The Effects of Surfactants in Glyphosate-Based Herbicides on The Spotted Salamander

Grace Ibsen *, Chemistry, University of Providence, Great Falls, MT
Chrissie Carpenter, Chemistry, University of Providence, Great Fall, MT
Jessica Martin, Biology, University of Providence, Great Falls, MT
Roberta Newbury, Biology, University of Providence, Great Falls, MT

*Indicates Presenter

**Indicates Student Presentation

Spotted Salamander (*Ambystoma maculatum*) populations have been declining worldwide. There are many reasons that are thought to be contributing to this decline, one being the use of agricultural herbicides. Glyphosate-based herbicides are one of the most commonly used herbicides worldwide and their use is continuing to increase. Originally it was thought that glyphosate was the toxic ingredient causing declines in amphibian populations; however, studies are indicating that the surfactants used in these herbicides are what is responsible for the toxicity. The purpose of this study is to evaluate the toxicity (48 h) of a silicon-based surfactant on the spotted salamander compared to the surfactant in Glystar Plus®. The two experimental groups will be exposed to a solution containing 41% glyphosate with varying concentrations of a silicon based non-ionic surfactant at 14% and 28% respectively at an application rate of 0.35 mL/m2 added to Glystar Original®. Toxicity will be evaluated by comparing length, girth, weight, liver somatic index, and physical appearances.