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By Ben Paynter

01.21.14 | 7:00 am

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http://www.wired.com/2014/01/new-monsanto-vegetables/
Monsanto’s new veggies are sweeter, crunchier, and more nutritious—with none of the “Frankenfoods” ick factor.  

Nicholas Cope

In a windowless basement room decorated with photographs of farmers clutching freshly harvested vegetables, three polo-shirt-and-slacks-clad Monsanto executives, all men, wait for a special lunch. A server arrives and sets in front of each a caprese-like salad—tomatoes, mozzarella, basil, lettuce—and one of the execs, David Stark, rolls his desk chair forward, raises a fork dramatically, and skewers a leaf. He takes a big, showy bite. The other two men, Robb Fraley and Kenny Avery, also tuck in. The room fills with loud, intent, wet chewing sounds.

Eventually, Stark looks up. “Nice crisp texture, which people like, and a pretty good taste,” he says.

“It’s probably better than what I get out of Schnucks,” Fraley responds. He’s talking about a grocery chain local to St. Louis, where Monsanto is headquartered. Avery seems happy; he just keeps eating.

The men poke, prod, and chew the next course with even more vigor: salmon with a relish of red, yellow, and orange bell pepper and a side of broccoli. “The lettuce is my favorite,” Stark says afterward. Fraley concludes that the pepper “changes the game if you think about fresh produce.”

Changing the agricultural game is what Monsanto does. The company whose name is synonymous with Big Ag has revolutionized the way we grow food—for better or worse. Activists revile it for such mustache-twirling practices as suing farmers who regrow licensed seeds or filling the world with Roundup-resistant superweeds. Then there’s Monsanto’s reputation—scorned by some, celebrated by others—as the foremost purveyor of genetically modified commodity crops like corn and soybeans with DNA edited in from elsewhere, designed to have qualities nature didn’t quite think of.

So it’s not particularly surprising that the company is introducing novel strains of familiar food crops, invented at Monsanto and endowed by their creators with powers and abilities far beyond what you usually see in the produce section. The lettuce is sweeter and crunchier than romaine and has the stay-fresh quality of iceberg. The peppers come in miniature, single-serving sizes to reduce leftovers. The broccoli has three times the usual amount of glucoraphanin, a compound that helps boost antioxidant levels. Stark’s department, the global trade division, came up with all of them.

“Grocery stores are looking in the produce aisle for something that pops, that feels different,” Avery says. “And consumers are looking for the same thing.” If the team is right, they’ll know soon enough. Frescada lettuce, BellaFina peppers, and Beneforté broccoli—cheery brand names trademarked to an all-but-anonymous Monsanto subsidiary called Seminis—are rolling out at supermarkets across the US.

But here’s the twist: The lettuce, peppers, and broccoli—plus a melon and an onion, with a watermelon soon to follow—aren’t genetically modified at all. Monsanto created all these veggies using good old-fashioned crossbreeding, the same technology that farmers have been using to optimize crops for millennia. That doesn’t mean they are low tech, exactly. Stark’s division is drawing on Monsanto’s accumulated scientific know-how to create vegetables that have all the advantages of genetically modified organisms without any of the Frankenfoods ick factor.

And that’s a serious business advantage. Despite a gaping lack of evidence that genetically modified food crops harm human health, consumers have shown a marked resistance to purchasing GM produce (even as they happily consume products derived from genetically modified commodity crops). Stores like Whole Foods are planning to add GMO disclosures to their labels in a few years. State laws may mandate it even sooner.

http://www.wired.com/2014/01/new-monsanto-vegetables/
Nicholas Cope

Beneforté (broccoli) Launched Fall 2010 Availability Year-round Trait Compared with standard broccoli, contains up to three times the amount of glucoraphanin, a compound that increases antioxidant levels Method Crossbreeding commercial broccoli with a strain growing wild in southern Italy Region Grown Arizona, California, Mexico Price $2.50 per pound

But those requirements won’t apply to Monsanto’s new superveggies. They may be born in a lab, but technically they’re every bit as natural as what you’d get at a farmers’ market. Keep them away from pesticides and transport them less than 100 miles and you could call them organic and locavore too.

