[Exhibit: *Our Global Kitchen*  Program: *Future of Food*  Exhibit Section: 6.8]

[TITLE:] THOUGHTS ON THE FUTURE OF FOOD
[TITLE:] How Can We Plan For Climate Change?

[TITLE:] Eleanor Sterling Director Center for Biodiversity and Conservation American Museum of Natural History

**Eleanor Sterling Narration:** We’re going to have to improve our ability to adapt to climate change. We’re going to be facing periods of high heat, we’re going to be facing greater floods, more possibilities for droughts and we’re going to need crops that can withstand some of these conditions.

[TITLE:] Robert Lawrence Director Johns Hopkins Center for a Livable Future

**Robert Lawrence Narration:** We know that extreme weather events are going to be occurring more frequently, so some areas that have benefitted from a steady rainfall throughout the year are now going to have periods of drought interrupted by flooding. That will severely restrict crop production. Climate zones will change so that we will be growing plants and vegetables in more northern and more southern latitudes than we have at the present.

[TITLE:] Amy Bentley Associate Professor Nutrition, Food Studies and Public Health New York University

**Amy Bentley Narration:** It’s also got a more serious impact in the areas in the south and the equator as climate gets hotter and it’s harder to produce crops that are going to feed people sufficiently. Water supplies will dry up and that will also have negative consequences so we need to think about how we’re going to deal with that in the future.

[TITLE:] Roseline Remans Associate Research Scientist Tropical Agricultural Program Columbia University

**Roseline Remans Narration:** We want to reduce our vulnerability to climate change and one strategy to do that is to have more diversity in our systems. So, that diversity will not only be a way to get more diverse plates and more diverse nutrients for our own diet, but also as a strategy to become less vulnerable for climate change.

**Eleanor Sterling Narration:** Climate change is affecting agriculture, but agriculture itself also drives climate change. There are a number of different ways that we can reduce the impact of agriculture on climate change. The first one is to think about reducing our reliance on nonrenewable fossil fuels, those fuels that we use for growing and transporting our foods. The second possibility is to be more efficient about the use of lands that already are under agricultural production so that we can avoid trying to cut
tropical forests to create new land for agricultural production. And the third is thinking about more judicious dietary choices. Eighteen percent of the world’s greenhouse gases come from livestock and 35 percent of the foods that we produce go to feeding those livestock. So if we eat lower on the food chain, we have an opportunity to have a lower impact of agriculture on climate change.

[TITLE:] What is the Role of Technology and Biotechnology in the Future of Food?

Imagine how technology can help us to align supply with demand so that we can have food where it’s needed, when it’s needed. For instance, farmers in Africa can access information using their smart phones to better plan. Smart phone technology can help you think about where the markets are to sell your food and what the prices are and then you can count backwards to figure out what to plant when.

[Robert Lawrence Narration:] When most people hear the word biotechnology they think of taking a gene out of one species—a fish for example—and putting it into a tomato.

[Eleanor Sterling Narration:] But actually biotechnology is a much broader field. We can look across an entire genome and select for particular traits and mark those traits so that we can produce organisms that do something that we desire, for instance fruit that tastes better.

[Roseline Remans Narration:] I don’t think that biotechnology will change the way we eat or will change what we have on our plate, but I do think biotechnology will change some of the ways we grow food and hopefully will facilitate some of these ways.

[Amy Bentley Narration:] There are a lot of unknowns with biotechnology. We don’t know the ultimate effects on crops, on animals, on insects. We don’t know what the longer-term effects are and so it seems prudent to go slowly and think about it.

[Eleanor Sterling Narration:] We have no sense for the long-term impacts of genetically modified organisms on the environment. Once those organisms are released into the environment it’s impossible to call them back into the lab.

[TITLE:] How Can We Feed the World More Sustainably?

[Robert Lawrence Narration:] Bushels of corn per acre are ten times what they were in my grandfather’s day, but that has come at a real cost and the cost is a reliance on nonrenewable resources; fossil fuels that are used to make the pesticides, the herbicides and the synthetic fertilizer. As those supplies are beginning to diminish, we have to look forward to a future where we will rely more on renewable resources and yet maintain the yield necessary to feed the world.
[Amy Bentley Narration:] When I think about food production in the future—are we going to have enough food to feed 9 billion people—technology’s going to be a big part, creating the best seeds we can is going to be very important, but we also need to think about the environment, we need to think about people’s well-being, we need to think about providing food for everybody.

[Robert Lawrence Narration:] A dramatic change in the last 20 or 30 years has been the industrialization of food animal production, and the concentration of food animal production has led to a number of things that the consumer sees as inexpensive meat in the supermarket because the true costs have been externalized, externalized to the environment with degradation of water, air and soil, externalized to the health system because of the health impact of a high-meat, high-fat diet, externalized to the future because we’re using up nonrenewable resources. So we need to break through that industrial model and replace it with an ecologic model.

[Roseline Remans Narration:] I also think that we will eat less meat and this not only because of its incredible ecological footprint that meat production has, but also because eating too much meat is just not healthy.

[Eleanor Sterling Narration:] When thinking about the future of food and trying to identify ways for us to solve the problems that we’re facing in our food system, we need to be thinking about a network of solutions. There is no one, single solution. We need to be thinking about mixing tried and true systems that we’ve developed over years, over generations, with new ideas and technologies that we’re developing now and into the future.