CSPI's Second Annual Science Policy Forum on Emerging Technologies

"Genetically Engineered (GE) Wheat"

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[TRANSCRIPT PREPARED FROM AN AUDIOTAPE RECORDING.]
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MODERATED BY:

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PANELISTS:

Gregory Jaffe, Biotechnology Project Director, CSPI

Gary Blumenthal, President and CEO, World Perspectives, Inc.

Daren Coppock, CEO, National Association of Wheat Growers

Carol Mallory-Smith, Professor of Weed Science, Oregon State University

Jerry Steiner, Executive Vice President, Commercial Acceptance, Monsanto Company

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MR. JACOBSON: Good afternoon, and welcome. I am Michael Jacobson. I am the executive director of the Center for Science in the Public Interest, which is sponsoring this event.

For those of you who aren't familiar with the Center, we are non-profit consumer advocacy organization. We focus especially on issues of foods, nutrition, alcoholic beverages and couldn't resist the opportunity to get involved in agricultural biotechnology.

Most of our funding comes from our 850,000 subscribers to the Nutrition Action Health Letter, and we also have some grant funding, including from the Rockefeller Foundation which is helping our biotech project.

This is CSPI's latest policy forum on emerging technologies. Nine years ago, the first products of agricultural biotechnology were commercialized. Since that time, farmers have grown millions of acres of Roundup Ready soybeans, BT corn, and BT cotton in many countries around the world. Those crops, especially the BT cotton crop, have resulted in environmental benefits to our globe or economic and health benefits to the farmers. Nevertheless,
notwithstanding those benefits, the controversy over biotech crops has hardly subsided.

   In 1998, the Europeans imposed a moratorium on new biotech crops, and that moratorium has still not been lifted. Many people in Europe and elsewhere around the world questioned the environmental safety of those crops as well as their effects on biodiversity.

   In 2000, Starlink corn was found in our human food supply, causing billion-dollar recalls for the food industry and providing strong evidence that it is extremely difficult and expensive to completely segregate commodities by specific variety.

   Earlier this year, the United States instituted a WTO case against the European Union for its moratorium and strongly objected to its new and extremely restrictive labeling and traceability regulations. At the same time, the Biosafety Protocol came into effect setting in motion the establishment of what could be over 100 different regulatory systems worldwide for the safe planting of biotech crops.

   While biotech companies continue to introduce new varieties of feed grains and cotton in the United States
without any controversy, those same companies and university researchers are working on promising biotech varieties of the first food crop, wheat. Those potential GE wheat varieties don't seem to raise any novel food safety or environmental concerns. Yet, various stakeholders who have accepted GE soybeans or corn are weary of GE wheat.

What are the concerns of different stakeholders with the introduction of a GE wheat product? Is there something about wheat and its markets that make it unique? Have stakeholders learned lessons from GE soybeans and corn that make the introduction of GE wheat worrisome?

CSPI's Doug Gurian-Sherman has reviewed the GE wheat variety that is closest to commercialization, Roundup Ready wheat, and assessed several food safety and environmental concerns in a scientific report to the FDA and USDA. We have copies of his review at the table outside this room.

Today's forum includes various knowledgeable stakeholders who will discuss the promise and the concerns surrounding GE wheat as well as the regulatory and market conditions under which a biotech company could introduce the commercial GE wheat product in the United States, and many
of you in the audience are equally knowledgeable and I trust
will participate later in the session when we open up the
microphones.

I hope that today's session will lead us all to a
more sophisticated understanding of the substantive concerns
surrounding GE wheat and of the solutions various
stakeholders propose.

To get us started, I am pleased to introduce our
moderator, Mike Rodemeyer. Mike is the executive director
of the Pew Initiative on Food and Biotechnology. The Pew
Initiative has worked for the past 2 years to educate the
public about the various issues surrounding agricultural
biotechnology.

As its director, Michael Rodemeyer is one of the
most knowledgeable people on biotechnology policy issues.
He has a wealth of experience both inside and outside
Government, and to learn more about him, we have biographies
at the table outside this room.

Mike?

MR. RODEMEYER: Michael, thank you for the
introduction.

Good afternoon, and I am pleased to welcome
everyone to the policy forum this afternoon sponsored by the Center for Science in the Public Interest.

Wheat has been a staple of the human diet since it was first domesticated, probably thousands of years ago in the Fertile Crescent, and probably since that time, farmers have been selecting and breeding wheat varieties to try to deal with the challenges that farmers always face of finding varieties that are more disease-resistant and higher-yielding.

As Michael mentioned, today scientists at universities and companies are working on using the tools of biotechnology to develop new varieties of wheat. Currently, U.S. and Canadian regulators are reviewing a variety of hard red spring wheat that is tolerant to the herbicide, Roundup. Another variety of wheat resistant to Fusarium-Blight has been field tested, and researchers are working on varieties that include drought tolerance, less allergenic wheat, and more nutritious wheat.

As a result, as Michael mentioned, wheat is soon likely to become the next major U.S. food crop, after corn and soybeans, to be modified through biotechnology.

In the United States, wheat is actually the
third-largest crop grown by farmers in terms of farm value, about $6 billion in recent years, and the U.S., in fact, is the world's largest exporter of wheat. About half of the wheat crop is exported.

The question is whether biotechnology will be a boon or a bane for wheat growers. U.S. wheat growers already face stiff competition from other wheat-producing countries, including Canada, the EU, Australia, and Argentina. The U.S. farmers have suffered a declining global market share for nearly 20 years, currently accounting for about 25 percent of the global export market.

Today, about one-third less wheat is being grown in the United States than was being grown about 20 years ago, and real prices are at or near a 50-year low.

Given this background, wheat farmers are clearly looking for new opportunities, and biotechnology may well offer a way to increase production efficiency to help make U.S. farmers more cost-competitive.

It could also create new varieties with value-added traits that consumers may want, like allergin-free wheat, but given the global controversy over genetically engineered foods, biotechnology also presents
market risks for wheat growers as well. Simply put, will export markets buy genetically engineered U.S. wheat, or will markets express concern about any U.S. wheat out of fear that it might inadvertently contain some levels, low levels, of genetically engineered wheat?

