Appendix I

Script for the Mock Debate

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The mock debate was presented to introduce the theme and structure of the upcoming workshop sessions to the assembly of NABC 2001 attendees. The participants were:

- Moderator, Ralph Hardy, NABC President
- The affirmative team, both portrayed by Mary Ann Smith
  — Professor Norton, land grant university faculty member and proponent of GM technology,
  — Ms. Braun, corporate representative for a major biotech firm, and proponent of GM technology
- The negative team, both portrayed by Colin Scanes
  — An incognito aristocratic English gentleman/organic farmer, and opponent of GM technology
  — Damon Proudon, founder of an anti-technology activist group, and opponent of GM technology

Moderator: Good morning. I am Ralph Hardy, President of the NABC, and I will be acting as the moderator this morning for a brief mock debate that will set the scene for the workshop breakout sessions to follow.

Let me make the following disclaimer before we begin: although we are, in fact, dealing with real issues and controversies here, the following presentation is a *mock* debate, between fictitious characters. Any resemblance of any of the participants to real people, dead or alive, is purely coincidental. Let me tell you, I cannot imagine that any of you could ever mistake any of these characters for real people, but I just wanted to make this crystal clear.

We are gathered today to hear informed arguments on both sides of the issue in The Great Agricultural Biotechnology Debate. The resolution is:

> *Be it resolved: that GM technology is a sound and safe innovation, and should be permitted in the food chain without restrictions.*

We will feature two opposing teams. Our first spokesperson is Professor Norton, a member of the faculty at a large land grant university. She is a strong proponent of GM technology and a long-time researcher in molecular techniques for improvement of vegetable crops. Professor Norton will speak in favor of the resolution.

Our first negative spokesperson this morning is a distinguished gentleman from the United Kingdom who wishes to remain anonymous. However, I will say that he is a part-time organic farmer, and a member of a very prominent, upper-crust family. His Highness—excuse me, I meant to say—our anonymous gentleman is strongly opposed to the resolution, and will give arguments why biotechnology must not be permitted into the food chain.

Professor Norton will begin with a statement in favor of GM technology.

Professor Norton (in white lab coat, latex gloves, and safety goggles): Good morning. As a seasoned member of the scientific community, I can tell you that recombinant DNA techniques are nothing to be alarmed about. There is nothing remotely dangerous about this simple, straightforward technique that careful scientists like myself use brilliantly to improve your foods, and contribute substantially to your quality of life! I really don't understand what all the fuss is about!

There seems to be a lot of confusion about agricultural biotechnology, and I'm sure that I can help by explaining the basics of the science in simple, easy-to-comprehend terms that will make it clear to all of you. Surely once you realize how harmless this process is, all your fears will disappear!

Lets go to a few slides please—

Moderator: But professor, this is a formal debate, we weren't planning on showing slides.

Professor Norton: Pay attention, son. I'm a university professor. Of course I'm going to show slides. If you'd just dim the lights please…

We begin with deoxyribonucleic acid, or you can call it DNA for short. In plants and animals, genes are packaged here in chromosomes that carry the DNA—all the genetic information.

(slide: a DNA molecule)

Quite simply, we take a valuable, good slice of DNA from one organism, and transfer it to another organism, in order to give the wholesome qualities of one plant to another. Let's just say we've taken a valuable gene from a healthy wild weedy plant, and use it to transform a garden vegetable or fruit. Usually we insert the gene of interest into the new plant with a nifty little device called a "gene gun."

(slide: a bullet passing through an apple)

Then we go through a simple series of steps to ensure that the gene of interest is present in the new and improved fruit or vegetable—this involves a series of specific steps—

(slides: a series of a dozen rapid-fire, highly complex figures from molecular genetics journals)

—I really don't have the time to go into the specifics here—you wouldn't understand it anyway—just trust us. We are scientists and are trained to do these steps flawlessly. Really very little could go wrong here. It is really quite marvelous. And after the process is completed, the final product is a dramatically improved fruit or vegetable variety for the betterment of mankind!

(slide: a truck-sized tomato)

Thank you very much.

Moderator: Thank you, professor. Next, we'll give our incognito gentleman a brief opportunity to question the professor's argument: your highness?

Anonymous gentleman organic farmer (in designer suit with cravat, and with an obvious regal bearing): Professor, I really must take issue with your statements. There is a sacred trust between mankind and our Creator, under which we accept a duty of stewardship for the earth! The task of growing food must not take place in the laboratory, but must be left where it belongs, in the hands of the Almighty helped by the traditional farmer!

Professor Norton: I assure you that the farmers are quite happy to be growing our improved GM vegetable crops!

(slide: happy farmer with large tomato)

Anonymous gentleman: Professor, if literally nothing is held sacred, what is there to prevent us treating our entire world as some "great laboratory of life," with potentially disastrous results? We want some control over the changes you are proposing! We want some assurance that indeed this process is safe! We want testing, and we want labeling of genetically altered products!

