good stand to maximize yield, which might be difficult in certain areas. Consider increasing your seeding rate by 10-12%.



SMALL GRAINS require almost all of their nitrogen early in the season. In order to offset the nitrogen immobilized by the unharvest roots, an additional 25 to 30 lbs/a of extra nitrogen will be required to maintain high yields. Small grains also offer a little less risk of yield reduction in a dry year compared to longer season crops.



SUNFLOWERS are a deep-rooted crop that will be less effected by nitrogen immobilization since they are planted later. However, they may require an extra 30-40 lbs of nitrogen per acre to maximize yield.



CORN can have significant yield reductions due to 'corn following sugarbeet syndrome,' however this can be avoided by selecting a 'fallow syndrome/purple corn' tolerant hybrid. You must establish a good stand and should consider increasing your plant population by 10% to do so. Nitrogen & phosphorus management is critical to maximize revenue per acre. As mentioned above, the high amount of organic matter will definitely cause some of the available nitrogen to be immobilized. It is recommended that you apply 30-50 lb/a extra nitrogen to achieve your targeted yield goals. Phosphorus should be applied based on your soil test results. Starter fertilizers should be utilized in either an in-furrow or 2x2 application with phosphorus and zinc chelate using the following table as a guide:

Soil Test Level for P or Zn	Rate of 10-34-0 (gal/a)	Amount of N-P-K Applied (lb/a)	Rate of Zinc Chelate (qt/a)
Low	10	11-39-0	1-2
Medium	7	8-27-0	1
High	5	6-19-0	1