Some believe that markets may be more hesitant to accept wheat because, unlike corn and soybeans, most wheat goes directly into human foods. To meet market demands, growers and distributors will need to segregate GE and non-GE varieties with uncertain costs, and growers will need to face the need to manage some herbicide-tolerant GE crops to reduce the likelihood of herbicide-resistant weeds and volunteer plants.

Today, we have a distinguished panel of experts to help us sort out these questions about the future of wheat and biotechnology. I encourage you all to take a look at their biographies, which are included in the materials that have been supplied for you, and I won't take the time to introduce them in great detail here, but I certainly would encourage you to look at those materials.

I will comment on the format today. For the first hour and 15 minutes or so, we will be having a panel
discussion. I am going to ask each of the panelists to respond to a fairly general question, so that we can begin to get some material out on the table, and then we will have a panel discussion.

At about 2:15 to 2:30, we will open up the floor to questions from the audience. There will be hand-held microphones around. We will ask everybody to identify themselves and their affiliation.

We are recording this. There will be a transcript available on the CSPI website in a few weeks. So it will be helpful for everyone to identify themselves as we speak.

So, with that, let me introduce our panelists, just briefly. To my immediate left is Jerry Steiner from the Monsanto Company; next to him, Ron Triani from the Kraft Foods Company; Greg Jaffe from the Center for Science in the Public Interest; Carol Mallory-Smith, Oregon State University; Daren Coppock, the National Association of Wheat Growers; and Gary Blumenthal from World Perspectives.

Let's start off the conversation today with a question actually to Jerry to help us understand why biotechnology, what are the benefits of using biotechnology to modify wheat. Give us some sense of what you can do with
biotechnology that you really can't achieve with conventional plant breeding.

MR. STEINER: Thank you, Mike.

I will really start on that question talking specifically about Roundup Ready wheat, because I know that is on a few people's minds, and then really broaden out to talk what is beyond that.

We want to bring Roundup Ready wheat to the marketplace because we believe that it is going to bring the same kinds of benefits that this same technology, Roundup Ready, has already been brought, as has been mentioned in the introductions here, in corn, soybeans, cotton, and canola, and these are very overwhelming benefits when you look at what they have done. I will talk a bit more about that in a second right here.

These technologies, the Roundup Ready technology and its system, has significantly enhanced -- this is what growers tell us -- their productivity. It has fit the way they have farmed, with less labor being available on the farm today than when I was a kid operating on my father's farm, and it has significantly impacted their profitability by giving them a simpler and better weed control system than
otherwise was available.

If you look at a study that was done, a peer-reviewed study, in 2001 by the National Council on Food and Ag Policy, it documented that there was a $1.6-billion decrease in cost for farmers just from the Roundup Ready technology that was brought in the various crops, and it would be larger if you are looking at what has happened today.

In addition to that, Roundup Ready technology has significantly reduced the amount of herbicides that have been used on a number of these crops right here. I believe in 2001, just looking at the herbicides, so not counting the insect-protected crops, they documented 30 million pounds, so improved profitability for the farmer which impacts the farmer as well as world communities, which we all know are very challenged, pesticide reduction, and finally a third benefit I am going to talk about a bit more, conservation tillage. All are important benefits not only to growers, but I believe to consumers, to all of us as citizens.

One of the side benefits that Roundup Ready has brought is that it has increased the amount of conservation tillage. Conservation tillage is a change in the way
growers grow crops in that they use less tillage, many times enabling them to keep the stubble growing out in the field. This is excellent for wildlife habitat. It also has significant capabilities of reducing erosion and improving water quality.

The reason this works is that Roundup is an excellent weed-killing product, and they are able to get post-emergent weed control in a very, very high-quality kind of manner.

As a matter of fact, the American Soybean Association would report that almost two in three growers have documented that this was their primary factor in their increase in conservation tillage since Roundup Ready soybeans have come out.

If we look at wheat specifically, weed control is really very important, and it is far from a need that is completely met. North Dakota State University in 2000 reported that if you looked at just the impact that weed control has had, or lack of it, that there was 28-percent fewer bushels of wheat produced than would have been produced with optimal weed control. We think Roundup Ready can make a difference there.
This is backed up by what has also been shown in the field trials that we have had over the last several years in North Dakota, Montana, and Canada, in that you see a 5- to 15-percent increase in yields compared to today's treatment. If you look at the average yielding, about 40 bushels, and you take today's price of wheat, you are talking $15 to $20 an acre of improved productivity that comes out of that field. So this can be a significant economic benefit for growers and in producing more wheat.

There are some other panelists that I am sure will talk about the world dynamics on wheat production. The way I look at it is that the world is going to need more wheat, and this really is just in direct correlation to population growth and I think importantly where that population growth is taking place. It is largely in the developing countries.

I think that having a highly cost-effective wheat production model is going to be extremely important to be able to effectively compete for that export demand, and technologies like biotechnology, including Roundup Ready, but certainly not limited to Roundup Ready, are going to be important in meeting that overall need. So those are benefits.
We can talk a whole lot more about those benefits, but I recognize that people also want to talk about the questions. We recognize that there are questions. In January of 2002, we put out a specific Roundup Ready Wheat Pledge. Many of you may have seen this brochure. It outlines what those are.

We made six commitments to the wheat industry in this brochure right here. There are some back there. If there are not enough, please make a list and we will be happy to send these out. We developed this in working with the wheat industry, and we ran it by the Wheat Industry Advisory Committee which gives us advice.

Of course, first, the product has to be safe, and it has to receive approvals from the U.S., Canada, and Japan.

Second of all, of course, as was addressed in some of the opening statements, we have to have agronomic systems that are really going to work for the grower. Growers are the only source of Monsanto. We are only an agricultural company. We need to keep these people happy for us to do well. So the system has to work.

Third, we have to be in varieties that meet the
qualities of the end users.

There are three specific commitments around ensuring the end markets. One of them is that appropriate thresholds and marketing agreements with key customers need to be in place. Those thresholds form the next one, which is that we need to have grain segregation systems in place that provide choice, and finally, we need to identify buyers for biotech wheat.

So those are the six commitments that we have put out, and that is what needs to happen before we put Roundup Ready wheat on the marketplace. We are committed to being a responsible introducer.