Professor Norton: Well, we can't always have just what we want, can we?

(slide: Harrison Ford)

Moderator: All right, it's time to move on. Next, we'll hear counter arguments from the anonymous regal gentleman.

Anonymous gentleman: My good people, it is a very distinct pleasure to be in this august body. I am going to speak on areas of belief and faith. I am going to advocate a dismissal of this *(disdainfully)* "biotechnology." I am greatly distressed by this frivolous, artificial and uncontained transfer of genes between species of plants and animals. I advocate a return to the tried and true methods of our past.

In the area of medical biotechology, pharmaceutical companies spend vast sums on the manufacture and testing of synthetic drug products that can yield even vaster profits. Complementary and alternative medicine are as good as orthodox medicine, or, even in some instances, are better.

Similarly in agriculture, the future will need people who understand that sustainable development is not re-engineering Nature in an extension of global industrialization, but a reconnection with Nature—re-discovery of the essential unity and order of the living and spiritual world as in the case of organic agriculture and integrative medicine.

I happen to believe that if a fraction of the money currently being invested in developing genetically manipulated crops were applied to understanding and improving traditional systems of agriculture—which have stood the all-important test of time—results would be remarkable.

One of the most commonly raised arguments by those in favor of GMOs is that they are necessary to feed the world. No one in their right mind would resist a technology that would solve the world's food shortages, if that were the one way forward. But where people are starving, lack of food is rarely the underlying cause. It is likely lack of money to buy food, distribution problems or geopolitical issues.

Agricultural research stations, all over the world, have begun to concentrate almost exclusively on biotech approaches. I can see why this is happening. To a researcher, such work is new, it is *modern*, it is exciting, and it attracts lucrative commercial sponsorship.

The best place to start looking for sustainability is in the traditional farming systems that have stood the test of time. But, of course, they can be improved

by the application of new knowledge and modern equipment. The common features of sustainable approaches include making the best possible use of natural and regenerative processes and human ingenuity and teamwork.

Of course, whether sufficient surpluses can be generated to feed the teeming millions in the world's cities is another matter.

There is a sacred trust between mankind and our Creator, under which we accept the duty of stewardship for the earth. I oppose the artificial and uncontained transfer of genes between species of plants and animals. We should show greater respect for the genius of Nature's designs—rigorously tested over millions of years.

In summary, I wholeheartedly advocate that we scorn and abandon this GM technology in its entirety, and move back into a pure, wholesome, organic method of farming.

Moderator: Next, our second affirmative speaker has a chance to briefly question this gentleman's arguments. Ms. Braun is, in fact, an executive in a major commercial biotech industry. Ms. Braun, you may proceed with questions for your opponent.

Ms. Braun (in business suit, with a briefcase and a pocket bulging with cash): Well, I had intended to offer rebuttal comments to refute the arguments of my obviously arrogant opponent here, but shoot—that accent of his—I couldn't understand half of what he said, could you? In any case, I do not believe that his lame arguments have any real validity. They do not deserve a response. Who is he to question what we are doing? He's just another scientific illiterate.

I would rather just deliver my counter-arguments in favor of GMOs now, Mr. Hardy.

Moderator: Very well. Ms. Braun will now provide rebuttal statements, and provide additional evidence to make a case for GM adoption. Ms. Braun, please proceed.

Ms. Braun: I would like to point out to this audience that we in the biotechnology industry are on a mission of great consequence to help meet the demands for food and fiber in this rapidly expanding global economy.

Our sales in the US of bioengineered crops are $200 million a year, and growing. These products—all thoroughly and rigorously tested—are now everywhere on your supermarket shelves.

The campaign of fear now being waged against genetic modification is based largely on fantasy and a complete lack of respect for science and logic. Genetic modification can reduce the chemical load in the environment, reduce the impact on non-target species, and reduce the amount of land required for food crops. There are so many real benefits from genetic modification, compared to

the largely hypothetical and contrived risks, that it would be foolish to ban genetic modification.

Farmers across the country know that the benefits of biotechnology are real and very significant—not just for agriculture, but for consumers as well. For example, the Bt trait provides corn and cotton crops with natural resistance to pests that can cause tremendous damage. This in-plant protection provides a terrific environmental benefit because it lets farmers use less pesticide and in a more precise manner. Herbicide resistance in certain corn hybrids, and in some varieties of cotton and soybean, gives farmers the opportunity to effectively control weeds with fewer applications of more-benign products. These are just a few of the reasons why American farmers strongly support continued access to products of biotechnology, including all of those produced by our company.

