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Alternatives to **Glyphosate** in Cotton Production

Agriculture requires the control of insects, plant diseases and weeds with AgChem or AgBio. For the control of insects and diseases farmers have access to a large number of biological products. For the control of weeds only eight biological products exist and none is approved for use on cotton crops.

Chemical products have varying risk profiles in terms of human and environmental safety. In an effort, to reduce this risk industry continues to develop new products that are safer than those of the past.



One of the safer herbicides was **Glyphosate** that was originally developed by Monsanto in 1970. Monsanto had an innovative business strategy. Instead of developing several different products they focussed on a single product and made to sure to have it authorized for as many crops as possible in all countries of the world. Today, **Glyphosate** has been approved for use on thousands of crops in all countries. That meant over 200,000 product approvals – each with a specific commercial value when Monsanto was sold to Bayer for 63 Billion \$US in 2018.

Glyphosate has now moved from being one of the saver products to being one of the most risky in terms of human and environmental health. The product is simply overused and neither Nature nor Humans can cope with this amount. Think to alcohol. A daily glass of wine is not a problem but a daily bottle of gin will eventually kill you.

For use on cotton **Glyphosate** is approved in 49 countries in form of 41 different product mixes to control 377 different weeds. These numbers show the staggering importance of **Glyphosate** for the cotton industry but also the cause of the **Glyphosate** problem.

The problem is not cotton alone. Farmers of all commodities are under pressure as the the public demands that Authorities not only reduce the use of **Glyphosate** but actually ban it. The only way to resolve these problems it to make alternative products available to famers.

In commodities other than cotton, this initiative is led by processors, farmer associations and governments. Processors such as McCain, MacDonald, Ocean Spray, Heinz, and many others ensure that farmers who want to sell their crop to them have access to crop protection products that have lowest risk profiles and are free of non-tariff trade-barriers.



Farmers, processors and traders jointly access government resources that are made available to them to overcome safety and trade obstacles caused by the needs for crop protection products.

The cotton industry has been very silent on the topic, so far. Farmers passively rely on the crop protection products that happen to be available at the local distributor or on the market and then hope for the best. They do not inform processors, traders, the crop protection industry and governments of their crop protection needs.



In this situation, the public debate on **Glyphosate** is a major irritant to farmers who see their livelihood threatened. They have been made to believe that **Glyphosate** is the only or best herbicide for their crops. Telling them to stop using it seems to leave them with no option.

Worldwide, cotton farmers battle 739 species of weeds. 377 of them can be controlled with glyphosate. 362 can NOT be controlled with glyphosate. That is not really a problem because there are another 244 products that do not contain **Glyphosate**. These products control 619 weeds without any **Glyphosate** and might in fact be able to control all 739 weed species.

Ideally cotton farmers would have access to all 285 herbicides that are currently available for cotton worldwide. If they did they could at any time strategically choose the product that is the most adequate based on the weeds to be controlled, on the size of the cotton plants, on their spray equipment, and on other farming operations.

Cotton farmers would not have to worry about using **Glyphosate** less often or in some years not at all.

The way forward is:

- a crop/pest specialist reviews the list of 244 herbicides to take out all products that have been banned in any country (Their residues are trade-irritants in the cotton industry and should therefore not be used.)
- cotton processors and traders select the products without trade-irritants and publish them as the global list of accepted products
- cotton farmers request the authorization of specific products in countries where these products are not approved for use on cotton yet



With each product approval in any of the cotton growing countries trade-irritants will diminish, farming practices will improve and famers no longer have to fear the **Glyphosate** debate.

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