In your opening, you talked about what else does this mean. It is likely that Roundup Ready wheat is certainly the most advanced biotechnology project in wheat, but it, by far, is not alone. There are more than two dozen projects that are also going on at universities and other companies, and we really believe that with a responsible and successful introduction of Roundup Ready wheat, we are going to provide a motivation for a whole lot more opportunities for good products for growers, the environment, and consumers to come forth.
One of them that we are really excited about in our own pipeline is something that was first demonstrated this last year in our first field trial. It happened in corn, and we see a lot in corn and soybeans because this is a place where we had a very high degree of success. We are investing that profit in the next generation.

The trait that really showed up and was very, very powerful in corn was drought tolerance. We found a plant gene that enhances the plant's natural ability to protect against dry conditions. I think this is something that could be very, very interesting in wheat because wheat is grown in some of the driest places in the United States.

Just in summarizing, we think that a responsible and successful introduction will bring a lot more choices to growers as well as consumers.

MR. RODEMEYER: Thank you, Jerry.

Let's turn to the other side of the table. Gary, if you could address a little bit, what challenges in the U.S. is the wheat industry facing today, and how is the introduction of biotechnology varieties going to affect those challenges?

MR. BLUMENTHAL: The way I would like to do this,
since we provide market and policy analysis for lots of different commodities, is to do it by comparison of corn, wheat, and soybeans.

If we take the compilation of analysis that we have done over the past year or two, if we look at soybeans, U.S. production has been expanding. We look at corn, and the U.S. production has been expanding. If we look at wheat, it has declined and declined quite substantially.

Just looking at yields over the past decade, soybeans yields have increased 11.7 percent. Corn yields have expanded 15.5 percent, and wheat, just 6.3 percent.

Globally, we see an expansion in corn and soybean production, while we would describe wheat as shifting. The production is really increasing in other parts of the world, sort of what we call new players in the world.

If we look at exports, there are some other complicating factors on the export front; for one, a very high-value dollar, which has caused essentially soybean exports to plateau partially because of the dollar, partially because of limits on area, corn exports have been shrinking, but if we look at wheat, wheat exports have fallen over 50 percent over the past 20 years.
I would go so far as to venture to say that Paul Berg from Purdue recently said that if we take U.S. agricultural trade, by 2007 he expects the U.S. will be a net importer of agricultural products.

We can take the trend line for U.S. wheat and say there is a point sometime in the next 10 years in which the U.S. may no longer be a net exporter of wheat if we continue along this path.

If we look at global consumption since 1995, '96, when essentially biotechnology as a technology got its start, then we have seen a 54-percent increase in soybean consumption. We have seen a 17.5-percent increase in corn consumption. Wheat consumption has only grown 7.7 percent.

Since this discussion is about technology, the use of conventional technology continues. We continue to look for ways to expand yield, fight disease, and develop new products, but if we look at biotechnology, interestingly the soybean industry has an initiative called the Better Bean Initiative. What they are trying to do is develop a soybean that produces two components that are much in demand by the market, one being more protein and the other being low linoleic acid. The advantage of low linoleic acid is that
will solve much of the transfat issue that has increased of late or has been recognized as of late to be a problem.

If we look at corn, there has been a lot of work going on, increasing the amino acid levels. There is a development of a low-phytate corn so that we have less animal waste problem. So there are initiatives going on, on the biotech side, for these commodities.

I think Jerry mentioned there are some going on for wheat, but generally, there is this tentativeness about how the technology is used.

I saw this from a much broader context. If we look at the U.S. economy as a whole, productivity increased in the third quarter of this year by 9.4 percent. Much of that attributed to the fact that we have adopted technology, which has increased our productivity, and you see this back at the crop production level as well.

I can go into the details on the market through any questions that might come up, but we see three advantages in the U.S., both from an agricultural standpoint as well as a broader economy, and that is technology, capital, and human resource. We would say we need to make use of all three of those strengths, whether it is wheat or
producing widgets or whatever else we might do.

MR. RODEMEYER: Ron, based on your experience to date with foods from biotechnology crops, how does the introduction of the biotech varieties of wheat affect food manufacturers, either domestically or internationally? I guess the question is: Do you think wheat will raise different issues for food processors and others in the distribution chain that may be different from what we have seen for corn, cotton, and soybean so far?

MR. TRIANI: Well, as you have heard, I work for Kraft Foods, and many of you probably know who Kraft is. We are the largest food company in North America, and we are the second-largest global food company.

We sell many foods that contain wheat. Obviously, the commercialization of biotech wheat is of interest to us as well as to many of the people in the food chain.

Let me give you a little bit of background. We are very confident in the safety of biotech crops that are currently on the market, corn, soy, and canola. There is a strong and broad international consensus among scientists and regulators, including the National Academy of Sciences, FDA, USDA, and EPA where appropriate, in the United States
that these crops are safe.

As with previous crops, we expect wheat, wheat derived from biotech, to go through the same regulatory hurdles as well as crops, and we are assuming that when FDA and USDA looks at these crops and rules that they are safe that, in fact, they will be safe for use in food product. So there will, in essence, be no safety issue as far as we are concerned.

We look at agricultural biotech as a very exciting technology that can help us create new crops with specific traits at a pace that we could have never imagined. So we think biotech is something that has great promise for the future, and for those of you who have been in this discussion about biotech for the last 4 or 5 years, I think that is one of the things that we always talk about, the promise of the future.

The benefits of biotech wheat today include -- and you have heard some of them -- decreased dependence on pesticides and herbicides, higher yields, no tilled farming, maybe even higher grades of end product. So we look at this as a major benefit to our agricultural producers, our partners, and the farmers.
So, if we had a concern at all, what would that concern be? While this technology offers great promise, implementing this technology without insight into consumers we think would be imprudent. So we have a question about the real and perceived benefits to our consumer, and are the benefits that are afforded farmers, benefits that our consumers will realize as benefits to them.

So we need to make sure that the benefit that you think about when you are creating crops for agriculture are benefits that are going be perceived positively by our consumers.

I will kind of walk you through a quick lesson in Product Development 101, but I am sure many of you know this. Consumers at the point of purchase make a decision in less than 2 seconds. So they have already fundamentally decided what products they are looking for, and if they are not, they are making a very, very rapid decision among the competitors. So the decision that goes on at the point of purchase is critically important obviously if you are in the food processing business.

