

X-CELERATE

“The Agricultural Additive”

Registered for use with:

Monsanto XtendiMax® with Vaporgrip®

DuPont™ FeXapan® with Vaporgrip®

BASF Enginia®

Dow Enlist One™ & Enlist Duo® with Colex-D®

Tavium® with Vaporgrip®

Introducing X-CELERATE. X-CELERATE is a specially formulated non-ionic water-based surfactant and wetting agent. It contains a boosted non-foaming additive package that assists in the mixing and spraying of various pesticide products. On the surface X-CELERATE may appear similar to other surfactants. However, X-CELERATE's unique chemistry, design and manufacturing process distinguishes it from the competition, and has catapulted it to be one of the fastest growing products in the agricultural industry.

What makes X-CELERATE special? The effectiveness and power behind X-CELERATE is easily seen once the product has been introduced into a typical spray routine being applied to the crop, pasture and in lawn care maintenance. But the real question is, "How does it outperform other comparable products?" The answer to that is quite simple. X-CELERATE is manufactured in an exclusive process that focuses on time and temperature, ensuring maximum solubility of the core ingredients in a water-soluble base. This allows X-CELERATE to provide excellent mixing and versatility with various agricultural chemicals used in crop production. Many surfactants lack the high level solubility that X-CELERATE provides. X-CELERATE has a superior high level solubility, promoting even distribution of mix components and allowing for better overall performance in all aspects.

What to expect with X-CELERATE. Since the initial launch in 2013 users have experienced exceptional results leading to a massive 95+ percent re-order rate. In many cases, where additional additives (e.g. AMS, crop oils, etc.) are NOT required, they can be replaced with X-CELERATE with better results. Many users have gone back to a single herbicide product with X-CELERATE in weed applications, where previously two or three may have been used. X-CELERATE also results in improved rain proofing, reduced run off and other excellent characteristics that aid in reducing drift and reduced foaming.

We encourage you to take a few minutes and continue through this brochure to learn as much as possible about the value in using a high-quality surfactant, the tolerant weed issue plaguing farmers on a global scale, and more insight into the multitude of benefits from using a premium product like X-CELERATE.

THE BILLION DOLLAR BATTLE

The evolution of profit killing weeds!

For those working in the field of herbicide development, the words tolerant and/or resistant are far too familiar. The knowledge that an organism of any kind can become resistant to a killing agent is not a new revelation.

In fact, insecticide-resistant insects were first recorded as early as 1908, followed by breakthroughs involving plant pathogens and fungicides in 1940. As technological advancements were made in the agricultural industry, we began to see the good with the bad.

Today, the prolonged use of herbicides designed to help control profit-diminishing weed varieties has led to a borderline global epidemic of lost profits and a loss of direction. Similar to the development of vaccinations in modern times, the rise of herbicide-tolerant weeds is due to extended herbicide "treatments" over an extended timetable, with limited amounts of killing agents...
(cont. on page 4)



(top to bottom) Kochia, Lambsquarter and Red Root Pigweed are some of the most detrimental weed biotypes to combat, reducing crop yield by as much as 60% if not eradicated.

...delivered effectively into the root system of the weed. Plants react to this extended exposure by building a resistance, and in essence become immune to the effects of the herbicide. This is the driving force behind increased chemical usage, combinations of chemicals, additional tank additives and skyrocketing costs behind spraying to maintain healthy, productive, and cost-effective fields.

