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Once A Component of Agent Orange, 2,4-D Herbicide Could Spark A Surge in Enlist Crops

by [Maxx Chatsko, The Motley Fool](#) Jan 13th 2014 1:39PM

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Huey helicopters were used to disperse Agent Orange across forests and farms in over 6,500 missions in a nine year period of the Vietnam War. Image source: Wikimedia Commons

The use of Agent Orange, one of the nine Rainbow Herbicides used to destroy forests and farmland during the Vietnam War, is one of the darkest chapters in American history. It wasn't the first time herbicidal warfare had been conducted, but it was the first time such tactics were carried out on an industrial scale. The chemical, supplied by **Monsanto** and **Dow Chemical**, was a mixture of two herbicides: 2,4,5-T and 2,4-D. The former was phased-out of field use more than 30 years ago due to toxicity concerns, while the latter has become the most widely used herbicide on the planet.

The fact that 2,4-D is an important tool in modern agricultural may be a surprise to some, especially given the contentious history of Agent Orange. That may also make a recent recommendation by the U.S. Department of Agriculture to allow Enlist corn and soybean varieties created by Dow AgroSciences, that are resistant to the herbicide, to be marketed in the United States. Considering that 60%-70% of processed foods contain ingredients produced from genetically modified organisms, or GMOs, should you be concerned?

Time to panic?

Not so fast. As stated above, the herbicide 2,4-D is not Agent Orange. Nor was it the component that made the most widely used Rainbow Herbicide highly toxic to humans. It was later discovered that the industrial process used to produce 2,4,5-T -- the other half of Agent Orange -- also produced highly carcinogenic compounds called dioxins.

So, to be clear, there is no link between 2,4-D and cancer. In fact, a 2007 [review](#) by the U.S. Environmental Protection Agency concluded that "the weight of the evidence does not support a conclusion that (2,4-D compounds) are likely human carcinogens." The chemical has been reviewed numerous times by the EPA, top-ranked environmental academic institutions such as Oregon State University, and other third-party organizations. What's the consensus opinion? The relatively mild herbicide poses no cause for concern.

Consumers should also consider that 2,4-D is already widely used not just in industrial agriculture, but also by everyday households. In fact, you've probably held a container of the herbicide by your side and may have even spilled some on your own hands. That's because the herbicide is the active ingredient in weed killers such as Scotts TurfBuilder. That's hardly a product that merits protests and widespread opposition.

Given the facts, consumers should know that the safety of food ingredients will not change if and when Enlist crop varieties are approved in the United States (they will be planted in Canada this year).

Is there good news to the recommendation?

Actually, yes (sort of). The USDA believes that approving Enlist crops would lead to the adoption of less "aggressive tillage strategies", which release quite a bit of greenhouse

gases and can cause water pollution and topsoil erosion, as food writer and author Nathanael Johnson of Grist [pointed out](#).



As with any technology, too much tilling can be a bad thing. Image source: Ian Bailey

While the agency admitted that approval would result in "another two fold to six fold increase" in 2,4-D use by 2020, the eventual approval of Enlist crops will give American farmers another tool in managing the spread of resistant weeds -- a responsibility that, [similar to managing pests](#), falls largely on their shoulders. Simply put, the ability to alternate between herbicides, such as 2,4-D from Dow and glyphosate from Monsanto, from one harvest to another will more effectively mitigate the emergence of resistant weeds when compared to a mono-herbicide approach.

The need for products such as Enlist corn and soybean varieties is also good news for shareholders, as they are expected to be a big product for Dow AgroSciences. The

company has also developed a new formulation of herbicide called Enlist Duo that compliments the crop varieties and is under review by the EPA. Both products need approval before Enlist can be sold commercially. However, considering how well the Roundup Ready crops and Roundup herbicide pair performed for Monsanto and coupled with the widespread use of 2,4-D already, Enlist has the potential to be a tremendous growth catalyst for Dow. Investors may want to taper their expectations, since Dow AgroSciences is just a piece of The Dow Chemical Company, but considering that the company is one of three that produces 2,4-D globally, there's certainly reason for optimism.

Foolish bottom line

Dow AgroSciences isn't out of the woods yet. The USDA and EPA both need to green-light Enlist products after evaluating the risks under the regulatory eye of each respective agency. Nonetheless, years of safe use of the herbicide 2,4-D in industrial agriculture and households should alleviate fears of consumers worried about the chemical's historic (and unfortunate) association with Agent Orange. While there will undoubtedly be -- [and has already been](#) -- fierce opposition to the new biotech crops by anti-GMO groups, investors should expect approval to be followed by a blockbuster launch of Enlist products.

Are biotech crops too controversial for your portfolio?

