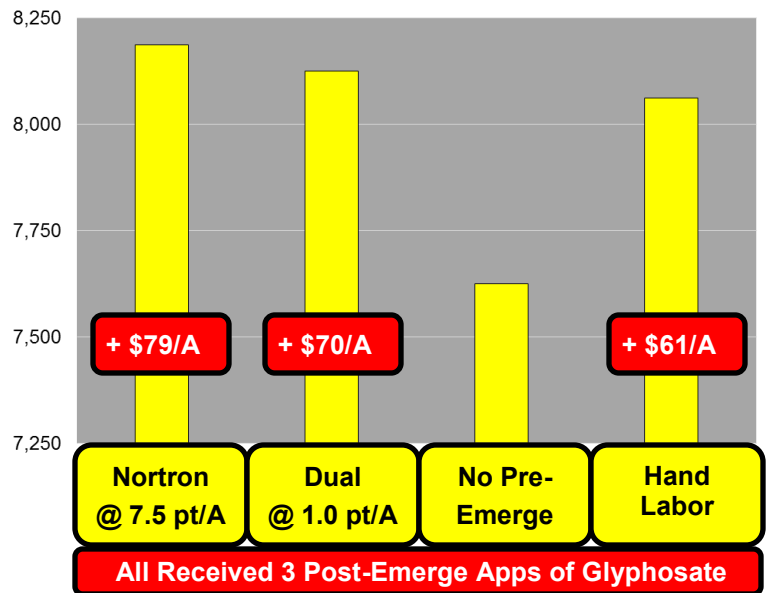




Pre-Emerge Herbicides for 2014...

Within the Southern Red River Valley, resistance to many common herbicide compounds (such as atrazine and ALS inhibitors) has been quietly developing over the past two decades and unfortunately, so has the resistance to glyphosate. To date, of the 21 different weed species in the world that are resistant to glyphosate (10 grass species and 11 broad leaves), four of them now call the Minn-Dak growing area “home” - Common ragweed, Giant ragweed, Waterhemp and Kochia. Make no mistake about it, weed resistance is a “growing” issue for everyone, and one of the most effective ways to head off resistance in this year’s sugarbeet fields is the utilization of a pre-emerge herbicide.

The following data was generated by Dr. Jeff Stachler during the 2012 growing season (glyphosate-resistant waterhemp made up a large percentage of the weed population present in this particular location). The chart to the right represents the recoverable sugar per acre that can be achieved in a glyphosate-only spray program with and without the utilization of a pre-emerge herbicide included in the spray portfolio. Using our current beet payment of \$0.14/lb., the financial returns increased by \$79 and \$70 per acre by using Nortron and Dual Magnum, respectively. It is noteworthy to mention that the hand-weeded check is slightly lower than both Dual Magnum and Nortron – this is presumably due to the weed competition that occurred prior to the hand labor running through the plots.



Over the last few seasons, if you have had post-emerge applications of glyphosate fail to kill some of the weeds on your farm, you may be running out of options for a rescue-type application more quickly than you realize. While adding tank-mix partners to glyphosate is a proven and effective strategy, one of the key factors to stop the spread of resistant weeds is being proactive rather than reactive – and in the case of case of pre-emerge herbicides, you are doing just that - killing the weeds before they emerge...

Herbicide	Pre-Emerge Rate	Est. Cost	Always Read & Follow Label Instructions
Nortron <i>(or generic equivalent)</i>	6.0 - 7.5 pt/A Broadcast 3.0 - 3.75 pt/A in 11" Band	\$45 - \$60/A \$22.50 - \$26.25/A	<ul style="list-style-type: none"> Severely stunts and/or eliminates cover crop
Nortron + Dual	2 pt/A Nortron + 0.5 pt/A Dual	\$22.50/A	<ul style="list-style-type: none"> Indemnification Label Required Before Use Safe for use with cover crops
Dual Magnum <i>(or generic equivalent)</i>	1.0 - 1.67 pt/A Broadcast	\$15 - \$25/A	<ul style="list-style-type: none"> Indemnification Label Required Before Use Rate dependent upon soil organic matter Not all generics are labeled for pre-emerge use

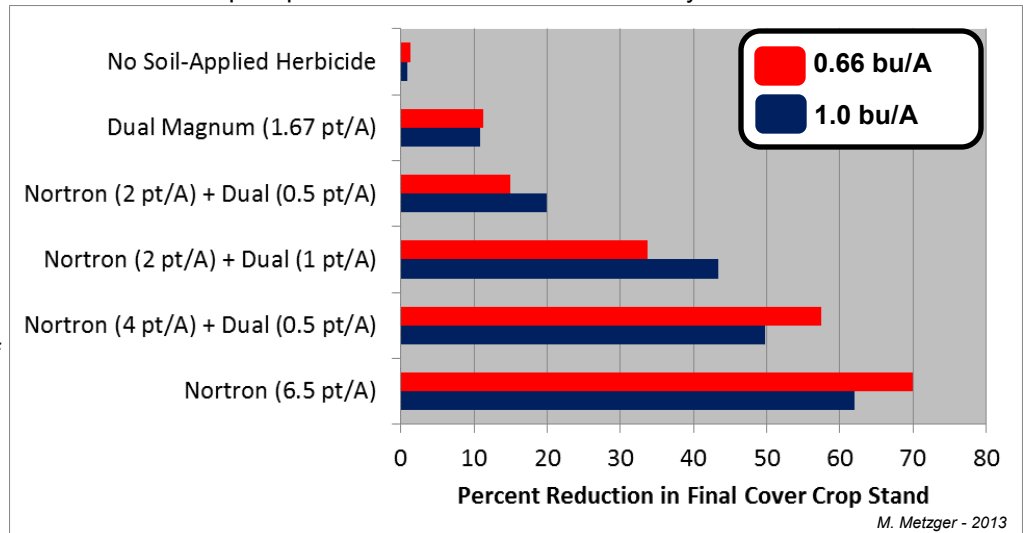
Using Pre-Emerge Herbicides with a Cover Crop...