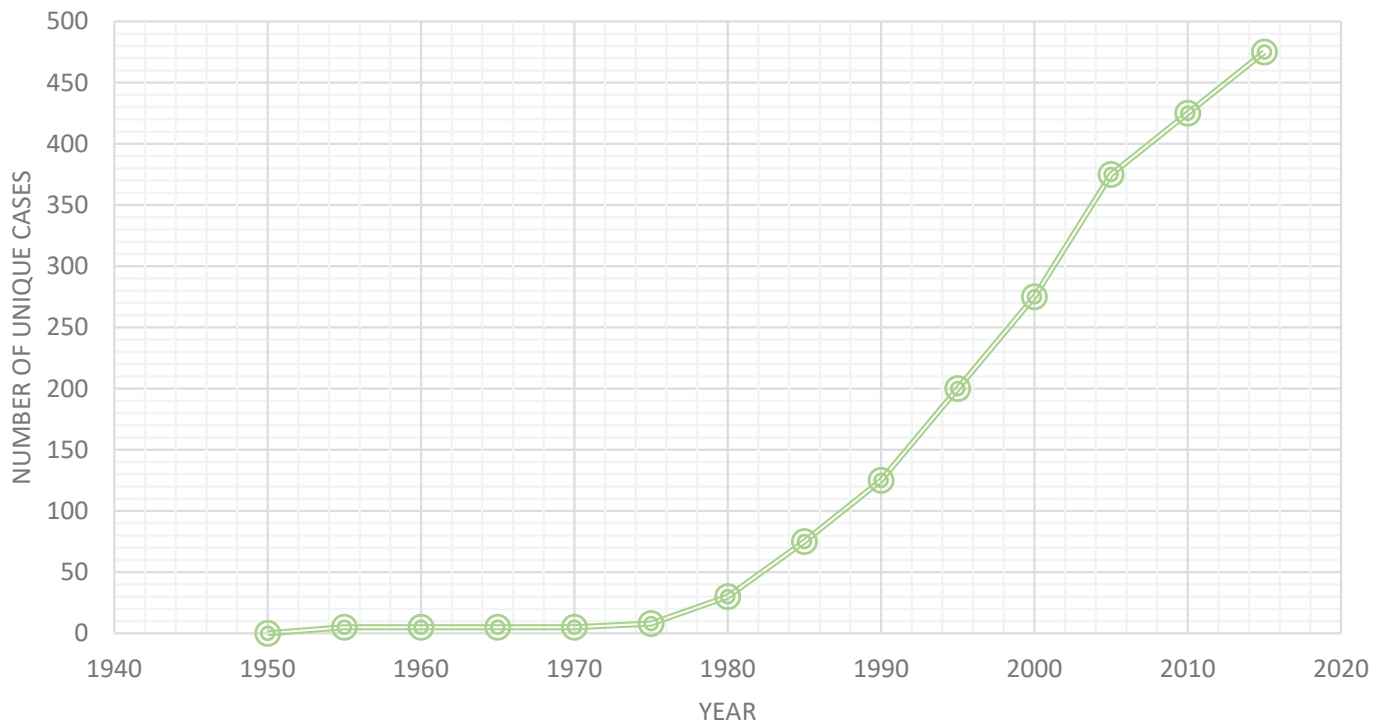
Countless examples of the recognition of the “weed problem” can be seen going back through the last decade. A prime example from 2012:

“On May 10th, scientists will gather in Washington D.C. to address one of the most significant problems facing the American farmer today. The explosive growth in “super weeds” resistant to Monsanto’s flagship weed killer, ‘Roundup’ (i.e. glyphosate) and other chemical herbicides. Glyphosate resistant “super weeds” now infest over 14 million acres of crop land in the United States. Weeds resistant to other herbicides infest millions more, with an alarming rise in weeds immune to multiple herbicides.” (Center for Food Safety, 2012.)

The need for crop producers to find more effective methods for controlling weeds is critical. The issue of “super weeds” has clearly evolved and is rapidly expanding, and crop producers must now be more diligent than ever. Understanding that this financial catastrophe is continuing to grow is the first step toward finding a solution.

The graph displayed on the following page along with the above statement are prime examples of the research done in this battle. The dialogue is ever-changing and evolving in the rapidly expanding BILLION DOLLAR BATTLE. The time is now for a new solution to the herbicide-tolerant weed nightmare.

Chronological Increase in Resistant Weeds Globally



Credit: www.weedscience.org

With this information in mind, those of us in the U.S. can rest assured that we are not alone in this battle. The increase in resistant weeds is a rapidly growing global issue. In fact, X-CELERATE's growth has drawn interest in multiple countries around the world.

“The long growing season and warmer climates in some parts of the South allow noxious weeds to thrive. But “superweeds” that refuse to die when sprayed with herbicides have been taking over crop land across the U.S. farm belt and beyond. Globally, 255 different weeds have developed resistance to 163 different herbicides, but the most concerning are the 43 that have developed resistance to glyphosate (the main chemical in the widely used weed killer Roundup). These weeds compete with crops for space, water, and nutrients in the soil—and they’re beginning to impact many farmers’ yields. For decades, weed control has simply involved replacing one herbicide for another, which results in a phenomenon several weed scientists call the “treadmill of herbicide resistance.” So it’s no wonder that American farmers are looking elsewhere for clues as to how to rethink their approach to managing weeds.”

Virginia Gewin- 10 Year Civil Eats

LETTING IT ALL SOAK IN

Knowing the vastness of the “super weed” problem, where do we begin to combat this costly scourge? The answer to that is a better understanding of how we got here, surface tension, and our contribution towards a solution- with X-CELERATE.

Let’s first understand surface tension and why typical herbicides and other agricultural chemicals do not achieve the performance levels offered by X-CELERATE.



