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FOR

STUDENT’S

PRIVACY PROTECTION}

The Effect of Atrazine

 For my research essay I want to cover the topic of the herbicide known as Atrazine. This chemical is an ecological and biological hazard. For my essay I want to talk about the effect that atrazine and other Agrochemicals have on the environment and wildlife. Atrazine also has a negative impact on human health. This will likely be a smaller part of the essay, but I think it is important to mention. My purpose is for people to stop and think about the modern state of agriculture and more so for people to think about what they are eating and the consequences of how their food is grown. I want agricultural companies to stop producing hazardous products. In my essay I plan to encourage a change in curriculum so that future farmers are not taught that It is a good thing to spray crops. If people were persuaded by my argument to change their behavior, the ecosystems would no longer be harmed, our food and water would be safer, and our health as a society would improve. Otherwise this trend of traditional and unsustainable farming will continue.

 The main audience of this essay is the common person who may or may not consider too closely where their food comes from. People who are unaware or dispassionate about the issue of what is polluting our food supply. I am also talking to representatives or people who work in the industry of promoting agricultural herbicides and pesticides to farmers. My goal is to convince them through the evidence I have collected to reconsider the safety and the morality of continuing to let these chemicals be sprayed onto crops and be advertised as safe and good. I am also speaking to agriculture students who are taught that it is preferable to stick to traditional farming instead of natural methods. Agriculture students are an especially important group because farmers grow about eighty percent of the world’s food. Companies like Monsanto and Syngenta advertise that their products even save the ecosystem when they plainly do the opposite. My paper is not only supposed to be informative, but an appeal to morality for the basic safety and health of people, animals, and the environment. I will present a few sources from scientific journals and university studies. This kind of audience will want real world examples and scientific fact to prove to them that the use of pesticides and herbicides in agriculture is indeed a bad thing. People who make their livelihood promoting this type of agriculture are unlikely to care but can at least acknowledge the harm they are doing. The problem with putting chemicals on food is that it is altering the endocrine function of living organisms. The rise of pesticides and herbicides has caused a decrease in testosterone and an increase in infertility and cancer over many generations. The general mental health of society suffers in part due to the increase of pollutants that are dumped into the water without regulation. It is an important time to address this because it will continue to cause population and ecological problems if it continues.

 One of the articles I will be using for my research essay is the study done by Biologist and Biology Professor Tyrone B Hayes at the University of California. This article covers the research done by Hayes and his colleagues over the feminization of frogs after exposure to the herbicide Atrazine. Their findings concluded that Atrazine exposure at levels even lower than the level that is considered "safe" by the EPA caused "chemical castration" of male frogs. Ten percent of the research population was effectively feminized. This means that frogs that were genetically male became physically female and were able to mate with other male frogs. This is not the only problem however, as atrazine poses a severe threat to their natural ecosystem and affects species other than just frogs. I was surprised and angered when I initially read the article because large agricultural companies knowingly produce these chemicals without concern for their environmental impact. I intend to use this article as a main source for information and supporting argument that companies should not be allowed to produce or use these products. I would also like to put a focus on organic agriculture in my essay, but I am not quite sure yet if it will flow with the rest of the essay, so I will experiment with that concept. I believe that this article will have a certain moral appeal to the audience. It is clearly a reliable source. It’s credibility being that it was done by an esteemed biologist in conjunction with a university. As well as numerous other studies with similar findings. I believe that most of the audience will at least agree that it is a blatant hazard to the environment. My goal is to educate the audience so that if they still don’t particularly care about the issue, they will have to understand just what the environmental impact can be, and understand that agrochemical companies do not have the consumer’s best interest in heart.

 Another scientific article that I will use for my argumentative essay is called “The Lethal Impact of Roundup on Aquatic and Terrestrial Amphibians” by Rick A. Relyea. The study was done at the University of Pittsburg, Pennsylvania. The study was published by Ecological Society of America. I would not assume bias based off of reading this study. Morals aside, wiping out large numbers of amphibian populations will eventually have a negative environmental impact. The researchers found that application of the popular weed killer Roundup, or Glyphosate, wiped out 98% of the tadpoles in the test group. It significantly reduced the survival of juvenile frogs and toads, with only 21% of the test group surviving the first day after Roundup application. This article will help me to prove the point in my essay that the companies that produce these chemicals are blatantly lying when they advertise the safety of their products. If they absolutely wipe out amphibian populations, why use them? I believe in the credibility of the researcher Mr. Relyea because he is a biology teacher for the university and because of all the other work he has done for the field of ecology, including being a director as the Darrin Fresh Water Institute, as well as directing the Jefferson project at Lake George in New York. Both institutions have the purpose of studying the environmental impact people have on the planet. Based off of the experience of this man and his expertise in the field, I think this source will be another whopper in terms of relevance and support of my argument in the eyes of the reader. These are not the opinions of a novice, but the experience and research of someone who has spent most of their lifetime researching the environmental impact humans have on the earth.

 Chlorpyrifos is a commonly used insecticide. A “medical memo” published May 2008 by Harvard Health Published titled “Insecticides, Testosterone, and Fertility” talks about a study where 268 men in Massachusetts had their urine and blood sampled for the presence of a metabolite found in Chlorpyrifos. They also tested for the levels of a variety of reproductive hormones in their blood. It was found that men who had been exposed to this insecticide had lower levels of testosterone present in their blood. “Men with the highest insecticide levels averaged testosterone levels that were 83 nanograms per deciliter lower than men with the least insecticide exposure.” I plan on using this article and a few others that cover a similar topic to convey that there is possible harm on reproductive health when people are exposed to insecticides and herbicides alike. I believe that by leading the audience to understand the possible danger to physical health, I can show them that this is not only a problem for our generation, but for every generation that follows.

 My goal is to persuade the audience to consider the future generation. I know that not all of the audience will be moved by this. I plan to cover the potential for endocrine disruption as well, and the possible side effects that come along with harming the endocrine system. I believe that by doing this I will be able to promote a self-preservation response in the reader. Who will then reconsider what they allow to be put on their food, into their water, and then into their own body.

Works Cited

Hayes, Tyrone B, et al. “Atrazine Induces Complete Feminization and Chemical Castration in Male African Clawed Frogs (Xenopus Laevis).” Proceedings of the National Academy of Sciences of the United States of America, National Academy of Sciences, 9 Mar. 2010, www.ncbi.nlm.nih.gov/pmc/articles/PMC2842049/#r1.

Publishing, Harvard Health. “Medical Memo: Insecticides, Testosterone, and Fertility.” Harvard Health, May 2008, [www.health.harvard.edu/newsletter\_article/medical-memo-](http://www.health.harvard.edu/newsletter_article/medical-memo-) insecticides-testosterone-and- fertility#:~:text=The%20higher%20the%20levels%20of,with%20the%20least%20insecti cide%20exposure.

Relyea, Rick A. “THE LETHAL IMPACT OF ROUNDUP ON AQUATIC AND TERRESTRIAL AMPHIBIANS.” The Ecological Society of America, John Wiley &amp; Sons, Ltd, 1 Aug. 2005, esajournals.onlinelibrary.wiley.com/doi/10.1890/04- 1291.