John Francis Queeny formed Monsanto Chemical Works in 1901, primarily to produce the artificial sweetener saccharin. Monsanto was the family name of Queeny’s wife, Olga. It was a good time for chemical companies. By the 1920s, Monsanto had expanded into sulfuric acid and polychlorinated biphenyl, or PCB, a coolant used in early transformers and electric motors, now more famous as a pernicious environmental contaminant. The company moved on to plastics and synthetic fabrics, and by the 1960s it had sprouted a division to create herbicides, including the Vietnam-era defoliant Agent Orange. A decade later, Monsanto invented Roundup, a glyphosate-based weed killer that farmers could apply to reduce overgrowth between crops, increasing productivity. In the early 1990s, the company turned its scientific expertise to agriculture, working on novel crop strains that would resist the effects of its signature herbicide.

Now, breeding new strains of plants is nothing new. Quite the opposite, in fact—optimizing plants for yield, flavor, and other qualities defined the earliest human civilizations. But for all the millennia since some proto-farmer first tried it, successfully altering plants has been a game of population roulette. Basically, farmers breed a plant that has a trait they like with other plants they also like. Then they plant seeds from that union and hope the traits keep showing up in subsequent generations.

They’re working with qualities that a biologist would call, in aggregate, phenotype. But phenotype is the manifestation of genotype, the genes for those traits. The roulettelike complications arise because some genes are dominant and some are recessive. Taking a tree with sweet fruit and crossing it with one that has big fruit won’t necessarily get you a tree with sweeter, bigger fruit. You might get the opposite—or a tree more vulnerable to disease, or one that needs too much water, and on and on. It’s a trial-and-error guessing game that takes lots of time, land, and patience.

The idea behind genetic modification is to speed all that up—analyze a species’ genes, its germplasm, and manipulate it to your liking. It’s what the past three decades of plant biology have achieved and continue to refine. Monsanto became a pioneer in the field when it set out to create Roundup-resistant crops. Stark joined that effort in 1989, when he was a molecular biology postdoc. He was experimenting with the then-new science of transgenics.

Monsanto was focusing on GM commodity crops, but the more exciting work was in creating brand-new vegetables for consumers. For example, Calgene, a little biotech outfit in Davis, California, was building a tomato it called the Flavr Savr. Conventional tomatoes were harvested while green, when they’re tough enough to withstand shipping, and then gassed with ethylene at their destination to jump-start ripening. But the Flavr Savr was engineered to release less of an enzyme called polygalacturonase so that the pectin in its cell walls didn’t break down so soon after picking. The result was a tomato that farmers could pick and ship ripe.

In the mid-1990s, Monsanto bought Calgene and reassigned Stark, moving him from Roundup research to head a project that almost accidentally figured out how to engineer flavor into produce. He began tinkering with genes that affect the production of ADP-glucose pyrophosphorylase, an enzyme that correlates to higher levels of glycogen and starch in tomatoes and potatoes. Translation: more viscous ketchup and a French fry that would shed less water when cooked, maintaining mass without absorbing grease. And he succeeded. “The texture was good,” Stark says. “They were more crisp and tasted more like a potato.”
Nicholas Cope

BellaFina (bell pepper) Launched Fall 2011 Availability Year-round Trait A third the size of regular bell peppers when ripe, minimizing waste and allowing for flexibility while cooking Method Selectively breeding plants with smaller and smaller peppers Region grown California, Florida, North Carolina Price $1.50 per three-pepper bag

They never made it to market. Aside from consumer backlash, the EPA deemed StarLink corn, a new biotech strain from another company, unfit for human consumption because of its potential to cause allergic reactions. Another genetically modified corn variety seemed to kill monarch butterflies. Big food conglomerates including Heinz and McDonald’s—which you might recognize from their famous tomato and potato products—abandoned GM ingredients; some European countries have since refused to grow or import them. Toss in the fact that production costs on the Flavr Savr turned out to be too high and it’s easy to see why Monsanto shut down Stark’s division in 2001. Large-scale farms growing soy or cotton, or corn destined for cattle feed—or corn syrup—were happy to plant GM grain that could resist big doses of herbicide. But the rest of the produce aisle was a no-go.

