



These logos have become the de facto face of Non-GMO verification and marketing. A full tour of the Non-GMO Project website (www.nongmoproject.org) leaves the strong impression that this third party verification process is indeed legitimate. In this respect, these trademark labels send a message of trust to any consumer wishing to avoid purchasing genetically modified products. Yet by design, these labels are also sending a very powerful visual message to consumers: *The message of harmony between Butterflies and Non-GMO's*. In reality - that being from the butterflies perspective - Non-GMO methods induce the same collateral damage to butterflies and their habitat, as GMO's - if not even more so.

Non-GMO methods have every potential to be just as harmful to butterflies as those farms which utilize GMO seedings. While science has yet to identify and isolate every influence between genetically modified plants and butterflies, there is one component to which research has consistently illuminated as an antagonist to butterflies: Herbicides and Pesticides. This begs many questions, first and foremost being: *What exactly is it about GMO products that consumers are expecting to avoid?*

In the context of the relationship between plants and butterflies, a brief GMO primer is warranted - brief because there is just one component with the potential to have been genetically-modified: **The Seed**

Genetically Modified Seeds (aka GMO's)

Most GM seeds are modified for herbicide resistance. Integral to this engineering is a proprietary aspect. The biotech company's proprietary seed is designed to be exclusively resistant to that same biotech company's proprietary herbicide. The most notable herbicide to which the seed has been engineered to be resistant is Glyphosate, known also by its trade name of Roundup. Biotech seed companies market these GM traits to farmers by promoting two primary advantages. First is that farmers can confidently apply herbicide directly to the crop at various stages of growth without doing harm to the crop itself. The second is the claim that the farmer should consequently recognize diminished applications of herbicide.

Non-Genetically Modified Seeds (aka Non-GMO's)

Unlike the narrow category of proprietary seed noted above, the Non-GMO description is perhaps most aptly described as *every type of seed other than the above*. Keeping this in the context of modern agriculture and butterflies, what Non-GMO most accurately depicts is the typical agribusiness practices used by conventional farmers for the past 70 years - that being the dependence upon synthetic chemicals for fertility, weed and pest control. In this respect, aside from the Non-GMO traits of the seed itself, all other aspects associated with fungicides, pesticides and herbicides are similar, if not identical, to GMO plantings. In fact, if we are to put stock in the biotech claims of herbicide reductions, Non-GMO plantings may very well be subject to higher levels of chemicals antagonistic either directly to butterflies or indirectly by harming the plants which sustain butterflies.

Summarizing What We DO Know

Non-GMO agriculture applies herbicides at the same level, if not more so, than GMO plantings. Butterflies and their primary food source are both harmed by herbicides. Research reveals systemic herbicide residues on a multitude of staple consumer products. The Non-GMO Project verification is completely indifferent to herbicides. Consequently, even with the Non-GMO seal of approval, the same chemical hazard exists for both the butterfly as well as the person consuming Non-GMO products.

Full Circle: What exactly is it about GMO-produced products that consumers are expecting to avoid?

From this organic farmer's perspective, the GMO concern has always been directed first at the biological implications to soil and field organisms. This concern parallels the reasons for farming organically. We KNOW that conventional inputs (fertilizers, herbicides, pesticides) are antagonistic to life. We KNOW that these inputs are detrimental to environment, nutrition and well-being. But there is also a cultural/political aspect which is anathema to some farmers. This aspect recognizes the proprietary corporate control inherent with GMO seeds which effectively - legally - sanctions corporate trespass and prosecution of farmers largely at corporate discretion.

Is there a "Franken" element to GMO plantings which gives reason to believe the actual food product is unsafe? To date, there is no evidence that this is the case. The health and safety concerns that have been documented have implicated the herbicide used with both GMO and Non-GMO plantings. Nor is the supermarket the most likely place to find a "Franken" concern. It is the biologist to whom we must place our stock in assessing this potential. In some respects, a person may not even need a professional assessment. Recognize what a GM seed is: It is an organism which has no precedence in the natural world. It represents the biological integration of otherwise impossible breeding - crossing potentially any/all biological barriers between Kingdom and Species. There are no rules. There are no ethics. The number of potential biological interactions are - for all intents and purposes - infinite. This genie is out of the bottle - forever - blowing the wind, drifting and landing, drifting and landing.

Given the element of earthly time vs infinite evolutionary potential, it is egregiously disingenuous for biotech proponents to claim *no evidence of harm to the environment*. Evolutionary changes are recognizable only over vast amounts of time whereas these biotech anomalies have to date, had just 20 years to wreak potential havoc. Given the direct assault on the soil, it is logical to suggest that the soil food web is most vulnerable to these anomalies. Considering the astronomical population and diversity of this soil food web - much of which has yet to be discovered - we may never know what future revelations were naturally-derived or which were induced by biotech. The effects could be trivial, or, the effects could produce a pathogen capable of overriding the human immune system with no antibiotic capable of stopping it. This is the Faustian bargain we stumbled into amidst the self-serving premises put forth by Monsanto.

But now you ask: Haven't I just made the case for the Non-GMO Project? This depends upon why you are inclined to reach for the package.

If you ONLY seek the removal of GMO's yet are indifferent to the effects of chemicals on your food, butterflies or the environment, then the label works for you.

On the other hand, if you want to help yourself, the environment AND the butterflies - Support Organic Farming. Organic protocol has ALWAYS been Non-GMO. Certified Organic feed is Non-GMO - no herbicides, no pesticides, no fungicides, no antibiotics, no hormones. No chemicals on the soil, your food, or... the butterflies.