

You Are Wasting Your Glyphosate

Every year, Western Canadian Farmers spray glyphosate on their farms, and every year, they waste up to half of what they are applying. Glyphosate can be easily inactivated in the field in the spray solution and on the weed surface. Luckily, this inactivation can be easily prevented through the use of water conditioners.

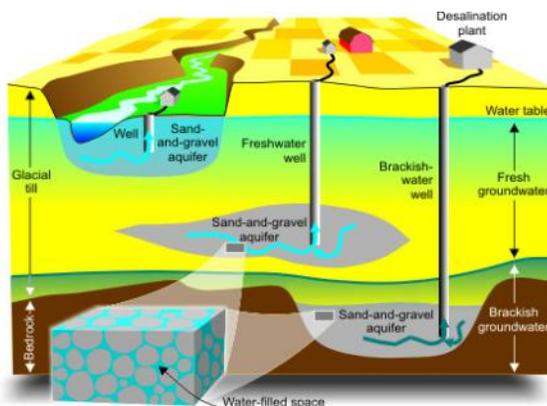
It's no secret that hard water is hard on glyphosate. But have you ever wondered why? Hard water contains high levels of Calcium and Magnesium, both of which are positively charged ions. These are the same ions that are responsible for the scale build up in your coffee pot or household taps.

Because a glyphosate molecule carries a negative charge, the positive Calcium and Magnesium attract the glyphosate and hold onto the molecule. When the molecule is bound to the positive ions, it is unable to reach its final destination in the plant thus reducing the activity of the herbicide. In some cases the glyphosate molecule may still be capable of entering the leaf surface however the bound Calcium and Magnesium ions slow it down drastically. This lengthens the herbicide activity and

decreases the efficacy.

The water in Saskatchewan is also naturally high in Iron. The bedrock formations that influence our groundwater release large amounts of Iron which are capable of tying up more glyphosate in comparison to Calcium and Magne-

base to throw them down and stomp on them. Why won't it just die? The answer is actually quite simple: it's full of iron. When the glyphosate reaches the plant, it is tied up in the Iron molecules and inactivated. Though the product may eventually get through, it takes too long and the weed is able to metabolize and 'grow through' the herbicide. Other weeds like Lamb-quarters and Kochia have Calcium and Magnesium in the leaf surfaces which also bind to the glyphosate. These 'dirty weeds' are tough to kill because they contain the same ions that tie up glyphosate in the spray water.



Graphic from Natural Resources Canada, Jan 14, 2008

sium. Water that is high in Calcium, Magnesium and/or Iron will undoubtedly tie up your glyphosate. In some cases, 'bad water' can inactivate up to 0.5L/ac of your glyphosate which not only decreases your efficacy, it cost you money. But the problems don't stop at your water source!

Some weeds just don't want to die. We've all seen the foot tall dandelions standing proudly weeks after a glyphosate application and we've all ripped them out by the

Fortunately, these issues are easily solved with the use of a water conditioning product. When you eliminate the factors that bind your glyphosate, the glyphosate is able to do it's job.

Understanding the mechanisms that affect your glyphosate performance can ensure that you won't waste your product. For more information, visit the Rack Petroleum website to learn more about factors influencing your glyphosate's performance. *Chelsea Bulani PAg*

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Your Farm**

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**Every Racketeer
needs a good**

HITMAN

Read the full article

On page 3!

the Rack 

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It's 2012...Do You Know Where Your Soil Test Is?

The Agriculture industry is changing. Farms, equipment, capabilities and storage are all getting bigger. With this major growth underway proper farming practices become more important than ever. Local agronomists and chemical reps continue to recommend Chemical group rotation, use disease resistant varieties, diversify your rotation, use fungicide, and the list goes on. Thanks to these strategies record yields are being realized but one question still remains; at what cost?

