YIELD MONITORS

AND HOW WE USE THEM

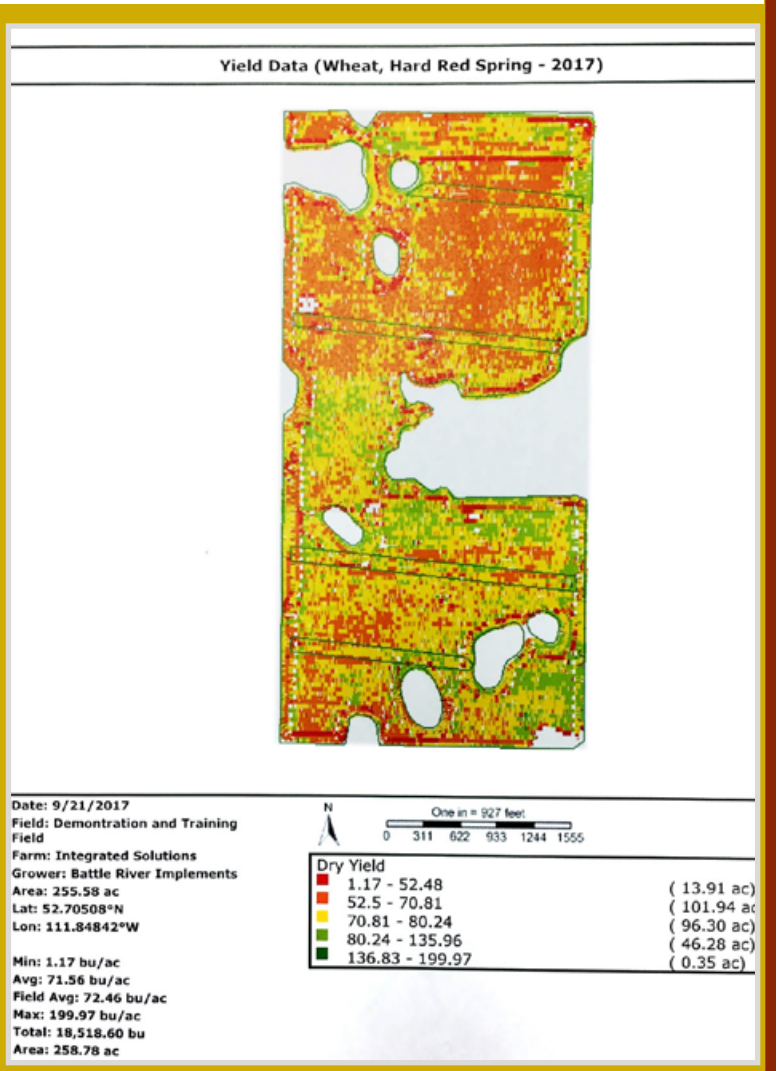
BATTLE RIVER IMPLEMENTS

AGRONOMY UPDATE
October 2017

Most of the combines in our fields today come equipped with yield monitors. But how many of us really use them? Are we downloading the data to see what it is telling us? And if we are downloading the information, do we trust what we are seeing? Is your yield monitor calibrated and giving you accurate information? Hopefully, the answer to all of these questions is "yes" as there is a lot of information that can be gathered from a properly calibrated yield monitor.

Because the monitor generates georeferenced yield data, we can learn a lot about the impact of soil variations and moisture on how different parts of the field produce. Trends in yield can be used to give you a good idea of where the bulk of the production is coming from and what parts of the field should be the focus for management decisions. Or it can be used to create management zones that allow you to apply varying rates of fertilizer and/or seed to either limit expenditures in poor areas or maximize production in the best soil.

Shown right, is a copy of the 2017 raw yield data from the Battle River Implements Training Field that is on Highway #36 south of Killam. A quick look at the map can tell us a couple of things that may impact future management of the field.