The decisions that consumers make are obviously based on taste, texture, aroma, flavor, nutrition,
packaging, packaging design, and there are many intangibles, freshness, convenience, imagery, satisfaction in making another family member happy, and so on. These are all weighed against the cost of the product; that is, the price.

So, if you think about how consumers make decisions and you think about it very simply, they are doing a "Here is the value of benefits of the product, here is the cost or risk of the product" and they are making a decision about the product.

So what happens when you add other factors to the price or the cost, such as actual or perceived risk? We have some examples that are outside the realm of biotech. As an example, the product promised great taste: did it deliver, will I be satisfied, did I pay too much, and a relatively new question with the introduction of biotechnology and food which is, is the product safe. Again, we are probably not talking about actual safety. We are talking about perceived safety.

Since our relationship with consumers is critical to our success, we pay a lot of attention to consumers' wishes, obviously, and we need to maintain consumer confidence in our products and we need to protect the equity
of our brands.

So, when it comes to the topic of new technology, we need to weigh the benefits and the costs to the consumers. We need to pay attention to what they want. In addition, there is the question of whether consumers will react differently to wheat, biotech wheat, than they reacted to corn or soy, and quite frankly, I will tell you, we don't know the answer.

So everyone in the room, I think, can probably cite the numerous surveys that have been done with consumers about biotechnology and agricultural. We have done surveys since 1999, and we have done them very consistently. So what we are keenly interested in is in shifts in consumer trends, and I will kind of walk you through some of the top lines.

We have seen more than 70 percent of the consumers know about biotech. So it is not an issue of awareness. We also have seen that the perception of food made with biotech is tilted positively in the United States, and the number of consumers that have expressed concern, although small, has slightly increased over time, certainly not at alarming rates, but probably for us represents a
trend worth watching. At this point, the concerns tend to be soft. They tend to reflect uncertainty rather than rejection, and when asked about benefits, unprompted, many, many people are not sure what the benefits are. So this presents to us a little bit of a problem.

So, when we think about consumers and we think that consumers might not see the benefits of biotech, that raises an issue with us about how they are going to act in the marketplace.

The question about future consumer behavior with regard to biotech wheat is further compounded in the global marketplace. Remember, I said that Kraft is a global manufacturer. So we have to deal with different regulatory regimes, the world-famous precautionary principle, and real differences in consumer behavior and beliefs. Therefore, the food industry needs to look carefully at the introduction of genetically engineered wheat, especially since the benefits to the consumers are not blatantly obvious.

Our view is to carefully consider consumer perceptions not because we believe current biotech is
unsafe. We believe the regulatory system in place for overseeing the production and safety of biotech wheat, as an example, is sound, but be careful about how it relates to producing a food with a commodity that may have a special place in the hearts and minds of consumers, wheat. Remember, wheat is one of those things that is solely consumed primarily by humans. Corn and soy, consumers also view those as animal feed.

So how do we take advantage of this technology? That is an interesting question. We think we need to see biotech introduced at the right time. So, when Monsanto says they have a pledge to do six things, we really think that is a terrific point of view for Monsanto.

Once we are confident of safety, we need to make a decision about consumer acceptance. We would like to see international acceptance in place in important markets. We talked about Japan, Canada, and the U.S. We also would like to see products that have attributes that consumers will pull the product off the shelf. Biotech wheat with real benefits would go a long way to ensure marketplace success.

So you are probably asking yourself: What is Kraft going to do when genetically engineered wheat is
introduced? Well, we are going to take a very hard look at safety because safety is our number-one priority. So, after you review safety three times, then we are going to go look at what our consumers want. Right now, I can't tell you what our decision is going to be.

At this time, we are not making any decision about biotech wheat until we see what FDA says, and as with any new ingredient, we will determine if biotech wheat meets the needs of our consumers. I think history tells us with corn and soy at least in the United States that this probably will not be a big issue, but we have concerns because consumers have expressed concerns to us, and the concerns seem to be increasing over time.

MR. RODEMEYER: Greg, good segue to you, which is reports, actually this week, said that the FDA is actually getting fairly close to making a decision on Roundup Ready wheat, and the question I have for you is given the fact that this is a trait that has already been widely adopted in other food crops and reviewed by FDA, is Roundup Ready wheat likely to raise any new food safety regulatory issues or in your mind create different kinds of consumer perception issues? Perhaps you could address the issue of the
relationship between the safety review process and consumer confidence in new technology.

MR. JAFFE: Well, thank you, Mike. You know, I think this is a good segue.

I think when you ask consumers what do they care about most, they care about safety. They care about food safety first and foremost, and I agree with Ron there. They want to make sure that whatever they pick off the shelf at the supermarket is safe to eat. They don't want to have to worry about whether it is safe or not, and I think that is where we run into a problem with biotech foods with our current regulatory system. FDA doesn't determine that the food is safe.

Although Monsanto always says they are going to wait for the appropriate agencies in the U.S., Canada, and other countries to look at this product and although Ron has a lot of confidence in the regulatory system that exists out there, I think consumers want to have confidence in the regulatory system, but that, in fact, for food safety in the U.S., we don't have a mandatory premarket approval process for biotech crops. I am talking generally here, for all biotech crops, not just genetically engineered wheat.
But I think it is most important with genetically engineered wheat because, as several of the panel members have already said, this is the first time that we are dealing with a human food. Wheat is primarily going to be used for human consumption. It is bread. Bread has religious significance in certain religions. We serve cakes to our kids for birthdays. It is different than soybeans and corn where the majority of that goes into animal feed, and the kinds of corn products that we eat are either highly processed that have been genetically engineered or things like sweet corn really haven't had much of a genetically engineered market for them.

So I think consumers are going to look at wheat differently, and they are going to want to be extra certain that that wheat is safe. I don't doubt that the biotech companies are going to go and do the necessary testing that they think is necessary to ensure that it is safe and that they are going to provide summary data to the FDA under the voluntary consultation process, but I think that if you want consumer confidence with this technology, if you want the number of people who are hesitant about it, as Ron says, to decrease, and a number of people to be positive about it, I
think the way to do that is for FDA to come out and say we
agree with Monsanto for Roundup Ready wheat or with Syngenta
for Fusarium-resistant wheat.

We agree that this food is safe, not as they
currently do where they say we have no questions at this
time about the company's determination. That doesn't give
me a lot of confidence as a consumer, and I don't think it
gives a lot of confidence to other consumers.

