Kermit or Kermette?

Part 1: It’s not Easy Being Green

1. Does atrazine appear to alter male frog development at any concentration?

Yes, because at any concentration, there is an increase or decrease in gonadal abnormalities.

1. If atrazine does affect male frog development, what is the lowest concentration and dose that appears to have effect?

The lowest concentration and dose that appears to have effect is 0.5 micrograms per tadpole.

1. The chemical DDT was banned for use in the U.S. in the 1960’s. For years afterwards, however, American manufacturers of DDT continued to export it to third world countries that had not yet banned its use. How does this observation relate to the use of atrazine in the U.S. today?

The use of atrazine is still legal in the United States, but is now banned in the Switzerland. United States does not manufacture its own atrazine, but buys it off Switzerland, still manufacturing atrazine even though it is banned in that country.

Part 2: A Different Approach

1. A Syngenta press release quotes James Carr, head of the Texas Tech team, as saying, “We have been unable to reproduce the low-concentration effects on atrazine on amphibians reported elsewhere in the scientific literature.” This statement refers to Hayes’ results (Hayes, 2002, 2003). Comment on the accuracy of this statement, and explain your reasoning.

I believe that it would be very difficult to recreate any similar results to what Hayes found because of the materials he used to conduct the research. Hayes had used a random water sample from a river/stream, making the results unpredictable and out of the control of those conducting research with those samples.

1. The Hayes study (Hayes, 2003) was conducted using water samples collected from ponds and streams in agricultural and non-agricultural regions of the Midwest. The study conducted by Carr’s group added varying amounts on atrazine to de-chlorinated laboratory water. Which set of experimental conditions, if either, would be more likely to lead to valid experimental results? Explain your reasoning.

I think that the set of experimental conditions that would be either set. I think this would be better because there is more control on varying factors and there would be more credibility to the results that turn out. At the same time, the results with the water from different locations would be more realistic and adaptive to what you would really find in a natural habitat.

1. Comment on the significance of the Carr data, shown above, that reports the percent of male frogs having gonadal abnormalities at a nominal atrazine concentration of zero micrograms per liter and a nominal dose of zero micrograms per liter.

It didn’t have a pattern, it was a vague experiment because of the way he did the experiment that frog would have already been mutated.

Part 3: More from Hayes

1. What do the Hayes results indicate about the effect of atrazine on the testosterone concentration in the blood of the exposed male frogs?

The Hayes results indicate that at 25 mL concentration, there is a high effect in hormones changes.

1. What do the MSU results indicate about the effect on atrazine on the testosterone concentration in the blood of exposed male frogs?

The MSU results indicate that at .20 concentrations S2 and S3, there’s a difference even though they have the same amount of concentration.

1. Consider the EPA’s observation about the presence of atrazine in the controls used in the MSU study. Could this observation explain how Hayes and Hecker could both have accurately reported their experimental observations?

This observation cannot explain how Hayes and Hecker could both have accurately reported their experimental observations because they both have different sets of data, and they’re both not really accurate.

1. In 2003 the EPA recommended that Syngenta’s license to continue the use of atrazine in the United States be approved. If one assumes that the data presented here are valid, what factor or combination of factors might have led to this recommendation?

The factors that might have lead to this recommendation might have been the validity of the data collected that directed towards wrong assumption or not answer at all.

1. Search for two web sites that support the continued use of atrazine and two web sites opposed to its continued use. Prepare an assessment of the validity of these web sites and be prepared to share your observations in class. Useful guidelines for the evaluation of the credibility of web postings may be found at the following URL <http://www.virtualchase.com/quality/checklist_print.html>.

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| For  | Against.  |
| It says that helps the yields and improves the corps that it’s save and effective.  | Harmful pesticide is an endocrine disruptor that can turn male frogs into females at concentrations as low as 2.5 parts per billion. Says that we should save the frogs.  |
| Safety and important role in agriculture is well documented in both the U.S. and worldwide.Supports up to 85,000 American jobs in agriculture and benefits farmers by more than $3 billion | Seven million people were exposed to atrazine in their treated drinking water at levels above state or federal health-based limits. Says that’s not only harmful to the frogs but to the people that drink of the water. Affects people health.  |

Sources:

<http://ase.tufts.edu/gdae/Pubs/rp/EconAtrazine.pdf>

<http://www.atrazine.com/AtraMain.aspx>

<http://www.savethefrogs.com/threats/pesticides/atrazine/index.html>

<http://www.panna.org/resources/panups/panup_20100108>