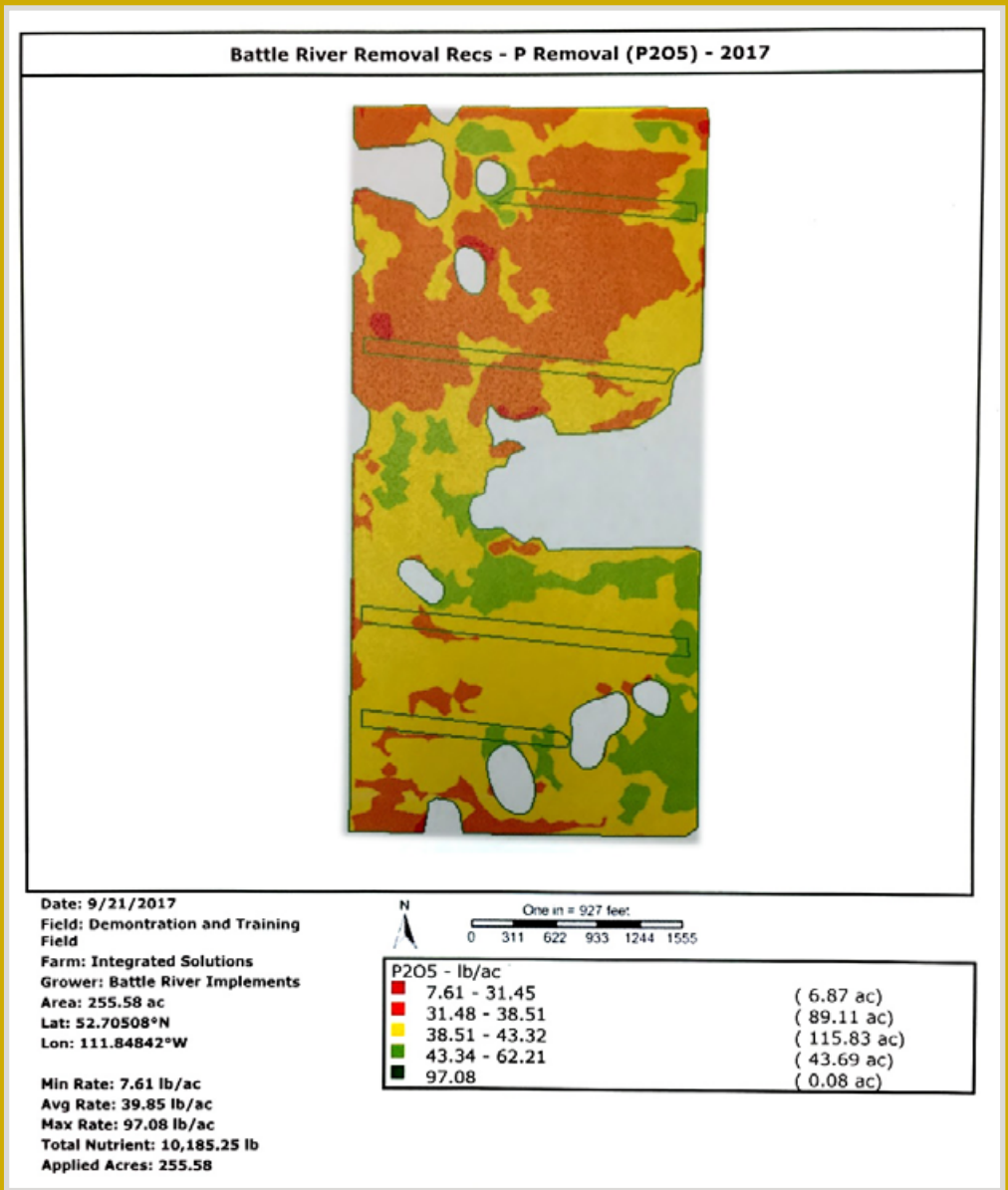


- The yield on the north part of the field is consistently lower than on the south part – and there is a distinct dividing line. I don't know the long term history on this field, but such a dividing line is possibly the result of different soil types in the field, or more likely the result of the land being farmed as two separate fields in the past. Past management practices leaves their marks on a field that can sometimes be seen for decades.

- Operators and/or terrain often impact the quality of the yield data being gathered. If you look at the map you can see several "red bars" on headlands and around some interior boundaries. By default the yield monitor interprets the grain flow based on the header width entered into the monitor setup. Cleaning up around a bush, combining less than a full header width of crop, or travelling across previously harvested parts of the field while recording will all create a false reading on the yield in those places. Avoiding these things when possible will give a more accurate representation of what happened in the field.

So what can we do with the information on this map? Well for starters, in this case we have been cropping this field for two seasons and in both years we have seen a similar yield pattern. The yield in the north end of the field was significantly lower than in the south and the crop in the south part has been more prone to lodging. So the first management decision that comes out of this is that the 2 halves of the field will be soil tested separately this fall. It is likely that the same blend will not optimize production across the whole field, so a soil test will help determine if we need to do separate blends for the field or if one blend can be used, but at different rates. If we can use the same blend, the yield map above becomes the basis to create simple management zones so the rate change happens automatically as you cross from the north to the south side of the field.

Another thing I like to use yield data for is to check on nutrient removal rates. How much N, P, K and S are you removing annually and does your fertility program adequately replace what is being removed from the field with the seed and/or straw? The yield monitor allows to you georeference this removal, as in the map on P removal shown below, or you can use the average yield across the field to see what the long term trends are in nutrient removal.



YEAR	CROP	YIELD (bu/ac)	N REMOVED	P REMOVED	K REMOVED	S REMOVED
2016	HRS Wheat	69.20	98.26	38.06	31.14	6.92
2017	HRS Wheat	72.46	102.89	39.85	32.61	7.25

A look at the yields from the last 2 years shows us the following nutrient removal. (See Above)

The blend used in 2016 was 50-35-0-5 and the blend used in 2017 was 80-35-0-10. The nutrient of most interest in this scenario is the P2O5 level, as it the most limiting macronutrient according to field soil testing. As you can see the fertilizer blend lines up pretty well with the amount being removed by wheat in the last two years. As we move into our long term plan of a more balanced rotation that includes peas and canola, the demands on P will most likely rise. The goal is to put the field into a rotation that includes wheat/canola/cereal/peas. A calibrated yield monitor gives us a tool to monitor nutrient demands through the rotation and determine how much is removed throughout a cropping cycle. By getting a handle on removal through an entire rotation, we can track long term trends and possibly make small adjustments in the fertility plan now that may eliminate the need for more drastic and expensive changes down the road. For example, after reviewing yield data on one farm, the decision was made to increase phosphate in all blends by 3 lbs per acre across the farm. This small adjustment now does not make a big impact on present input costs, but prevents phosphate deficiencies from becoming an expensive production bottleneck about 10 years down the road.

These are just a couple of examples of how yield maps can help in making management decisions. There are many others as well, but this will give you the idea. The point I wanted to make is that an accurate yield map can be a real aid in maximizing returns on a field both in the short term and in the long run, so taking the time to calibrate your yield monitor and harvesting with an eye to minimizing false readings can be well worth the time and effort. It will pay dividends in more ways than you may think.

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