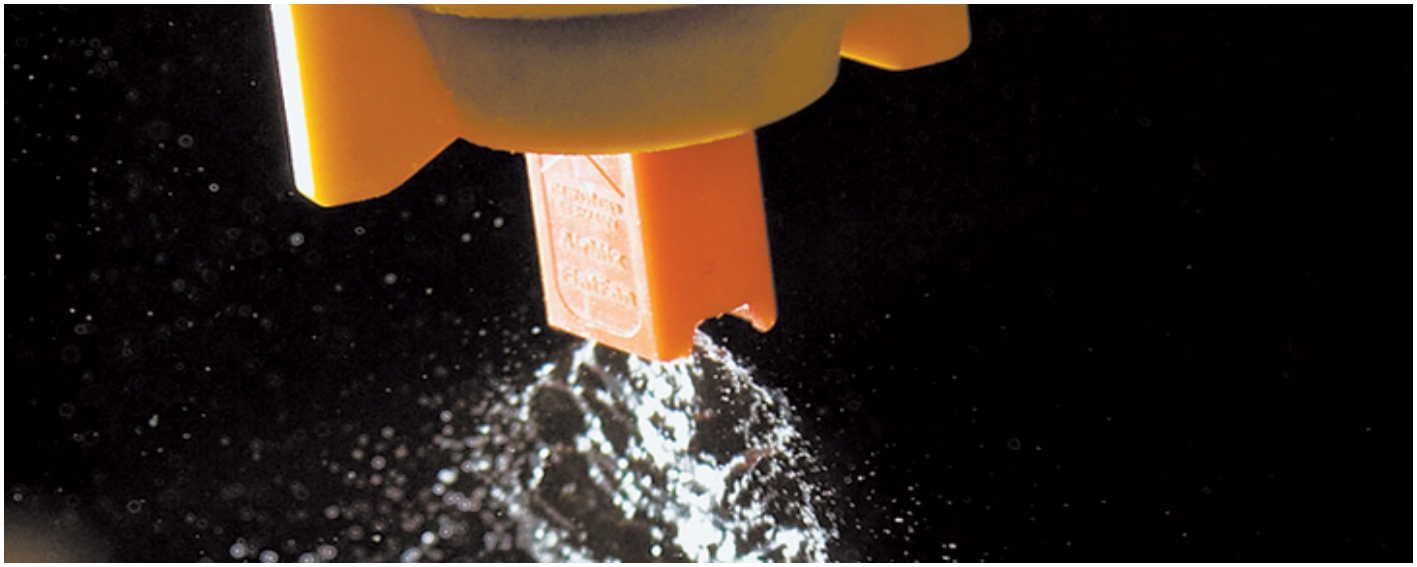
# Better water makes better glyphosate

## Better burn off | High quality water provides a strong foundation for weed control



Farmers need to pay attention to their water when spraying glyphosate, says Chelsea Norheim of Rack Petroleum in Biggar, Sask. "With all spray solutions, 99 percent of what you spray out is water," the agrologist said. "It only makes sense that water should be the first thing you should be looking at in terms of quality. You are using chemicals and chemical reactions vary depending on what's being mixed."

Norheim said most of the groundwater in rural Western Canada is hard, containing calcium, magnesium and iron molecules. Calcium and magnesium each have two positive charges and iron has three. Glyphosate is a negatively charged molecule. They attract each other when mixed in the same solution. As a result, iron will tie up three molecules of glyphosate, while calcium and magnesium can each tie up two. Varying levels of these molecules create characteristics that inactivate glyphosate, and the chemical is unable to bind to the correct pathway in the plant.

Norheim said this can make spraying more expensive and possibly a waste of time. "Essentially, the producer is wasting money and putting chemical into the field that isn't going anywhere or doing its job." She said using a water conditioner can help. The product binds up the magnesium, calcium and iron ions so that glyphosate doesn't get tied up in the water. It can also help transfer the product into the plant faster.

Norheim said the typical response for farmers who realize their weeds are not dying is to spray more glyphosate. Loading up the hard water ions with glyphosate allows the rest of the chemical to go to work. Most producers would have previously been satisfied using half a liter of glyphosate per acre, but she says growers are boosting rates to maintain effectiveness. "I don't think it's necessarily due to the weeds developing resistance. It's due to the fact that you learn a product is missing things because it was being inactivated. So they start adding more and more and now we're up to where most guys will put a litre, litre and a half in a pre-burn down."

It's an antiquated attitude that needs to change, said William Brown, president of AdjuventsPlus, which has developed a water conditioner. "We've been told we just add more glyphosate," he said. "The mindset is such that more glyphosate is better." Brown said the trick is to avoid inactivating the glyphosate. "The fact is you can get inactivation, or your use rate is lower because of that inactivation. The secret is to keep more of what you paid for active without loss."

Norheim said not all weeds are created equal. Not all of them have the same chemical makeup, and some are tougher to control. "This is why some guys increase the amount of glyphosate. The weeds have the same ions in the leaf surface that are tying up the glyphosate in the water." Dandelion is an example of a weed that naturally contains a lot of iron. "So glyphosate hits the surface of the dandelion, is tied up in the iron and the glyphosate doesn't go into the dandelion. "That's why it's tough to kill," Norheim said. A conditioner will help tie up the iron in the water so that the plant's iron can be targeted and glyphosate can go in and do its job.

Agrologists maintain that a quality weed control strategy often begins with water rates that lean to the higher side of the recommended range. This requires water containing low amounts of minerals and soil that might interfere with chemistry.

*Source: Excerprt from Article by William DeKay, Western Producer, May 2, 2013*

---

AQUAKAT® conditions water resulting in minerals in groundwater no longer rendering glyphosate (or other farm chemicals) inactive.

The AquaKat has the effect of increasing the absorption capacity of soil particles and plants (e.g. leaf surfaces), leading to increased efficacy of any application (e.g. penergetic p or k, organic or chemical input) applied by means of water-based application.

When the AquaKat was used with Roundup® Transorb for a pre-seed burnoff application, the rate and effectiveness of the burnoff was increased. When AquaKat-treated water is used in a sprayer, the effects of a burnoff (or desiccation) application are achieved more rapidly and more completely – e.g. the burndown process can be accelerated by 2 to 3 days.