On the other hand, if FDA came out and said we
think this food is safe, it is safe to market, then I think
that is a different message that consumers will get.

So I think that if you want consumer acceptance of
wheat in particular because it is going to be for human
food, you really need a stronger regulatory system from FDA.
You need a mandatory approval process. You need FDA to say
to the public, "We think this food is safe," an independent
review of the data, an independent determination."

That happens in Canada, and that happens in Japan,
and it will happen in those other markets, and that is great
for their publics, but I think the public here cares about
what our regulators say. The fact that Canada has approved
it for food safety or Japan has approved it for food safety,
I don't think goes very far in the U.S. So I think that is necessary.

There are other members of the food industry. Ron may agree with some of them, but there are some of them in the food industry who have said that the FDA's process isn't sufficient. I know that even Daren Coppock's organization, the National Association of Wheat Growers, has talked about the need to have FDA more involved in the review process for genetically engineered wheat. So I think this idea is something that would help move this technology forward, and I think that is the first and foremost thing that consumers really want.

They also want to see that it is safe for the environment, and I am sure Carol will go into some of those things, but they are concerned about environmental effects. They are concerned about the development of resistance and the transfer of genes, and there are ways that those can be engineered with products to ensure better safety of those. There are ways that the Government can have oversight, like management resistance and so forth. I would like to think that we would like to see those in place.

The other thing I just would want to say quickly
is that I agree with Ron that one of the best things for getting consumer acceptance for wheat or any other biotech crop would be to have that product be beneficial to the consumer. Right now, if we take Roundup Ready wheat as an example or even the Fusarium-resistant wheat or some of the other products, I am not sure that the consumer who goes to the store is going to see a personal benefit, an individual benefit to them. The products probably won't cost cheaper, the ones that are made with the genetically engineered wheat. They won't have a different taste for those products.

There will be some benefits, and a lot of people talked about those, some farmer benefits and some environmental benefits, and I think consumers would care about those if they knew about them. One of my criticisms I think of the biotech industry to date has been the real inability to educate the public about those benefits. There are some real benefits out there. There are peer-reviewed studies and others that people have cited, but the public doesn't know about those. I think especially if you want adoption of a product like wheat, somebody needs to get out there and do a better job of educating the public about the
benefits. If there are environmental benefits, educate the public about those because I think the public does care about the environment.

To date at least -- I think Ron showed it in his surveys -- the public doesn't really know about those benefits, and if they don't know the benefits, they are unsure about the safety because the FDA hasn't said it and they perceive a risk, whether it is real or not, they are going to be skittish about the product.

As to the product itself, I don't think we think that Roundup Ready wheat or any of the other wheats may not have any new risks other than the ones that are also possible of being an allergin or toxin for this biotech product, but you have to look at the specific data for each of those applications before one knows whether in particular those applications are safe.

MR. RODEMEYER: Carol, on some of the environmental issues that Greg was talking about, can you tell us a little bit about what are the environmental benefits and some of the environmental concerns that are being raised particularly by the Roundup Ready wheat, and in particular, that they raise management issues for both
technology, developers, and farmers?

MS. MALLORY-SMITH: Sure. Well, the number-one environmental issue that is usually raised with the introduction of the GE crops has been are there wild relatives or native species that it might cross with, and in the case of wheat, there is one relative of wheat which is an anjelop [ph] species that it can hybridize with. It hybridizes at very low frequencies, but you can get seed production on the hybrids. So the question becomes can we move the Roundup-resistant gene into a wild relative and then produce a new herbicide-resistant weed that the growers have to deal with, and the answer is yes, we can move that gene, but the next question is the "so what" question, is it really an advantage, does it make the species more invasive. With herbicide resistance, most of the time researchers have felt that it is a neutral gene, that in most situations if it is moved outside of the production area, it is neutral unless you want to use that particular herbicide to control it. Then it becomes a herbicide-resistant weed in that situation.

In some cases, with some herbicides, it would not be an issue. With Roundup, it will raise issues because we
use it in so many other areas besides just in the production fields. So there are issues with that.

Another issue that is often raised is if we increased the use of Roundup in these crops, then will we increase selection of just weeds out there, not moving the gene or anything else, but just do increased selection of herbicide-resistant weeds in the system, and if we do that, what kind of complications does that cause for production.

If you do produce, in this case, a Roundup-resistant weed, then you are going to have to put another herbicide back in that system. So the question becomes do you actually increase herbicide use once you produce those herbicide-resistant weeds. That may or may not happen. It depends on what the other options for wheat control are in that system.

The other major question that is being raised especially about the introduction of Roundup-resistant wheat in particular is the question about how do you control the volunteer wheat because, once you have the weed in the system, in the next year when the weed -- wheat comes up, it becomes a weed in your next cropping system, and what are you going to be able to do to control that weed now that is
in a new crop.

In some cases, there are very easy solutions for that. If you have a crop that you are growing that you can use a grass-specific herbicide in, then it is not an issue. The issue in certain areas right now is what will happen in our reduced tillage, things that were already brought up about the conservation tillage.

For many areas, volunteer wheat is one of the biggest weeds in that system. So, in the year that you are trying to do conservation tillage, you are not doing any tillage out there. You also have to control any volunteer wheat that would have come up, and right now, the mainstay of that system is Roundup.

So we would have volunteer wheat that we would need to control with a different herbicide, which would mean that we need to put a different herbicide into that system and not be able to depend on Roundup like we have been.

Roundup is an extremely good herbicide. It is very cheap. It has broad spectrum. It works very well in that system. So the loss of that would be a big question for growers, how are we actually going to deal with that problem.
I think there are certainly benefits for growers. Some of those benefits have already come up. When we think about how easy weed control is with Roundup, it is extremely effective. It is cheap. They can get post-emergence weed control. So they can go into a lot of different times during the season and get weed control. It also has, in some cases, replaced herbicides at higher rates that were less effective and maybe would have had more detrimental environmental impacts. So there are a lot of tradeoffs in that system.

Those comments mostly were specific to Roundup, and the whole issue of the next kinds of traits that could be put in, for example, salt tolerance or drought tolerance would have totally different environmental impacts, because then you are talking about changing the ecological amplitude and possibly the invasiveness of that particular weed species. So they will have much different impacts than something like herbicide resistance.