This reduced use of chemicals and the fact that we now make a lot fewer trips over our fields with equipment are big pluses for the environment. These products also improve our efficiency tremendously. Economically and environmentally, American farmers and consumers cannot afford to lose access to the products of biotechnology. Those are the facts, pure and simple, in black and white, and in dollars and cents. I am sure that my opponent will be unable to find any way to disagree with the value biotech adds to our lives.

Moderator: And now a rebuttal and further opposition case-building from our second negative spokesperson, Damon Proudon, who is a founding member of an activist organization opposed to all technology and globalization.

Mr. Proudon (in tie-dyed shirt, with long, wild hair, and a placard stating Ban the Genes*):* I don't know why I'm here. I guess it's a token gesture. The establishment always plays these games. Well I can play the game as well as anyone.

I'm going to defend my position that GMOs need to be banned from this earth. I even wrote stuff down from the web. A teacher at Hunter College in New York described it for real:

> *We are rolling to ecological collapse: rapid climate change and rising seas; ozone holes; loss of species and habitat; accelerated cancer rates; terminal forms of air, water, and soil pollution, as well as social, political and personal alienation and despair. All are rooted in the excesses of technology.*

In the era of economic globalization, the problems are magnified a million-fold. All-powerful global bureaucracies, such as the World Trade Organization, are preventing communities and nation-states from slowing the rate at which global corporations freely exploit the planet, dominate social systems, destroy local economies, and deploy the most powerful and dangerous technologies in history.

Why have there been no referenda on the most dangerous technological trends: nuclear, biotechnology, transport, the globalization of industrial agriculture, corporate power, and global media concentration?

Ralph Nader—who spoke to this group last year during his heroic campaign for the presidency—is very clear about biotech:

> *Genetic engineering has far outrun the science that must be its governing discipline…unknowns beg for investigation, before biotech corporations or their indentured researchers introduce unintended hazards into the environment.*
>
> *Corporate greed has eclipsed sound science and the humility and caution that should be manifest. The result has been a rush to introduce genetically altered seed into the environment without adequate testing; a frenzy to patent genes, seeds and life forms and to extend monopolistic control over the very material of life (and) to foist genetically food on an unknowing public who would reject biotech food if notified and given alternatives.*

These genetically modified crops are such a con. Farmers have to buy seed every year. They can't just keep their seed. They have to buy pesticide—more and more of it—and it gets in my food. They've even come up with a way of making seeds that won't grow. The so-called terminator technology. I call it robbing poor farmers.

You say you'll feed the world, but biotechnology will increase hunger as farmers will be forced off their land or become serfs to the global ag-business monopolies.

Genetic engineering destroys the fragile environment; look at the monarch butterfly! I bet the scientists involved have felt pressure from the corporations! A scientist in Scotland got kicked out for coming up with the wrong results! Why should farmers in Africa and India be forced to buy genetically altered seed? You get monocultures and low yields unless they buy pesticides and artificial fertilizer from the same corporations.

I read somewhere that organic food can have much higher yields than these GMOs and hybrids, but farmers don't believe it because of the conspiracy between the monopoly corporations and the government—most of whom come out of big corporations and then go back to them with lots of money—and those supposed universities with all their corporate dollars. “Frankenfoods” are the result of corporate greed.

You scientists are in league with these global corporations and their governments. You want science based policy, yet when it comes to global warming caused by the same monopolies, what happens? I'll tell what happens: nothing! Kyoto scrapped! Surprised?

Why should we have hidden genes lurking in our food? “Frankenfoods” are being forced on us. If the “frankenfoods” are so good and safe why don't you label them? Give me an answer! What are you so afraid of? What are you hiding?

Why are you experimenting with my food? Tampering—playing around? You just can't trust corporations who brought us global warming, nuclear power and bombs, pesticide-laden food, and high gas prices. Again we see evidence for a conspiracy between the multinational corporations and the government.

Moderator: We can now entertain cross-examination questions from our two teams: Ms. Braun? Mr. Proudon?

> (They throw jibes and taunts at each other and argue out of format. Eventually the exchange ends with hotel security escorting Mr. Proudon from the room.)

Moderator: (to the audience) This brief mock debate was intended to demonstrate that in the raging controversy over GMOs, there are strong positions ‘for’ and ‘against,’ but often the proponents are not on the same wavelength and don't address the same sets of facts or beliefs.

Our task in the workshops will be to examine the GM debate from a number of different viewpoints. We will have the opportunity to explore the debate arguments—those we think are valid, and those we may think are frivolous—in greater detail, and will have the chance to thoughtfully develop arguments and counter-arguments on the issues from the distinct perspective of a particular camp: consumer advocate, European politician, developing country farmer, corporate biotech spokesperson, university scientist, environmentalist, government regulatory agency, and so on. Hopefully, no matter which side you are asked to take, you will be able to develop arguments that are at least as cogent as those managed by the spokepersons we just heard.