When liquid herbicides are sprayed onto, and come into contact with the weed, there are a number of factors that work against the herbicide’s ability to kill or dramatically impact the plant:

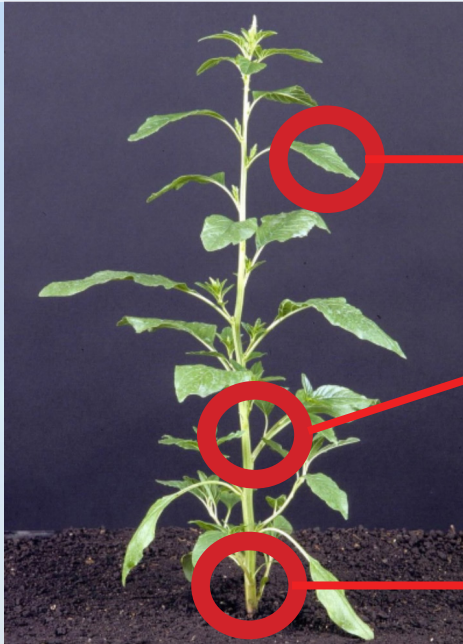
·WIND ·EVAPORATION ·RUN-OFF ·VIBRATION/PHYSICAL CONTACT

All factors above inhibit valuable chemicals from remaining in contact with the plant’s surface. In fact, the numbers are quite eye-opening. In a university study, authors Victor G. Breeze, Joanna C. Simmons, and Matthew O. Roberts concluded the following:

It is estimated that 30% of chemicals sprayed evaporates or is lost immediately. Of the remaining 70%, 95% never penetrates beyond the leaf.

The authors go on to share that the “boundary layer” of plants has been underestimated in previous studies, and is a large contributing factor to the poor absorption and/or penetration of herbicides. The beading of these chemicals (or even water during irrigation) contributes to tolerance from “micro-dosing” and is extremely wasteful in areas of money invested in chemicals, time, and wear on equipment.

Enter X-CELERATE. We previously discussed the time and temperature approach to designing and manufacturing X-CELERATE, which contributes to the excellent solubility and “blendability” of our product with various chemicals- especially herbicides. These are first steps- but it is what X-CELERATE does when it reaches the target that offers the greatest benefit. The carefully crafted formula is designed to break the surface tension, allowing the sprayed mix to sheet across the surface of the target, thus allowing maximum absorption.



Rapid sheeting reduces the amount of spray that is lost at contact, allowing for greater impact and chemical reduction.

Once beyond the leaf, X-CELERATE begins to deliver the chosen herbicide or other agricultural chemical through the infrastructure of the plant.

The greatest impact happens once the root system is reached, either fertilizing in feed applications or poisoning in herbicide applications.

*Where fertilizer use is not prohibited.

Eliminating the amount of spray that is lost initially is a critical part of our performance strategy. Increasing the amount of chemical mix that adheres to the surface of the plant increases impact and reduces the cost of chemicals. As its exceptional absorption continues, X-CELERATE will then work to deliver more product deeper into the plant's network including the leaves, stalk, and root system. This deep penetration allows X-CELERATE to deliver exceptional results. This same rapid sheeting and penetration is what makes X-CELERATE such an excellent rain-proofing product and can lead to the reduction of chemicals used and various products designed to bolster spray mixes.

So WHY should you choose X-CELERATE?

Faster Sheeting: When products mixed with X-CELERATE reach their target and the surface tension of the liquid has been broken, full saturation occurs. This wastes less valuable product and improves overall effectiveness.

Faster Absorption: Quicker and deeper penetration delivers more product into the plant's "network," all the way down to the root system.

Quicker Rain-proofing: Faster sheeting and better absorption prepare the plant and chemical for exposure to rain, reducing the amount of product lost to water runoff.

No Need for Additional De-foamer: X-CELERATE utilizes premium quality no-foam chemistry to improve spray performance and mixing.

Drift Control Aid: When mixed with other chemicals, droplets will typically increase with density, causing them to fall faster and be less susceptible to drift. X-CELERATE offers excellent characteristics that aid in the reduction of drift. *Note that SOME chemical combinations require the use of specific drift control agents.

AMS & Crop Oil: Many farmers and chemical applicators that spray herbicides and other common chemicals utilize AMS to help with water softness and/or increase solubility. In addition, crop oils are often used to help improve adherence or "stickability" to the target surface. Our customers (in applications where AMS or a crop oil are NOT required) have eliminated both and have observed vast improvements in performance as well as reduced costs. In applications where these materials are still utilized, X-CELERATE can also be used to boost desired impact.

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