MR. RODEMEYER: Thank you.

Daren, I have left you last because, in a way, the farmers are the place where the rubber meets the road, having to figure out about biotechnology.
So I think my question for you, what are the opportunities and challenges that you see for wheat farmers, and how are farmers going to make this decision when biotech wheat is made available?

MR. COPPOCK: Thank you, Mike.

Let me point out that not only do I represent wheat growers here in Washington, but I grew up on a wheat farm in eastern Oregon. The farm has been in the family for over a hundred years, and I have some personal experience in the issues that I will speak to you about today.

The growers of wheat in this country are kind of on horns of a dilemma with Roundup Ready wheat and with biotech wheat in general, and that is that we see a very compelling and very strong case of benefits for biotech. I will describe what some of those are and why we think those are so important, but the other one is the whole market question, the one that Ron alluded to earlier, and that is will the customer buy the product because it can be the greatest product in the world and provide all kinds of benefits across the spectrum, but if the customer doesn't buy it, it is not worth anything to us or to the people who make products from it. So we are trying to bridge that gap,
bring those two positions together, so that we can have a successful introduction of biotechnology traits in wheat.

The benefits that we see are a number of different ones. One is from the productivity and competitiveness standpoint. If you look at where new wheat production and new wheat exports are coming from in the world, the countries that are just coming into the market, Black Sea origins, have lower cost of production than we do, and there are a whole number of reasons why that is, but the fact is that we need to be able to continually squeeze cost out of the equation on our side and biotechnology is an important way for us to be able to do that down the road.

We also believe that biotechnology can bring us end-use traits which will extend beyond just the farm gate or one or two steps down the value chain, but can provide benefits directly to consumers or at least to people who make products, whether it is dealing with calories or whether it is dealing with allergenicity or whatever the issue may be. It is a very powerful tool that may help us get at some of those things.

In fact, we concluded a new uses audit just over a year ago. Gary mentioned how consumption and use of corn
and soybeans have expanded. Corn has been going big into ethanol. Soybeans has been expanding in a biodiesel. We haven't seen a lot of the new uses in wheat, and so what we did was catalog where are some of the opportunities, what can we do with this grain to get more value out of it to increase production and increase usage.

Mike opened the comments by saying that we have been using wheat for 10,000 years. So a lot of the things that we can do with wheat, we have already figured out over that long period of time.

There are maybe a few possibilities, and there are some things that we can use byproducts for, like straw for making ethanol or building materials, but the new uses for the wheat grain, a lot of those uses will lie in being able to manipulate that wheat grain through biotechnology to provide greater flour extraction, higher protein, other types of end-use qualities that millers and bakers and consumers will want. So that is one potential way where we think there is value.

There will be other input traits. This is not a debate only about Roundup Ready wheat or only about Monsanto. This is about a whole series of things that can
come forward.

The next trait in the shoot is a disease resistance trait, resistance to a disease that can cause severe economic and quality damage to grain that is grown in the upper Midwest, and if we could get access to that kind of trait, that will confer benefits not just to producers, but further down the line as well.

Jerry mentioned the drought resistance trait. Who knows what else is going to be in the pipeline if we could have a successful introduction of the first one, and we are working eagerly and hard to make sure that we do the first one right.

There are also some environmental benefits that can be had from this technology and specifically from the Roundup Ready trait. Those have been alluded to already. A lot of people that are trying to convert from a conventional tillage system where you put some kind of an implement in the soil and tear it up every year into a no-till or at least a reduced tillage system, that kind of system will help conserve soil, it helps conserve moisture and has a number of other benefits, including fewer passes across the field. So you use less diesel to raise your crop.
But effective weed control in those systems is important, and without something like a Roundup Ready trait, implementing those systems is more difficult. It is not impossible, but it is more difficult.

I think it has already been mentioned that it is hard for consumers to identify with us doing an environmentally sustainable job on the farm when they are buying a box of product off the shelf in a grocery store. That is an awfully large leap to make, but that is the kind of benefit that I think we can see, and those will accrue to the public, again, if we can successfully introduce a technology.

We view biotechnology as a new tool to do the kinds of variety of development and improvements we have been doing for hundreds and thousands of years, the development of semi-dwarf wheats which greatly increase the productivity of wheat, continued efforts to improve quality, to improve disease resistance, to improve drought resistance. This is just the new tool in the tool box to be able to get at those same goals that we have been at for a very long time.

The issue of resistance to the herbicide, the idea
that resistance might cross from a wheat gene to join a
grass or to some other weed and then create a resistant weed
that will be a problem for us, Carol did a good job
describing it. That is a real concern.

   However, weed resistance to herbicides is not a
new thing. We have been seeing that in weeds in
conventional systems for years and years and years, certain
species of kosha [ph] that are resistant to a common
broad-leaf chemical. So that is not a new issue, and it is
not new or unique to biotechnology.

   Varieties in wheat last about 7 years before
disease complexes and insects catch up with them. That is
the average. There are some exceptions that go longer than
that, but 7 is a pretty good rule of thumb. So we are
continually needing to move the bar forward to keep up and
keep ahead of these pest pressures, and again, biotech is
going to be an important tool in allowing us to do that.

   The challenges I mentioned is making sure the
consumer is comfortable and that they will buy that product
when it gets on the shelf. We need to bridge that gap
between the strong grower interest that is out in the
countryside and any legitimate concerns that exist in the
marketplace, and there are some questions that need to be asked and answered.

We are very supportive of getting full regulatory approvals not only in those three countries that Monsanto is mentioned, but in key markets as well, working with domestic customers to make sure that their questions are answered.

We believe that the regulatory system asks the right questions and gets the right answers now, but we do agree with Greg that it would be helpful to have FDA have a mandatory finding of safety on these products not because we believe that they are unsafe, but because it will add an additional layer of security and comfort for the consumer, and that is why we are supportive of that.

I still stop there.

MR. RODEMEYER: Thank you. I think all of you have put a good amount of material out on the table. So let's get started.

One of the key issues -- and almost all of you have identified this at one point or another -- the question is, is the market ready, how do you get the market ready, given particularly not only domestic audiences, but the international audiences with respect to controversies about
genetically modified food.