Many growers would consider soil sampling to be an important component in creating profitable farm plans and ensuring proper nutrient balancing. However, only 24, 430 soil samples were processed in Saskatchewan in 2010. With roughly 37, 000, 000 acres of cropped land in Saskatchewan it is obvious that many farmed acres are not sampled from year to year. So how are growers determining the correct cocktail of nutrients to put down with their crop each year? And are the soil samples that are taken being handled and interpreted correctly?

Often when soil samples are taken growers still opt to use what has worked in the past. Rather than tailoring the new fertilizer blend to the test, they go back to the same blend they have always used in the past. Though average and above average yields may still be obtained, they fail to recognize what's happening in the soil. A lot has changed in agriculture over the past decades, and by not adjusting farming practices to account for this you may be hurting your soil without even realizing it.

The tables shown here display typical crop requirements in 2000 and 2010. (Based on National Research Council data)

As you can see the crop demand for a current rotation is quite different than it was ten years ago. When looking at the difference in crop requirements, the question is raised if growers are compensating for these increased requirements? By not accounting for the changes in cropping requirements the additional nutrients required will be taken from the soil.

This detailed soil sample seen below was taken from a field that has received a balanced fertilizer ration for at least 2 decades. There are quite a few things to note when analyzing this sample.

First, there are 2 phosphorus readings; P1 and P2. P1 is readily available phosphorus extracted using a weak bray, P2 is phosphorus held in soil reserves which is not plant available and requires extraction with strong bray. Not only are the levels of each important but the ratio also helps determine appropriate quantities and forms of phosphate required for this year's crop and for good soil building practices.

Second is the seemingly staggeringly high 248 ppm of Potassium. Although this does appear to be a lot of potassium, you must look to the 'Percent Base Saturation' portion of the test to determine how plant-available the potassium actually is. The ratio of each of the cations K, Mg, H and Na determines the availability of the nutrients to the plant, so although there is

Typical 2000 Crop Requirements					
Crop	Target Yield	Required Actual Nutrients (Lbs Removed)			
		N	P	K	S
Wheat	40	60	23	17	4
SF	n/a	0	0	0	0
Canola	30	58	35	18	10
Totals		118	58	35	14

Typical 2010 Crop Requirements					
Crop	Target Yield	Required Actual Nutrients (Lbs Removed)			
		N	P	K	S
Wheat	60	90	35	26	6
Canola	40	78	47	24	14
Peas	40	94	28	28	6
Totals		262	110	78	26

248 ppm of K, only a very small fraction of it is in a plant available form.

Aside from the immobile macronutrients, micronutrients must also be considered. Depending on the needs of the current crop and micro levels in the soil, Zn, Mn, Fe or Cu may need to be added to your fertilizer ration. Granular micronutrients can be very expensive and often do not correct deficiencies until years after application. For this reason many growers look at seed primers or tissue testing followed by in-crop foliar applications. Because these nutrients are required in such small quantities they are often overlooked but are as equally important as micronutrients if they are present in limiting quantities.

Last, but certainly not least, are the mobile nutrients.

Sometimes too much emphasis is placed on applying copious amounts of nitrogen to a crop in the spring. Many growers will look at Table 1 and be able to say they are honestly on track with their nitrogen rations. Although nitrogen is a very important component of crop requirements it is important to not overfeed the crop and to ensure the feeding of nitrogen follows the crop's demand curve. The same theory applies to sulfur.

It all seems fairly simple, doesn't it? It is really the same basic idea as a bank account: if you withdraw more than you contribute you are going to get an unhappy phone call from your banker and eventually pay for it somewhere down the line. Although you may not get an unhappy phone call from your starving canola field you certainly will pay for it in the long run.

