

Decision-Making Scenarios in Science and Agriculture

1.

A student in Agricultural Sciences is writing his thesis about a new drug designed to increase fertility in cows. The thesis is based on reporting the results of an experiment: the farmers in the study were to give the drug to half their cows and withhold it from the other half. A study done with cows in a government run facility showed that the drug significantly increased fertility. But the study with the farmers showed no significant results. The student suspects that the farmers used the drug on all their cows, instead of just half.

This puts him in a bind. He is due to graduate in two months and has to submit a completed thesis based on a study that he now suspects is flawed. He doesn't have enough time to redo the experiment. What should he do?

- a. Report the data as is. Then include his suspicions that the results are not valid.
- b. Discuss this problem with his thesis advisor and ask for more time to redo the study and complete his thesis.
- c. Modify the data so that it is consistent with the previous study in that it shows a significant increase in fertility for cows using the drug. This will make his thesis look good, please his advisor, get him his degree, and possibly land him a job with the pharmaceutical company that manufactures the drug.
- d. Base his thesis on the data he has without including his suspicions that these results are flawed.
- e. He should scrap the thesis, get a new advisor, find a new topic, and start over.
- f. Your solution....

2.

A scientist has been hired by a lawyer to serve as an expert witness for his client, an accident victim. The scientist's responsibility is to prepare a formal, technical report that includes (1) a statement of the available facts, (2) the methodology used in the investigation, (3) the technical results of the investigation, and (4) the "expert witness opinion" which is based on the results of the scientific investigation. She will offer her services for a flat fee.

She has been hired by a lawyer who is representing the injury victim in court. The lawyer tells her to provide a minimal, incomplete report that leaves out information that will likely be essential to the trial. When it becomes necessary to provide further information, the lawyer will bill the client for the additional work done by the scientist. The lawyer puts it this way: "My client has all kinds of money, so we can milk him for additional fees. Then you and I can split the money. Don't worry, everybody does it."

She is uncomfortable with this arrangement, but the attorney is well known, established and in a position to throw a great deal of work her way. According to him

this is common practice, and the client is loaded. What should she do?

- a. Go along with the attorney; leave out essential information and charge for additions to the report. Then split the money with him.
- b. Quit on the spot. No matter how much you need the money, you are not going to get it by deceiving the client. This is a clear violation of scientific integrity.
- c.. Pretend to go along with the lawyer, but write as complete a report as you can. After all, *he* is not a scientist, so he is in no position to judge whether or not you have written a complete report.
- d. Go directly to the client and inform him of the lawyer's intention to bilk him out of his money.
- e. Go along with the lawyer this time, but tell him that in the future you will charge a flat fee for a *complete* report.
- f. Your solution....

3. You work for a small, start-up aquaculture business in Puerto Rico that has run afoul of the local community. (Your background is agricultural science and biology.) Neighbors have complained to you that the company you work for has been killing pelicans and albatross (protected bird species) that have been eating the lobsters fingerlings your company is growing through aquaculture methods. Furthermore, they have complained about the wastewater your company has been discharging: they say it has a foul odor and appears discolored.

These neighbors have threatened to go to the local government agency in charge of environmental quality. This looks like a disaster to you since your company could very well be in violation of environmental regulations. But when you bring these complaints to the attention of the CEO, he seems unconcerned. "Don't worry," he tells you. "I know an official in the government's environmental agency, and we can count on him to deal with these complaints in our favor."

You have looked further into the matter and have found the neighbors' complaints to be entirely accurate. What should you do?

- a. Don't do anything. The CEO obviously has the situation under control.
- b. Blow the whistle on your company and the corrupt government official by going directly to the complaining neighbors. Tell them the whole story.
- c. Make a counter suggestion. Tell your supervisor that you think you can effectively solve both environmental problems without straining the company's financial resources. Ask him for some time to research solutions to these problems. Then schedule a meeting with company officials during which you can present the results of your investigation.
- d. Resign from the company. After all, you are a professional and don't want to work for a company that has such a small regard for the local community and the

environment.

e. Your solution....