One of the pledges that Monsanto has made in the materials that Jerry talked about was that there needs to be developed a segregation system, a way to make sure that GM wheat is separated from non-GM wheat, so that customers who want one or the other can be assured of receiving those.

Gary, let me start with you. That is obviously a little bit different than what we have done in the past. We are playing a little bit of catchup with respect to commodities in corn and soybeans. What are the challenges that you see in terms of implementing an identity preservation or segregation system, and who is responsible for that in the chain down the food between the seed grower, the seed developer, and the farmer all the way through to the processor and shipper and finally to the exporting country?

MR. BLUMENTHAL: Actually, the system of identity preservation is already being put in place. The investments are already occurring.

I can go back and cite, I suppose, a couple of different surveys. For one, GIPSA, which is the Grain Inspection Agency at USDA, surveyed the grain trade, and it
said what is coming up with identity preservation, how does the agency prepare for it.

Interestingly, this is at least a year old, but at that time, 20 percent of the respondents said that IP was important last year, 69 percent said that identity preservation would be very important in 5 years, and thus, my initial comment. They are investing now. From the companies we have spoken with, they are going into it now.

The anticipation for growth over the next 5 years was at the 90-percent level. Certainly, GIPSA has become to implement its own regulatory revisions in order to be able to assure buyers that they are getting what they are paying for because that is its role as a certifier. Can we do this today? There is a certain percentage of product that can move under an IP system today. It is particularly done on higher-value products, such as food-grade soybeans going to Japan. There is a certain capacity in other commodities, moving it to sort of a broad bulk system. As I say, it is going to take a little bit of time.

The real advantage of this is it is very difficult to be successful as a bulk commodity producer unless you are the most efficient producer in the world, and I think for
some of the reasons that Daren and others have said, it is very difficult for the U.S. with higher land values, high value of the dollar, et cetera, to be the most efficient producer, but to the degree that products move to unique values, then producers can capture this premium in the marketplace. That also means that the identity of those products has to be segregated and maintained throughout the value chain, so that the value that was added to it from the producer, the processor, wherever it was added, that value can go back to the person who put the value in.

So, ultimately, we are moving to that system, and I think it will be a very important benefit to everyone in the value chain.

MR. RODEMEYER: I would like to ask Jerry if he could talk a little bit about what Monsanto is doing in that regard, and maybe, Daren, you could talk a little bit about some of the thinking that the wheat growers may be looking at, particularly questions about things like the costs of these kinds of systems and who is going to bear that as well as, of course, one big issue is, I would assume, that it would depend on having international agreement about thresholds. How much is pure 100-percent GM wheat versus
non GM wheat?

As we all know, the European Union has recently adopted labeling the traceability proposals that put the threshold at .9 percent after which it would have to be labeled. I know that has been a concern among certainly grain traders and processors.

So how much is that an issue, what kinds of things in terms of challenges that you see in terms of putting together a system that would help preserve choice for nations or importers that want to make a distinction?

MR. STEINER: Two of the six points in our pledge are actually related to this. One of them is thresholders, as you brought up, and the other is grain segregation, and they really go together.

Every system that exists today -- Gary brought up a very good example with food-grade soybeans in Japan. Another one would be looking at the corn trade to Japan. About 20 percent of the corn trade that goes to Japan from the United States is identity-preserved as non-GM, and the market has evolved to build this system because it made sense for the parties involved. The market is generally, fairly efficient at putting these things together, and the
math has to work for all parties. If the math doesn't work for all parties, then the segregation doesn't occur, and it either is all one way or all the other way. It is a very efficient arbiter.

The way the system becomes efficient and works, though, you do need reasonable thresholds. We are talking about producing a crop that, first of all, would need to have full feed and food approval. So it is not something that is a safety issue if you have some level of commingling. It is simply a preference issue right here, and all kinds of commodity systems have a threshold in it, including, for example, organic production which in many cases has a 5-percent threshold. So I think having reasonable thresholds facilitates a system that you are able to have technology go to the grower end of things and be able to compete for the broad marketplace and have individual customers be able to get what they want.

An important point of looking at markets, people talk about Japan and Europe a lot, but I believe Japan and Europe together are less than 15 percent of North American wheat production. There is an awful lot of other markets out there that you hate to deprive the technology for, for
the sake of 15 percent. So thresholds and a market-based segregation system I think are a solution to that.

MR. RODEMEYER: Daren?

MR. COPPOCK: The question that you asked touches on about four points in a six-point position statement that we have and really gets to some of the heart of the issue.

This statement is one that is endorsed by our organization and also by U.S. Wheat Associates, which is the export market development promotion arm of the wheat industry and by a group called WETEC or the Wheat Export Trade Education Committee, which does trade policy work for the industry. All three groups have endorsed the pieces of this policy statement.

The very first one says that we commit ourself to the principle that the customers' needs are paramount. So we are going to produce what the customer wants. So along with that comes the idea of thresholds for advantageous or accidental presence of a trait in crops and a viable identity preservation segregation program.

In the long term, these programs are not going to be free. It is going to cost money to put in segregation.

So, in the long term, our vision is that these segregation
systems will be developed, but that they will be used to segregate crops that have specific end-use traits, something that needs to be preserved all the way through the channel, so that we can deliver an allergin-free wheat to a consumer and not spend that money on segregation on input traits whose impact and even visibility goes no further than the farm gate, but we recognize it in the short term to reassure consumers, to give them choice, and to answer what they want. We will need to use those systems probably for the input traits as well.

MR. RODEMEYER: Carol, given what we know or what you know about the transfer of genes between crops, farmers are going to need to observe setasides in order to make sure that segregation can be maintained.

How does this compare to the problems that farmers, for example, in dealing with corn or other kinds of crops -- how big of a problem or challenge will this be for farmers in terms of managing gene flow? Can you have peaceful coexistence between organic wheat farmers and conventional wheat farmers and GM wheat farmers?

MS. MALLORY-SMITH: Well, I think the answer to that is what is the cross-contamination level going to be,
what is an acceptable level of contamination.

If it is zero, it is going to be very difficult to put any kind of number on what that barrier needs to be. We measure gene flow from wheat to other wheats or Jointed Goat [ph] grass to distances beyond what would be required now by law for certification and those kinds of things.

