

Letting It All Soak In...

X-CELERATE

In 1968 agriculturist and scientists both were left scratching their heads when the first "herbicide resistant" weeds were wreaking havoc within the farming community. By 1991, 120 weed biotypes were found to be showing a resistance to common herbicides world-wide. For many farmers fighting the most resilient weed biotypes, means multiple treatments with minimal success. A constant battle is waged to simply help keep the weeds under control. Fortunately for farmers and others fighting weed control, Royal Oil Co. may offer a solution and powerful ally in this critical and costly battle.

X-CELERATE is a powerful surfactant, possessing all the key characteristics needed to be highly effective and extremely cost efficient. To fully understand why **X-CELERATE** is proving to be a powerful weed fighting tool, we have to understand how the weed biotypes have built a resistance to traditional kill methods. When liquid herbicides are sprayed and come into contact with the weed, there are a number of factors that work against the herbicides ability to kill. Wind, evaporation and run-off all lead to a limited amount of herbicide actually maintaining contact with its recipient. In fact, authors Victor G. Breeze, Joanna C. Simmons, and Mathew O. Roberts wrote in their study that 30% of a herbicide sprayed evaporates immediately and that 95% of the remaining 70% stays in the leaves, never penetrating deep enough to effectively retard growth of the plant or provide a complete kill. In essence, by exposing the plants to such small doses of herbicides for such an extended period of time, they have built an immunity in the same way human vaccines have been developed.



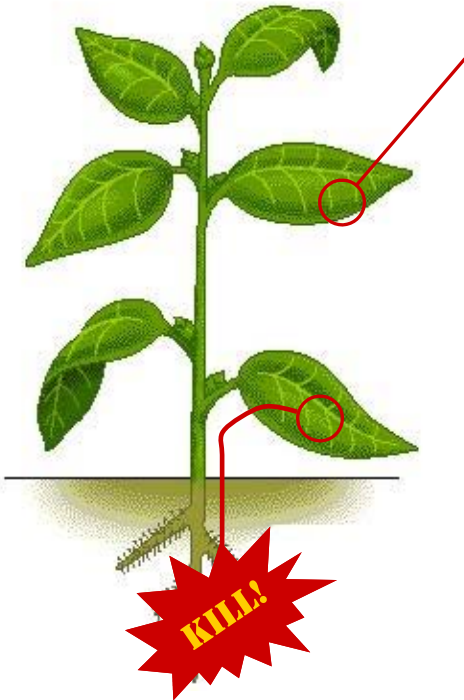
The authors, in their study, go on to say that the boundary layer of the plants has been underestimated in previous studies and is a large contributing factor in the absorption or penetration of herbicides. As you can see in the photo to the left, liquids coming into contact with the surface tension or boundary layer of a plant will bead and resist absorption, making them more susceptible to evaporation, run-off and other factors.

With regulations on what types of chemicals can be used in farming operations, especially where crops are being produced for human consumption, there are limitations. Those combating weeds have very little options, except to treat, re-treat and so on. With the water table at all time lows in many areas and the cost of chemicals and diesel fuel forever on the rise, is there a solution?

For farmers in Kansas battling one of the most "herbicide resistant" weed types, Kochia weed, there seems to be a solution and it is called **X-CELERATE**. Kochia weed or "fire bush" is a cousin to the tumble weed, comes in a variety of sizes and colors and is found throughout the U.S. Many variations have become a real nightmare for corn, soybean and sugar beat farmers; by both resisting herbicides and stripping the soil of vital nutrients.

Understanding how weed biotypes like Kochia build a resistance to herbicides, better helps us see exactly how **X-CELERATE** is so effective. While a 1to 800 ratio may sound too diluted, **X-CELERATE** users are amazed. A quicker and more complete kill of the Kochia weed is something they had long been searching for and it looks like their on the right track. So what is it about **X-CELERATE** that makes the weed kill process so much more successful than simply using the herbicide alone? Not only is **X-CELERATE** an incredibly effective and powerful surfactant, the texture of **X-CELERATE** lends itself to success. The slimy consistency of **X-CELERATE** allows the product to stick or cling to surfaces, giving the powerful surfactant time to break the surface tension or boundary layer, sending more of the product deep into the plant.

UNTREATED ROUNDUP



We know that with traditional herbicides 30% of the product is lost virtually upon contact. Of the remaining 70%, 95% remains in the leaves never penetrating deep enough to be effective against herbicide resistant weeds like Kochia. This means, that from the 128 liquid ounces in a gallon of Roundup, only 4.5oz* ever penetrate deeper than the leaf.

ROUNDUP TREATED with X-CELERATE

X-CELERATE has yielded some of the most impressive testimonials we have ever seen. Improving kill rates and doing so with fewer treatments has always been a benefit of **X-CELERATE**. Now add to its arsenal the ability to impact "herbicide resistant" weeds. By breaking the surface tension, penetrating the leaves and carrying the herbicide deep into the stem of the plant **X-CELERATE** has proven to be invaluable. Even if a modest 20oz were to infiltrate the plants core, that is FOUR TIMES the killing power.

***In the UNTREATED ROUNDUP scenario above, the 4.5oz that penetrate beyond the leaf represents 3.5% of one gallon of product. With generic versions of Roundup priced around \$13.00 per gallon, that is a waste factor of \$12.54!**

Water Hemp, Mare's Tail and Pig Weed could soon be a distant memory for **X-CELERATE'S** customers . At the recommended 1:800 ratio of **X-CELERATE** and herbicide mix, farmers in his area are "burning up" the nutrient sucking, fast spreading weeds! Now...go out and GET EM'!



RAGWEED



MARESTAIL



WATERHEMP



LAMBSQUARTERS