Katie Leis

OM	Phosphorus							CEC	Percent Base Saturation					Nitrate			S	Zn	Mn	Fe	Cu	B
	P ₁	P ₂	K	Mg	Ca	Na	pH		K	Mg	Ca	H	Na	Surface	Total							
	ppm	ppm	ppm	ppm	ppm	ppm			ppm	ppm	ppm	ppm	ppm	ppm	lbs/A	lbs/A						
4	36	80	248	476	2386	13	6.6	17.7	3.6	22.4	67.4	6.3	0.3	8	14	14	16	4.9	10	55	2.3	1.4

2011 Soil Test Results from a farm that has been building its soil for approximately 20 years.

Ultimate Yield Agronomists Ready for 2012



Troy LaForge, Kent Clarke, Mike Ritz, Gaylord Dennis, Chelsea Bulani, Katie Leis, Kyle Imlach (Dion Fowler missing)

Rack Petroleum's Agronomists have been working hard to bring the best agronomy to your field. Winter is planning time at Rack Petroleum and all of the Ultimate Yield Agronomists have been hard at work putting the final touches on

fertility recommendations and UYM plans. "We've been going through soil tests and rotations with customers to try and get them the best results possible" said Katie Leis, Biggar's resident Agronomist; "I want to have the blends, logis-

tics, rotations and maps nailed down by April 1st so we're ready to hit the ground running". Much of the fall was spent taking soil samples to analyze for 2012. With the increasing number of customers requesting soil sampling, it can take a few months to accurately analyze the results and give the best recommendations on all of them.

Aside from crop and fertility planning, the agronomists also set up field scale plots to test out new products and research new methods. Mike Ritz from the Rosetown location said "My favourite part of the UYM

program is planning different plots and tests, using different technologies and products for the year to come. It's exciting to be a part of an ever evolving agricultural world, especially with working with the UYM program, which specializes in showing the max potential and profit in a crop".

Between the planning, scouting and plot work, Rack's agronomists will have lots to take to their growers this year. Their passion about their jobs is what makes them great. Visit one of them today to discuss your 2012 plan or to see what they are researching this year.

Hitman™ Water Conditioner Launched at CPS 2012

Every Racketeer needs a good "Hitman" to get the job done! The same is true with glyphosate; it will benefit when used with a water conditioning agent. That translates into improved weed control.

Metal ions found in water (such as calcium, magnesium and iron) tie up or inactivate glyphosate making it less available to do its job. Hitman, with Racketeer in your spray tank, solves that problem. Hitman helps get more glyphosate into the hard to control weeds. Metal ions are not just found in water, some of the hard to control weeds also have metal ions in the leaf. By binding to ions in tough weeds, and by conditioning the spray water, Hitman delivers in more ways than one. As a matter of fact, Hitman is the most active water conditioning agent on the market; it is so unique, it is patent protected. It is also widely researched at several universities and research institutions under varying field conditions, in several crops and fallow, and in pre-post harvest spray applications.

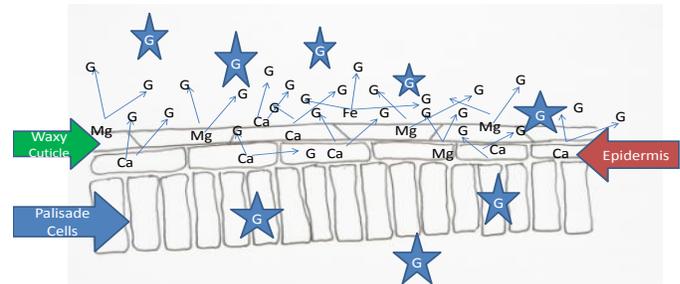
If we were to take a closer look at Hitman's mode of action in the following schematic, metal ions below the leaf surface are tied up allowing more glyphosate to enter the plant. Using more glyphosate, without a water conditioner, will not solve the metal ion problem. Water conditioners also help glyphosate enter the plant when weeds are dust covered. Dust can accumulate on weeds from the sprayer going over the field and on weeds with a leaf shape that naturally retains dust. The same metal ions are present in both dust and water.

To optimize your return on investment for your equipment, your time and your money, use a water conditioner. Hitman is a good investment for your glyphosate program.