4. Pedro is a second year organic chemistry graduate student at a prestigious university. You are a senior professor at this university and direct a research program in which Pedro is a participant. In fact, his dissertation will contribute to the project, and he has asked you to direct it. One day, a colleague of yours, a junior professor in your department, brings you a copy of the *Anarchist's Cookbook*. (The *Cookbook* contains information on how to make explosives from common household chemicals and can be downloaded from the Internet.) He tells you he found this on Pedro's desk. He adds that Pedro has other books that describe how to synthesize illegal drugs and explosives from common chemicals. What should you do?

- a. Do nothing. Pedro is merely satisfying his curiosity. To interfere with this natural desire to know is tantamount to violating Pedro's academic freedom.
- b. Expel Pedro immediately. If he does anything crazy, you and your university could be held responsible.
- c. Talk privately with Pedro. Tell him that he must get rid of this material immediately. If he doesn't, you will inform the university administration, and they will take punitive action.
- d. You and another faculty member should talk with Pedro. Ask him what he intends to do with this information. Suggest to him that it would be in his best interest to either get rid of it or find a stronger justification for possessing it than just "satisfying a desire to learn."
- e. Call a general meeting of faculty and graduate assistants. Without mentioning anyone in particular, inform everybody that it is against laboratory policy to keep such politically inflammatory materials on the premises.
- f. Your solution....

5. You are a graduate student in chemistry in a well-known research institution. You have just found out that your research advisor falsified data in a grant proposal. He was awarded the grant, and it has been funding your research for several months now. Your research has been going well and is starting to show some promising results. What should you do?

- a. Do nothing. You're not the one who falsified the data so it's not your problem.
- b. Anonymously blow the whistle to the funding agency. Tell them your research advisor falsified data in his grant proposal. Make sure they can't trace this back to you.

- c. Document that the data has been falsified. Then go directly to the agency funding the grant and tell them what has happened.
- d. Confront your advisor with what you have found out. Tell him that you find his actions to be immoral and feel compelled to report this to the funding agency.
- e. Change research advisors. If you are asked why you wish to change, do not tell them the real reason. Extricate yourself from this situation as quickly as possible.
- f. Your solution....

6. Adam Benitez, a professor of biology, published a groundbreaking paper several years ago that established his reputation as one of the leaders in his field. Not content to rest on his laurels, he has continued to work and publish in this field.

Benitez also serves as a reviewer for two prestigious academic journals in biology, *Studies in Biology* (SB) and *Biology Review* (BR). In July 1998, he received a paper for review in SB by a biologist from China. This paper is very good, and Benitez would normally have recommended it immediately for publication. But three months earlier, Benitez received an identical paper from the same author for review for the journal BR. What should he do?

- a. Review the paper and, if the paper merits it, recommend it for publication in both journals. Then the author can choose in which journal to publish his paper.
- b. Recommend it for publication in BR—since it was sent to this journal first—and not recommend it for publication in SB, not mentioning in his review for SB that he had already recommended it for publication in another journal.
- c. Notify the author immediately of the conflict and recommend that the author withdraw the paper from one of the journals.
- d. Discuss this issue with the editors in chief of both journals and have them decide on a course of action consistent with the policy of both journals.
- e. Decline to review the paper for both journals without providing a reason for this course of action.
- f. Review the paper for both journals and recommend to each that they not publish the paper. He could state in his review that he rejected the paper because the author submitted it to more than one journal which, in his opinion, violates professional standards.
- g. Your solution....

7. You are a senior research professor at a prestigious university. Many years ago, you published a groundbreaking paper in your field of study. You have since published several papers pursuing the same lines of research. Recently you have submitted a paper

to *Studies in Biology* (SB) for publication that further advances your research program.

A professor from a South American university has submitted a paper to a well-known journal in your area, *Biology Review* (BR). Since you are on the editorial staff of this journal and this paper is in your area of expertise, you are asked to review it. The problem: the research in the paper written by the South American professor is identical to the research in the paper you sent to SB except for one nonessential mathematical formula. What should you do?

- a. Contact the editor of SB, the journal to which you have already sent your paper, and inform her of the situation. Tell her that since you submitted first, you should be the one to get credit for this research.
- b. Contact the editors of both journals and tell them that, somehow, this professor has plagiarized your work.
- c. Contact the author of the paper. Tell him that you have already submitted an identical paper for publication at another journal and offer to include him on your paper as coauthor.
- d. Withdraw your paper from SB and allow this other research to have his "moment in the sun."
- e. Your solution....