Furthermore, genetically modifying consumer crops proved to be inefficient and expensive. Stark estimates that adding a new gene takes roughly 10 years and $100 million to go from a product concept to regulatory approval. And inserting genes one at a time doesn’t necessarily produce the kinds of traits that rely on the interactions of several genes. Well before their veggie business went kaput, Monsanto knew it couldn’t just genetically modify its way to better produce; it had to breed great vegetables to begin with. As Stark phrases a company mantra: “The best gene in the world doesn’t fix dogshit germplasm.”

What does? Crossbreeding. Stark had an advantage here: In the process of learning how to engineer chemical and pest resistance into corn, researchers at Monsanto had learned to read and understand plant genomes—to tell the difference between the dogshit germplasm and the gold. And they had some nifty technology that allowed them to predict whether a given cross would yield the traits they wanted.

The key was a technique called genetic marking. It maps the parts of a genome that might be associated with a given trait, even if that trait arises from multiple genes working in concert. Researchers identify and cross plants with traits they like and then run millions of samples from the hybrid—just bits of leaf, really—through a machine that can read more than 200,000 samples per week and map all the genes in a particular region of the plant’s chromosomes.
Nicholas Cope

Melorange (melon) Launched Winter 2011 Availability December through April Trait Tastes up to 30 percent sweeter than cantaloupe grown in winter Method Crossbreeding cantaloupe and European heritage melons with a gene for a fruity and floral aroma Region Grown Arizona, Central America Price $3 per melon

They had more toys too. In 2006, Monsanto developed a machine called a seed chipper that quickly sorts and shaves off widely varying samples of soybean germplasm from seeds. The seed chipper lets researchers scan tiny genetic variations, just a single nucleotide, to figure out if they’ll result in plants with the traits they want—without having to take the time to let a seed grow into a plant. Monsanto computer models can actually predict inheritance patterns, meaning they can tell which desired traits will successfully be passed on. It’s breeding without breeding, plant sex in silico. In the real world, the odds of stacking 20 different characteristics into a single plant are one in 2 trillion. In nature, it can take a millennium. Monsanto can do it in just a few years.

And this all happens without any genetic engineering. Nobody inserts a single gene into a single genome. (They could, and in fact sometimes do, look at their crosses by engineering a plant as a kind of beta test. But those aren’t intended to leave the lab.) Stark and his colleagues realized that they could use these technologies to identify a cross that would have highly desirable traits and grow the way they wanted. And they could actually charge more for it—all the benefits of a GMO with none of the stigma. “We didn’t have those tools the first time around in vegetables,” Stark says.

Also in 2005, Monsanto bought the world’s largest vegetable seed company, Seminis. Think of it as a wholesale supplier of germplasm. It turned out Seminis came with another benefit: something in the pipeline that Stark could turn into his division’s first test product. A decade prior, swashbuckling plant scientists had discovered on the limestone cliffs of western Sicily a strain of Brassica villosa, ancestor of modern broccoli. Thanks to a gene called MYB28, this weedy atavist produced elevated levels of glucoraphanin. Stark’s team bred further enhancements to that antioxidant-increasing compound into a more familiar-looking plant—good old broccoli.

In 2010 Monsanto started test-marketing the new crop, calling it Beneforté. The strategy was coming together: enhanced premium veggies for an elite buyer. Beneforté broccoli came in a bag of ready-to-cook florets—so convenient!—labeled with a bar graph telegraphing how its antioxidant levels stacked up against regular broccoli and cauliflower. It sold, but Monsanto researchers knew that future veggies would need a more compelling hook. Everybody already knows that they’re supposed to eat their broccoli.
EverMild (onion) Launched Fall 2010 Availability September through March Trait Mild and sweet, less tear-inducing Method Selecting for individual plants that have lower levels of pyruvate, which affects pungency, and lachrymatory factor Region grown Pacific Northwest Price $0.70 to $2 per pound

Stark’s group had one last angle: flavor. In produce, flavor comes from a combination of color, texture, taste (which is to say, generally, sweetness or lack of bitterness), and aroma. But the traits that create those variables are complicated and sometimes nonobvious.

