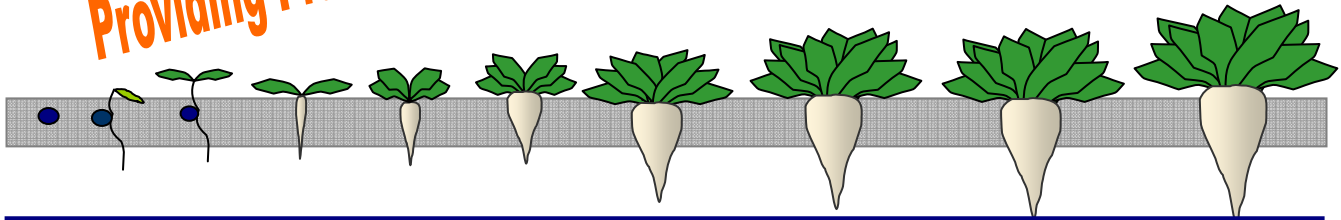


From the Field

Providing Practical, Timely, Useful Crop Production Information

Gregory M. Clark

Michigan Sugar Company, Agronomist



May 29, 2012

Managing Weed Resistance

In the past two decades, evolution of newer herbicides provided wider user choice. Selection of most promising prudent products intensified in use followed by genetically induced herbicide resistant crops. This is how the broad-spectrum herbicides created a great deal of impact on the stakeholders. It has been an established fact that weeds reduce farm yields and farm income drastically. Among all other weed control practices, herbicides alone are easy prompt, most effective and economically acceptable mean; therefore, herbicides are overwhelmingly used by the farmers.

Agriculture world over should have experienced a drastic shortfall in overall crop yields should herbicide availability be limited. Now, when the herbicide use gained a momentum and has been popularized as a formal input tool particularly in mechanized large holdings and commercial farming, the loss of herbicide effectiveness due to selection of herbicide-resistant weed populations has a negative impact on farmers.

Glyphosate became a prominent herbicide in agriculture about 16 years ago when it was discovered that glyphosate resistance genes could be inserted into crops using biotechnology. Now, glyphosate resistant corn, cotton, soybeans, canola and sugarbeets are common. Glyphosate being broad spectrum can kill most or all unwanted weeds while crops remain unharmed. Glyphosate thus became the dominant weed control method on many farms in North America and broad, and quickly replaced other weed control practices. Glyphosate's effectiveness as a broad spectrum herbicide left many growers relying on it frequently and even exclusively in their battle to control weeds. Unfortunately, once a naturally resistant weed appears in a field, it can escape and multiply into a serious problem in the next few years.

North Central Weed Science Society (NCWSS) Herbicide Resistance Committee has developed the following list of strategies for avoiding and managing problems with herbicide resistant weed biotypes. Keep in mind that reliance upon any one strategy is not likely to be effective. The grower must use the following strategies in carefully selected combinations if herbicide resistant weed problems are to be avoided or properly managed.

Bay City Ag Office and General Ag Offices – 2600 S. Euclid Ave., Bay City, MI 48706
Phone: (989) 686-1549 Ext 267 - FAX: (989) 686-3204 – Cell: (989) 891-6785

Email: greg.clark@michigansugar.com



1. Use herbicides only when necessary. Where available, herbicide applications should be based on economic thresholds.
2. Rotate herbicides (sites of action). Do not make more than two consecutive applications of herbicides with the same site of action to the same field unless other effective control practices are also included in the management system.
3. Apply herbicides in tank-mixed, prepackaged, or sequential mixtures that include multiple sites of action. Both herbicides, however, must have substantial activity against potentially resistant weeds for this strategy to be effective.
4. Rotate crops, particularly those with different life cycles (e.g. winter annuals such as winter wheat, perennials such as alfalfa, and summer annuals such as corn or soybeans). At the same time, remember not to use herbicides with the same site of action in these different crops against the same weed unless other effective control practices are also included in the management system.
5. Planting new herbicide resistant crop varieties should not result in more than two consecutive applications of herbicides with the same site of action against the same weed unless other effective control practices are also included in the management system.
6. Combine, where feasible, mechanical weed control practices such as rotary hoeing and cultivation with herbicide treatments.
7. Scout fields regularly and identify weeds present. Respond quickly to changes in weed populations to restrict spread of weeds that may have been selected for resistance.
8. Clean tillage and harvest equipment before moving from fields infested with resistant weeds to those that are not.

To help manage volunteer crops in certain crop rotations, below are two tables that will list herbicides that will control sugarbeets in soybeans (Table 1) and corn (Table 2). With Roundup Ready sugarbeets still being partial deregulated for 2012, growers will need to scout this year's sugarbeet fields along with the 2011 sugarbeet fields (this only needs to be done twice for the 2011 fields). To control sugarbeets in soybeans and corn fields, refer to the tables below.

Table 1. Herbicides Use in Soybeans to Control Sugarbeets

Herbicides Use in Soybean to Control Sugarbeets					
Herbicide	Rate/A	Rating	REI (hours)	Rainfree (hours)	Comments
Raptor	4 oz	G	4	1	Will not control sugarbeets above the 10-leaf stage
Harmony SG	0.12 oz	F	4	1	Will not control sugarbeets above the 10-leaf stage

Table 2. Herbicides Use in Corn to Control Sugarbeets

Herbicides Use in Corn to Control Sugarbeets					
Herbicide	Rate/A	Rating	REI (hours)	Rainfree (hours)	Comments
2, 4-D Amine	1 pt	G	48	6-8	Will not control sugarbeets above the 10-leaf stage <hr/> Corn: up to 8" tall. 8" to tasseling (use only directed spray)
2,4-D Ester	0.5 pt	G	12	1	Will not control sugarbeets above the 10-leaf stage <hr/> Corn: 4-18" tall. Corn over 8" tall use drop nozzles.
Banvel	0.5 pt	G	24	Not Listed on Label	Will not control sugarbeets above the 10-leaf stage <hr/> From spike to 36 inches tall corn or 15 days before tassel emergence