

## The True Cost of Conventional Agriculture

It's true, organic food is often more expensive when compared with its non-organic counterparts in the supermarket. In fact, despite being a foodie and an organic advocate, sometimes when I am shopping and see the price of an item I think, "wow, that is just too much, I can't justify paying that much for asparagus." However, there are several key aspects of organic I like to remind myself of when faced with the "organics are too expensive" concept.

### Pay Now or Pay Later :



Obviously this is one of the key elements of the pro-organic argument—you can either pay a little more money now for produce that is nutritionally superior than their conventional counterparts, or pay later for the health costs associated with poor diet and nutrient insufficiencies. For example, studies show that organic tomatoes have higher levels of lycopene and vitamin C, two nutrients that have a variety of roles in supporting health in the body<sup>1</sup>. And similar studies have found levels of other nutrients, especially antioxidants, are higher in organic fruits and vegetables than comparable conventional produce. Need to spend \$8.00 on aloe vera lotion because you stayed out in the sun for too long? Perhaps spending the extra dollar on organic tomatoes would have bestowed your skin with enough photoprotective lycopene to make that lotion unnecessary<sup>2</sup>.

With organic produce it's not only that you are paying for *more* nutrients, but it's also what is not on or in the produce that makes it worth paying for. What are not on the produce are toxic pesticides. Studies show that pesticide exposure is harmful to numerous parts of the body such as the brain, liver, kidneys, and immune system<sup>3</sup>. Even more important is that exposure to these agro-chemicals can significantly damage a child's health. Researchers at University of California Berkeley determined pesticide exposure levels in pregnant mothers and then followed their children for 7 years. What they found was shocking—researchers discovered that every tenfold increase in measures of organophosphates detected during a mother's pregnancy corresponded to a 5.5-point drop in overall IQ scores in the 7-year-olds<sup>4</sup>. Children in the study with the highest levels of prenatal pesticide exposure scored seven points lower on a standardized measure of intelligence compared with children who had the lowest levels of exposure. According to the researchers, "that difference could mean, on average, more kids being shifted into the lower end of the spectrum of learning, and more kids needing special services in school" meaning higher taxes and extra costs for parents. At the time this study was published, two other research groups published papers showing similar findings<sup>5</sup>.

### The Environmental Costs :

One thing we know for sure is that our modern industrial agricultural system is slowly destroying our environment and natural ecosystems. While it is hard to put a tangible valuable on the environment (I would argue our natural resources are invaluable), many economists have been able to look at factors, such as productivity and other ecosystem services, and determine the value of things like soil, water, and ecosystems. Modern agriculture that relies on monoculture row crops and genetically modified organisms (GMOs) have decimated our top soil and will continue to do so until we have none left. Iowa, a state that has extensive

conventional agriculture, has estimated its annual topsoil losses to be about \$1 billion per year, while some experts estimate that the United States loses about \$44 billion of topsoil annually<sup>6 7</sup>. Organic agriculture, on the other hand, helps restore the soil, and numerous reports show that switching soil from conventional management to organic management practices rejuvenates the soil and brings back restorative factors like earthworms and important microbes.<sup>8 9 10</sup>

Not only does conventional agriculture destroy the soil, but the extensive use of pesticides and insecticides results in collateral damage, killing some of our most valuable pollinator insects. A prime example of this issue is the decline in honey bee populations that has been observed in the last several decades.<sup>11</sup> Because honey bees are so critical for pollinating many crops (think almonds, onions, cashews, broccoli, peppers, and much more) there is an entire industry focused around providing honey bee hives to farmers for pollination purposes. However, neonicotinoid insecticides appear to be causing huge die-offs of both commercial and wild honey bees, leading to increased prices of pollination services and economic damage.<sup>12</sup> The die-off of honey bees, termed “colony collapse disorder” has serious implications for food production and the economy. In the United States alone, it is estimated that honey bees pollinate between \$15-20 billion dollars’ worth of crops.<sup>13</sup>

## The Organic Movement :

It’s great to see that organic products and agriculture is gaining popularity and momentum. However, less than 1% of our current agricultural land is under organic management—meaning we still have a long way to go. Remember, you get to vote and influence agricultural production methods with every meal, three times a day. By potentially paying a little more up front for organic products, you are helping to save money in the future. Not only that, but organic agriculture is more profitable for the farmers, and the communities they live in see increases in their median household income as well. If you are still skeptical about the price of organic foods, make sure to shop seasonally, as this makes a huge difference in the price of the produce, and studies show that seasonal fruits and vegetables are also at their peak in nutrition. That way you are really getting the biggest bang for your organic buck.



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