For example, Monsanto created an onion—the EverMild—with reduced levels of a chemical called lachrymatory factor, the stuff that makes you cry. That wasn’t too hard. But making a sweet winter version of a cantaloupe took more effort. Stark’s team first found genes that helped a French melon keep from spoiling after harvest. Through crossbreeding, they learned to keep those genes turned on. Now farmers could harvest the melon ripe, and it stayed ripe longer with full aroma. But the researchers didn’t stop there—they also made sure the fruit had the gene for citron, a molecule associated with fruity and floral aromas. They called the final product the Melorange.

Figuring out these relationships takes place at a sophisticated sensory and genetics lab perched amid hundreds of acres of experimental farmland in the rural, sun-scorched outskirts of Woodland, a farming town in California’s ag belt. White-coated scientists hover amid tubs full of fruits and vegetables in a lab, probing them with the intensity of forensic investigators. Penetrometers measure squishiness. Instruments called Brix meters track sugar content. Gas spectrographs, liquid chromatographs, and magnetic resonance imagers isolate specific aromatic molecules and their concentrations.

Eventually volunteers eat the experimental foods and give feedback. In one tasting session, sensory scientist Chow-Ming Lee passes out five plastic cups filled with bite-size squares of cantaloupe, harvested from outside and brought in from a store, to a dozen melon growers and distributors. Each cup is labeled with a three-digit code. Score sheets have two columns: “Sweet/Flavorful” and “Juicy.”
Nicholas Cope

Frescada (lettuce) Launched Spring 2012 Availability Year-round Trait Crisp leaves with a longer shelf life, plus 146 percent more folate and 74 percent more vitamin C than ordinary iceberg lettuce Method Crossing iceberg lettuce with romaine lettuce Region grown Arizona, California Price $2.25 to $2.50 per pound

After sampling each batch and writing down their assessments, the participants punch their scores into devices that connect to Lee’s laptop, which plots the room’s general sentiment on a screen along a four-quadrant grid ranging from low to high flavor on one axis and low to high juiciness on the other. None of the melons manage to crack the upper corner of the far right quadrant, the slot Monsanto hopes to fill: a sweet, juicy, crowd-pleasing melon.

In the adjoining fields a few hours later, Monsanto breeders Jeff Mills and Greg Tolla conduct a different kind of taste test. There they slice open a classic cantaloupe and their own Melorange for comparison. Tolla’s assessment of the conventional variety is scathing. “It’s tastes more like a carrot,” he says. Mills agrees: “It’s firm. It’s sweet, but that’s about it. It’s flat.” I take bites of both too. Compared with the standard cantaloupe, the Melorange tastes supercharged; it’s vibrant, fruity, and ultrawet. I want seconds. “That’s the shtick,” Mills says.

Of course, sweeter fruit isn’t necessarily better fruit, and it’s perhaps no surprise that critics of Monsanto are unconvinced that this push toward non-GM products represents good corporate citizenship. They question whether these new fruits and vegetables will actually be as healthy as their untweaked counterparts. In 2013, for example, consumer-traits researchers prototyped their Summer Slice watermelon, designed with a more applelike texture (to cut down on the dreaded watermelon-juice-dripping-down-your-chin phenomenon that has scarred so many childhoods). But the denser texture made it taste less sweet. So Stark’s team is breeding in a higher sugar content.

Is that unhealthy? No one really knows, but it’s certainly true that the law doesn’t require Monsanto to account for potential long-term effects. (The FDA considers all additive-free, conventionally bred produce to be safe.) Nobody has ever tinkered with sugar levels the way Monsanto is attempting; it’s essentially an experiment, says Robert Lustig, a pediatric endocrinologist and president of the Institute for Responsible Nutrition. “The only result they care about is profit.”

Monsanto, of course, denies that charge. Make fruit taste better and people will eat more of it. “That’s good for society and, let’s face it, good for business,” Stark says.