Terry Clark, Adjuvants Plus

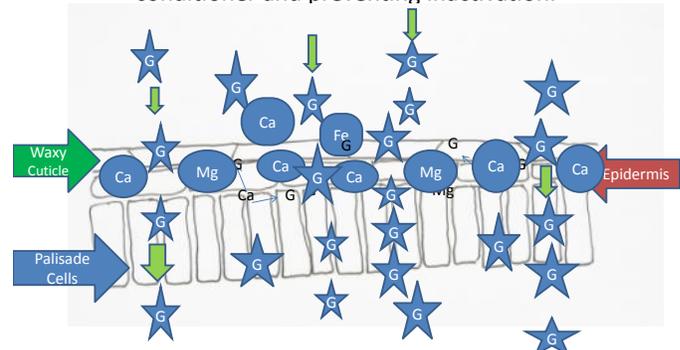


Leaf surface showing bound glyphosate Ca, Mg and Fe interfering with free glyphosate entry into the leaf slowing down activity and reducing performance.



No Water Conditioner

Leaf surface showing Free glyphosate gaining entry into the leaf around metal ions captured by a water conditioner and preventing inactivation.



Water Conditioner Added

Rack Petroleum Ltd.
Box 837
Biggar, Saskatchewan
S0K 0M0

Phone: 1-866-721-1800
Fax: 306-948-5091
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Rack Petroleum Ltd. Is an independently owned and operated agricultural input business that has evolved to excel at supplying farm customers with a range of inputs as well as unsurpassed agricultural advice and recommendations.

Our mission is to transfer technology to our customer while striving for excellence in our product and service offerings safely and profitably, at a price that can be customer attractive and measurable for the value received through operational efficiency and excellence.

Rack is one of the only independent retail families that offers every fertilizer type; anhydrous, dry, and liquid products. Rack also works closely with farm customers to offer full service 24/7 fuel delivery priced on the open market. The company has shown tremendous growth as a result of its employee commitment to work hand in hand with growers to provide daily solutions in every aspect of farm production.

The company prides itself in being able to assist the customer in determining the solution to their unique situation, and deliver the required product or service to the farm or field. The Rack can discuss a problem, create a solution, and supply, deliver & custom apply the inputs to provide the solution, all in a timely manner.

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Welcome the newest members of the Rack Family!

Rack Petroleum is continuing to grow, and would like to welcome 2 new members to the team; Kyle Imlach as Geomatics Technician and Wayne Dolansky as Retail Location Manager in Biggar

Kyle grew up on a farm near Herschel and attended SIAST in Moose Jaw. He has a Geomatics Technology certificate which specializes in mapping and GPS. After writing his thesis on Precision Farming, Kyle obtained a job in the field and has been hooked on it ever since. Having staff that is passionate about their jobs is key at Rack Petroleum and Kyle is a perfect ex-

ample. Kyle will be assisting the agronomists with map making and prescriptions. As well, he will be available to work with customers in setting up and troubleshooting their variable rate operations. The agronomy team is looking forward to working with their own in-house geomatics technician to provide customers with more precise and effective information. Kyle will be based out of the Rosetown location and will be available through any of the local Rack agronomists. For more information on mapping services available at Rack Petroleum, contact your local Rack representative today.

Wayne is also a local, growing up south of Biggar and graduating from high school in Rosetown. He has held several accounting positions in and around Biggar and has started several ventures of his own. His positions as a field adjuster with Saskatchewan Crop Insurance Corporation and owner of a Mobile Seed Cleaning business have given Wayne first-hand experience in the field. As well, Wayne has operated a custom combining business in the Biggar area which is where he had the opportunity to work with Dennis. Custom combining alongside the Rack Petroleum staff gave Wayne the opportunity

to learn more about The Rack and eventually inquire about the Retail Location Manager position. Wayne has known Dennis for many years and also known most of the customer base, which makes him an excellent fit at the Biggar location. He is looking forward to building these relationships over the next few years and is excited to be a part of Agriculture during such a vibrant time. Stop by the retail office in Biggar to chat with Wayne about your input needs for 2012. He'll have the coffee ready!