Complimentary Enlist crops and herbicides won't provide the same growth for Dow as Roundup pairings did for Monsanto, but it should still be a great growth product. However, you may not want to expose your portfolio to such a controversial, albeit critical, industry. Luckily, while opportunities to get wealthy from a single investment don't come around often, they do exist, and our chief technology officer believes he's found one. In this free report, Jeremy Phillips shares the single company that he believes could [transform not only your portfolio, but your entire life](#). To learn the identity of this stock for free and see why Jeremy is putting more than \$100,000 of his own money into it, all you have to do is [click here now](#).

The article [Once A Component of Agent Orange, 2,4-D Herbicide Could Spark A Surge in Enlist Crops](#) originally appeared on Fool.com.

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NORAHG RESPONSE

THE VON STACKELBERG STUDY

Mr Chatsko is CORRECT !

Here is additional information about 2,4-D Herbicide.

In 2012, Dr Katherine von Stackelberg conducted a study to determine whether there was ANY VALIDITY to the suggestion from some EPIDEMIOLOGIC STUDIES that 2,4-D may be associated with an increased risk of Non-Hodgkins Lymphoma (NHL), Hodgkin's Disease, Leukemia, and Soft Tissue Sarcoma.

The combined evidence indicates it is HIGHLY IMPLAUSIBLE that exposure to 2,4-D and/or MCPA are associated with a risk of developing Non-Hodgkins Lymphoma (NHL) or other lymphohematopoietic cancers.

Toxicological studies in rodents show NO EVIDENCE OF CARCINOGENICITY, and regulatory agencies world-wide consider chlorophenoxies like 2,4-D as NOT LIKELY TO BE CARCINOGENIC or UNCLASSIFIABLE AS TO CARCINOGENICITY.

For more information concerning 2,4- HERBICIDE, go to The Pesticide Truths Web-Site ... <http://pesticidetruths.com/toc/24-d/>

WILLIAM H. GATHERCOLE AND NORAH G [http://pesticidetruths.com/
http://wp.me/P1jq40-2rr](http://pesticidetruths.com/http://wp.me/P1jq40-2rr)

The following reports and references will provide more information regarding 2,4-D and cancer.

FORCE OF NATURE -- 2,4-D HERBICIDE -- 2012 02 01 -- UPDATE -- IMPLAUSIBLE CARCINOGENIC OUTCOMES -- VON STACKELBERG STUDY (Reports)

<http://pesticidetruths.com/wp-content/uploads/2011/11/Force-Of-Nature-24-D-Herbicide-2012-02-01-UPDATE-Implausible-Carcinogenic-Outcomes-Von-Stackelberg-Study-pdf-300-dpi.pdf>

<http://pesticidetruths.com/2013/02/28/24-d-herbicide-highly-implausible-carcinogenic-outcomes-with-24-d-the-von-stackelberg-study-2012-02-01/>

REFERENCE -- 2,4-D -- 2012 02 01 -- A SYSTEMATIC REVIEW OF CARCINOGENIC OUTCOMES & POTENTIAL MECHANISMS FROM EXPOSURE -- VON STACKELBERG -- 1

<http://pesticidetruths.com/wp-content/uploads/2011/11/Reference-24-D-2012-02-01-A-Systematic-Review-Of-Carcinogenic-Outcomes-And-Potential-Mechanisms-From-Exposure.pdf>

REFERENCE -- 2,4-D -- 2012 02 01 -- A SYSTEMATIC REVIEW OF CARCINOGENIC OUTCOMES & POTENTIAL MECHANISMS FROM EXPOSURE -- VON STACKELBERG -- 2

<http://pesticidetruths.com/wp-content/uploads/2011/11/Reference-24-D-2012-02-01-A-Systematic-Review-Of-Carcinogenic-Outcomes-Potential-Mechanisms-From-Exposure-Von-Stackelberg-2.pdf>

REFERENCE -- 2,4-D -- 2012 07 11 -- A SYSTEMATIC REVIEW OF CARCINOGENIC OUTCOMES -- THE INDUSTRY TASK FORCE II ON 2,4-D -- VON STACKELBERG

<http://pesticidetruths.com/wp-content/uploads/2011/11/Reference-24-D-2012-07-11-A-Systematic-Review-of-Carcinogenic-Outcomes-The-Industry-Task-Force-II-on-24-D.pdf>

REFERENCE -- 2,4-D -- 2012 07 11 -- A SYSTEMATIC REVIEW OF CARCINOGENIC OUTCOMES -- HARVARD CENTER FOR RISK ANALYSIS -- VON STACKELBERG

<http://pesticidetruths.com/wp-content/uploads/2011/11/Reference-24-D-2012-07-11-A-Systematic-Review-of-Carcinogenic-Outcomes-The-Industry-Task-Force-II-on-24-D.pdf>