Monsanto is still Monsanto. The company enforces stringent contracts for farmers who buy its produce seeds. Just as with Roundup Ready soybeans, Monsanto prohibits regrowing seeds from the new crops. The company maintains exclusion clauses with growers if harvests don’t meet the standards of firmness, sweetness, or scent—pending strict quality-assurance checks. “The goal is to get the products recognized by the consumer, trusted, and purchased,” Stark says. “That’s what I really want. I want to grow sales.”
But he gets coy about the company’s longer-term agenda. “I’m not sure we ever really projected what kind of market share we’ll have,” he says. The vegetable division cleared $821 million in revenue in 2013, a significant potential growth area for a $14 billion-a-year company that leans heavily on revenue from biotech corn and soy. More telling is the company’s steady stream of acquisitions, which suggests a continuing commitment to the produce aisle. It owns a greenhouse in the Guatemalan mountains, where the dry, warm air allows three or four growth cycles a year—great for research. In 2008 Monsanto bought De Ruiter, one of the world’s biggest greenhouse seed companies, and in 2013 it picked up Climate Corporation, a big-data weather company that can provide intel on what field traits might be needed to survive global warming in a given region. Mark Gulley, an analyst at BGC Financial, says the company is following the “virtuous cycle” approach; it spends heavily on marketing and pours much of the proceeds back into R&D.

The new crops keep coming. In 2012 Monsanto debuted Performance Series Broccoli, a conventionally bred line that stands taller, enabling cheaper, faster mechanical harvesting as opposed to handpicking. Breeders are also growing watermelons with the green-and-white-striped rind patterns familiar to US consumers but also the tiger-striped variety favored in Spain and the oval jade version loved by Australians. “It’s supposed to remind you of where you grew up,” says Mills, the Monsanto melon breeder. That suggests the division plans to be a player in the trillion-dollar global produce market.

For his part, Stark hopes that when Monsanto’s affiliation with some of its best sellers becomes more widely known, the company might win back some trust. “There isn’t a reputation silver bullet, but it helps,” he says. In that basement dining room at Monsanto headquarters, he waxes rhapsodic about the lettuce long after he has cleaned his plate. During a recent trip to Holland, where Frescada is gaining popularity, Stark saw folks peeling leaves straight off the heads and munching them without dressing, like extra-large potato chips. “People just ate it like a snack, which was not the intent, but …” Stark trails off and looks around the room. His napkin is still on his lap. He’s savoring the potential.

I Can’t Believe It’s Not GMO

Agriculture giant Monsanto may be best known for genetic modification—like creating corn that resists the effects of Monsanto’s weed killer Roundup. But when it comes to fruits and vegetables you buy in the store, genetic modification is off the menu. Monsanto thinks no one will buy Frankenfoods, so the company is tweaking its efforts—continuing to map the genetic basis of a plant’s desirable traits but using that data to breed new custom-designed strains the way agronomists have for millennia. Here’s how it works—and how the results differ from GMO crops. Thanks to this cross between high and low tech, a new era of super-produce may be upon us. —Victoria Tang

The Old Way
1. Identify plants with recognizable, desirable traits.
2. Crossbreed those plants together.
3. Grow the offspring.
4. Wait to see if the traits show up. Repeat as necessary.

The Genetic Modification Way
1. Identify plants or other organisms with recognizable, desirable traits.
2. Isolate the genes that manifest those traits.
3. Use enzymes to clip out those genes and paste them into the genomes of other plants, or inject them using a “gene gun” (for real) or by piggybacking them on a bacteria or virus.
4. Grow the plant with the inserted gene. If the gene has successfully incorporated into the plant, you’ll have a novel phenotype.

The New Monsanto Way
1. Identify plants with recognizable, desirable traits.
2. Crossbreed the plants.
3. Sift through the offspring genome for known markers for desirable traits.
4. Grow only the plants with those markers.

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Comments for this thread are now closed.

19 Comments

Sort by Best

Connie Fletcher • 8 months ago
I am making every effort that I can to boycott anything to do with Monsanto....this company, in my humble estimation is the scourge of the earth...the bane of our existence, and I want not one penny of my money to go to anything they can get their hands on. NOT ONE PENNY!!!! I am encouraging everyone I know to do the same....

In Vermont, GMO stands for Get Monsanto Out....and it’s appropriate!!!!!

John Grant • 8 months ago
This article was brought to you by Monsanto.

