# Transgenerational Effects of Atrazine on Caenorhabditis elegans Brood Size

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Pesticides are utilized in agriculture to kill or ward off unwanted organisms to either aid in the growth of desired crops or to inhibit the spread of invasive species. Unfortunately, broad spectrum pesticides often attack non-target organisms, resulting in unintended consequences that could affect non-parasitic organisms. Atrazine is a broad spectrum herbicide that is known to cause unintended reproductive effects in other organisms, including the roundworm nematode Caenorhabditis elegans. In this experiment, C. elegans were exposed to atrazine to better understand its effects on brood size. Application of atrazine may play a role in the severity of effects, so we incorporated two methods of exposure in our experiments: fumigation and atrazine-infused plates. Fumigation will be used to mimic the agricultural application of the herbicide. However, when utilizing fumigation, there are two methods of exposure: dermal contact and ingestion. To isolate one method of exposure, atrazine-infused plates will be used to exclusively monitor the effects of atrazine through dermal contact. With both methods, we observed a negative trend in brood size from generation 1 to generation 2 with an 83.5% and 72.5% decrease when treated through fumigation and infused plated, respectively. Seeing decrease through both treatments, we can safely conclude that atrazine has a generational impact on brood size. With C. elegans being a part of an incredibly diverse phylum and serving as a human model organism, the same effects are likely to be seen in other nematodes and even humans. With pesticides being incorporated into 1-10% of water bodies, organism over-exposure to pesticides such as atrazine poses a major problem if the side effects are only noticed after generations.

**Awards Won:**