A study that was conducted at Minn-Dak Farmers Cooperative this past season took a look at the use of pre-emerge herbicides used in conjunction with a cover crop. Although several similar experiments have been set up by universities over the past few seasons, the data generated has been based on the evaluation of both wheat and oats, neither of which are as used as much as Minn-Dak's main cover crop, barley.

Our study was set up so that different rates of barley cover crop (ranging from 0.33 bu/A to 1.33 bu/A) were subjected to various rates of pre-emerge herbicides. To get the "best bang for our buck," planting of the experiment was delayed until the weather forecast predicted a favorable chance for precipitation. The idea behind this delay was to have all of the soil-

applied activated BEFORE the barley emerged, thus giving us a much more accurate measurement of the suppression to the over crop caused by the herbicides – think of it as a worst case scenario...

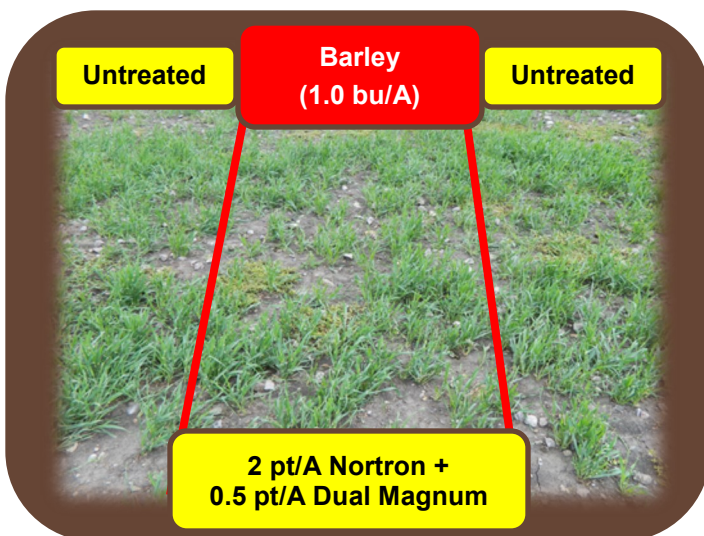
On the eve of the rain event, the barley was broadcasted at each of the selected rates, was lightly incorporated with a drag and had the herbicides applied at their respective rates (see the graph to



the right). The forecast held true and 0.42" of rain fell the next morning, activating all of the soil-herbicides.

The barley was allowed to grow until it reached roughly 4-5" in height (the same stage where a grower would normally spray it out) and was visually evaluated for the percent reduction in stand final. To keep the graph from getting too "busy", the chart only highlights two of the four rates: 0.66 bu/A (red bars) and 1.0 bu/A (blue bars). These bars represent the percent reduction in final cover crop stand so the lower the bars, the safer the treatment is to the barley...

Take note that Dual Magnum, even at a higher rate, had very little effect on the cover crop whereas Nortron reduced the cover crop stand by greater than 60% at both seeding rates. It is the combination of the two chemistries that proved to be the happy medium. Nortron applied at 2 pt/A in combination with 0.5 pt/A of Dual Magnum only reduced the barley cover crop by 15% and 20% on the 0.66 bu/A and 1.0 bu/A rates, respectively. There was a little more activity between the two tank-mix partners when the Dual Magnum was increased to 1 pt/A since the cover crop was reduced by nearly 34% at the 0.66 bu/A rate and 43% at the 1.0 bu/A seeding rate. In both cases, this is roughly another 20% reduction in the cover crop over the previous rate (2 pt/A Nortron and 0.5 pt/A of Dual Magnum).



This particular combination of 2 pt/A Nortron and 0.5 pt/A of Dual Magnum applied pre-emerge not only proves to be safe on barley cover crop rates as low as 0.66 bu/A, but it also performed VERY well in NDSU's glyphosate-resistant waterhemp trials in both Herman and Moorhead, MN this past season (results in the 2013 Sugarbeet Research and Extension Reports: www.sbreb.org). When activated, this treatment is an effective tool that can be used to help enhance your existing weed control program and/or help to be proactive in preventing glyphosate weed resistance on your own farm. Talk to your Agriculturist about the best-management practices for this treatment and seriously consider its use during the 2014 growing season and beyond.