Sadie • 8 months ago
I do not want anything Monsanto or their goons like Bayer, Syngenta etc. make. The boycot.com app will tell you if it’s monsanto. They prove daily that you can’t trust anything they say or do.

bsroon • 8 months ago
What makes you think the public is "happily" consuming the stuffing out of the GMO contaminated processed foods? They are kept blithely ignorant because of the theft of labeling law outcomes. Yes, i state that Prop 37 in California and the Washington State bill both passed but were stolen by Big Ag and their political whores in govt. How can one rationalize such a stance?

No media blitz has ever changed an opinion poll by more than a few points according to my research. We are, however expected to believe that in Calif - where NINETY TWO PERCENT of those polled wanted GMO labeling (and if it’s safe, why not?) Prove it’s safe - but you can’t) yet in the hypno-booth - 44% of us forgot that intent. Then, DESPITE BEING ALLEGEDLY CONVINCED TO NOT LABEL GMO’s we immediately responded to the after vote polling with a CONTINUED 92% desire to have the GMOs labeled.

So the story line is that we had our minds changed, but they magically maintained the exact same level of intent an hour or so after losing our minds in the polling booth? And you don’t see anything fishy here?

The exact same thing happened in Washington where 90% of the voters wanted GMO labels. They lost their minds at a 45% rate in the hypno-booths and AGAIN magically returned to their original 90% intent to lable after leaving the polls.

Hmmm. Nothing to look at here, keep moving on.

Sidney Bishop • bsroon • 8 months ago
What makes me think the public is at least indifferentely consuming GMO designed (Contaminated implies unintentional)processed foods is the fact that they are buying them, pretty simple. Now I know they are not labeled, but that does not subject us to the will of Monsanto and every producer that chooses to use there product in there products. Whole food is just as complicit as Monsanto. If we were talking about drugs the feds would bust Monsanto for production and distribution and anyone that used there product to produce there product would be a co conspirator that is just as liable as anyone else that was conspiring with them. If you are going to hate on Monsanto for there frankenfoods you have to hate on Whole Foods and whoever else is using there stuff and fronting like a healthy alternative. Anyway, its not labeled, without minimizing monsanto’s responsibility in there shady practices, consumers need to stop minimizing there responsibility and become informed consumers, if you can’t because there is no ingredient label and the company will not provide one, keep using the product and blaming it on the manufacturer? No, stop using it.If you will not stop using it you have defined your values in a way inconsistent with your righteous indignation. You have a choice, if convenience is more important, you will buy it, if the way the produce is produced is important you will discontinue buying it and own your choice. I personally feel a lot safer with out trade regulations and government managed oversight. The corporations like Monsanto and big pharma love there regulatory agencies They own the FDA and are happy to pay the costs, its like a protection racket. The 100million it costs to get a drug to market insures that they will not have to compete because any new guys with better ideas dont have the funds for the arbitrary expenses that are not market demands, they do not have former employees for cabinet members or make giant campaign contributions. All that government oversight that is supposed to regulate industries for our protection doesn’t. We dont need to have the government step in and legislate labeling, all we need to do is refuse to buy there products and let them know we would prefer a product with a label. If the label lists things we dont want in our food we know to do the same....
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my primary objection - and a very valid one - is that your definition of "organic" is wackos in that it provides cover for the nonhorizontal gene transfer which you also do not support.

Obviously nature didn't intend a fish to rape a tomato, but to call other things GMO when they do not provide the uncontrollable BS caused by gene splicing and the other methods provides the idiots with an aura of acceptability.

i refuse to allow them that. in my mind, self defense is legal - KILL MONSANTO. (as a metaphor for genetic manipulative corporations everywhere - including Pepsi, Nestle's etc for using GMO aborted fetal cell tissues as flavor enhancers in their products.)

---

joemama5 • 8 months ago

Monsanto is the Devil. Stay away! Their goals are 1) Poison the people 2) Obtain patents for every food, so they can forcefully poison the people. This new "organic" talk from them is BS, what they write is to have a patent on ALL FOOD so you must buy from them, eventually they will phase out organics because they don't grow well with their chemicals like RoundUp, then you are forced to eat poison again. They need to CRUMBLE!

Devil8ho • 7 months ago

The ignorance on this discussion board is frightening.

marilyn48 • 8 months ago

OMG leave are food alone you monsters, leave it like God meant it to be!

TwinkleStar2 • 8 months ago

I like my "old-fashioned" vegetables and will not, repeat, will not, eat the hybrid crap Monsanto, or any other chemical company, can produce. Yea, Yea, Yea, I know the supermarket crap is hybrid already, which is why I do not buy my vegetables from supermarkets.

Brian Griffin • 8 months ago

Monsanto is the Frankenstein of Agriculture. DO NOT TRUST OR BELIEVE ANYTHING THEY SAY. Just look at what they do. It is evil and vile. That whole company should be disbanded and all execs put in jail for life or executed. Nothing good for humanity can come out of that monstrosity.

veroniquepalmer • 7 months ago

We can no longer trust anything that's on our shelves - the only way is to grow your own and go find reputable farmer's markets.

Barbara Faulkner • 8 months ago

I personally think that Monsanto did not kill us by their development of chemical sugar replacement.. Sacchurin (spelling?). Now they have proceeded in another field.. GMO's. Wheat intolerance is causing lots of medical problems costing us all millions. This puts tobacco in the good guys column when compared to GMOs. I am mad because I cannot eat wheat, soy products, corn products. This is not fair. The next time you see an overweight person.. say thanks Monsanto for helping this person in their life. To live half way healthy, stay out of the aisles in the grocery store.. only go around the outside but skip over the bread, the hormone induced meat and dairy, the altered eggs, the vegetables that don't even taste like what they should and that will clear up your food table to what we call eating healthy. All of this for one reason, MONEY!

KartoffiMuter • 7 months ago

Monsanto is the Devil.

Parhelion • 8 months ago

I honestly would have no problem with anything Monsanto did, if only two things would happen:

1. Monsanto would have to break their "RoundUp" development cycle and move it. They make a more powerful pesticide to kill bugs, but then it kills the plants. So they make their plants resistant to the RoundUp, but then the bugs become resistant to. Rinse, repeat. I don't know how they will accomplish this, but it needs to stop.

2. Far easier to accomplish: the US government needs to retroactively step back and reform patent law so that Monsanto can not sue neighboring farmers who did not purchase their seeds for ownership of crossbred crops. They either require that Monsanto sells certified sterile seeds or provide blanket protection from any lawsuit claiming patent infringement just because farmers are doing what farmers have done since the beginning of human civilization -- own things. You can't stop wind or nature.

R Evans •  Parhelion • 7 months ago

RoundUp was always meant to kill plants, never bugs. The engineering of RoundUp Ready plants was meant so farmers could spray RoundUp closer to planting time, or even during cultivation.

The term "pesticide" means something that kills anything undesirable by the user. The more specific terms are: herbicide, insecticide, fungicide, etc....
Guest - 7 months ago
Anything Monsanto is not Organic.

Una Greenaway - 7 months ago
I would have appreciated if the author had disclosed whether this process was Marker assisted selection, or Marker assisted Breeding. Those are acceptable methods. This is the direction that Monsanto should have gone in the first place. It will be hard to counter the negatives from Transgenic crops, as is clear from the all the comments below, and rightly so.

grannygrey50 - 7 months ago
I HATE Monsanto, as they killed (yes, I said killed) a friend and several of his co-workers with cancer..at one of their chemical plants. However, I would like to see Monsanto work with universities who are developing improved seeds for crops, and share this info. I farmed for years (not a backyard garden), and working at crossbreeding to improve corn, or tomatoes, or any thing, including cattle, has been a long and hit and miss effort. With the development of the genomics, crop production can be increased without using more land to raise the same amount of food... Plus, here in the US crops normally could be done once a year; now, using controlled greenhouses, especially in warmer areas, they can do two and three, and even four crops a year to make sure the it is a stable change you were looking for before you put the seeds into production. Population in the world is still increasing, and people need food. It can be done without the use of chemicals, and by guiding natural selection.
And, as others have said, Roundup is an herbicide! Using the genomes, plants can be developed and modified to resist insects. Insects, fungus, also both destroy all kinds of crops. Use genomics to increase resistance to these things...by finding the plants that resisted these things, and finding what the gene is that does this.
Monsanto Is Going Organic in a Quest for the Perfect Veggie | WIRED

http://www.wired.com/2014/01/new-monsanto-vegetables/