I think the problem when you talk about pollen movement in particular is it is very difficult to measure pollen viability over time and distance, and you can always find that one outlier that is going to be way beyond any measure that could be set. So any reasonable 900 feet or whatever it is, you are still going to be able to find that one event that is beyond that. So I think, again, it comes back to making sure that in the market that number is set, whatever that acceptance level or threshold level is.

MR. RODEMEYER: From a producer's standpoint, looking at sources, how critical will an IP type of program be for not just your company, but for other food processors and distributors, and what kinds of issues does that present for your section of the industry?

MR. TRIANI: I want to talk about cross-contamination.
I think we need to set a reasonable number for cross-contamination. Obviously, some inadvertent cross-contamination will occur, but when we start to talk about value-added, which is where our focus is, in the long term, developing a product that has some benefit to consumers, that consumers will want to purchase our product which is made from, say, as an example, an allergen-free wheat, when you look at allergens, for example, right now we have regulatory standards that set the tolerance at zero. We believe the science will show that the tolerance levels are anywhere from zero to 10 parts per million, depending on what allergen you are setting. So I think we have some opportunities to set a fair threshold for cross-contamination, but I think that threshold has to be looked at as one that needs to be fairly tight because, if we are going to deliver benefits like allergen-free wheat, then we can't afford to have any cross-contamination even if it is inadvertent.

MR. RODEMEYER: Let me raise another question. There have been certainly a number of statements from countries and buyers in other countries. The issue is even if you get approvals, regulatory approvals, in the key
countries that are export markets, there is still a question about consumer acceptance.

For example, certainly in the U.K., we have seen for other biotechnology crops, retailers actually outdoing themselves to say that, "We are not going to stock anything on our shelves that will actually have a label that says it has genetically modified food." So, even if these products are approved, there have certainly been statements from buyers in other nations that are concerned certainly about buying genetically engineered wheat, but also even about buying any U.S. wheat if there are alternatives to sourcing that in the world market.

Gary, let me talk about some of the world market and competition issues. If there was a decision made in key markets not to go with U.S. wheat, is there basically alternative supply for those countries?

MR. BLUMENTHAL: That is a good way to frame it because basically that is what it is going to get down to is are there substitutes available, to give them that freedom of choice. Some years, there will be, and some years, there won't be just based on what we see in crop cycles.

I think that in some respects, we can look at
little bit at this historically. For example, the EU, which has had quite a problem with biotechnology, during the period in which the moratorium on new approvals has been in place, since 1996, they have increased their importation of soybeans by 35 percent, much of them biotech soybeans. I am sure that Ron would back this up from Kraft. What people say and what they actually do become two very different things.

The other part that I think will be a key in it, what Ron said about what the consumer's perception is. Interestingly, a survey in the British Journal of Science this past month where they told consumers this biotech food reduces pesticide use and this conventional crop doesn't, which one do you want, and they chose the biotech because of that benefit that they saw it bringing.

Daren is correct. It is not absolutely certain. There is a little bit of stepping off the cliff here, but the other side of it is sort of the point I was making earlier. The industry is heading towards a point where the export market isn't going to be there anyway. So it is going to have to figure out either how to become more competitive to capture that market back just on a price.
basis or start developing the traits, the things that consumers demand in the marketplace.

MR. RODEMEYER: Ron?

MR. TRIANI: One of the problems that we face is that if we are a multi-national company and we happen to make a product in North America and we have a large export market, one of the things that we don't want to do is make two products. We don't want to make Oreos for North America and Oreos for Europe.

Now, we may have to do that, but that becomes very problematic for the food processors. Then it becomes separate runs. Then you have cleanups between runs, and you are dealing with this as if it is a potential food safety issue from a manufacturing point of view.

So, as much as we like the notion of having IP, I think the value for food processors is if there is a benefit that comes with IP that we can then pass on or sell to our consumers, and then we also think that in the long run, that will solve some of the issues that we have with Europe. If you look at where the Europeans have come from, you can naturally conclude that their point of view is probably based on a significant trail of events where they feel that
their regulatory authorities and governments didn't actually protect the overall food safety in their countries. So they are I think very skeptical of things like genetic engineering.

I think as we start to move towards systems or product that provide benefits, I think that will melt the way over time.

We think IP is a good thing, but I think we are also concerned about manufacturing issues and separate markets.

MR. RODEMEYER: Greg?

MR. JAFFE: I was just going to add that through all the answers, I think people have been sort of living in an ideal world, and I think that the reality is that we are not going to have uniform thresholds in the immediate future around the world and we are not going to have uniform labeling laws in the immediate future, whether it is biotech wheat or any other kind of biotech crop.

Although we can look toward segregation systems, we can look towards who is going to pay for those segregation systems and so forth, we are going to be looking, if we are talking about international markets and
multi-national corporations, towards the lowest common
denominator on those.

What I see happening currently with the market
worldwide is companies, maybe not Kraft, but other
companies, the biotech crops that are out there, GE corn and
GE soybeans, are being used primarily for the animal feed
market and for other uses and that companies who have
international markets, like Ron said, are starting to just
source non-GE for their products that they serve on a global
basis because they don't want to label.

I am on the AC21, Secretary Veneman's committee,
and there are several food manufacturers there who have said
that in today's market, we are just not going to label for
biotech and instead we are going to in those markets have
non-labeling.

So the question I think that gets real important
in the wheat arena is if biotech wheat has benefits and if
we are going to try to have society capture those benefits,
be it input trait benefits or output trait benefits -- and
it seems like most of the current research is more on input
trait than output trait benefits -- how are we going to get
a consumer base, how are we going to find somebody who is
going to want to purchase this and then want to label their products or how is there going to be consumer acceptance for those. I think that is where the real problem is.

We can set up IP systems. We can set up segregation systems. We can even set up thresholds that we all think are ideal and allow that through, but I think still we have labeling and we still have consumers out there who aren't comfortable yet with this, maybe not in the U.S., but worldwide, and the real question is, Daren's farmers want to know, is there a consumer for it yet.

I guess my question to everybody on the issue is how do we start getting that public acceptance, how do we start educating the public if we are going to -- and unfortunately, that is a worldwide public, it is not just a U.S. public -- if you are going to make a market for wheat because wheat is a human food commodity.

MR. RODEMEYER: Jerry, you wanted to respond?

MR. STEINER: I think, first of all, if you accept the peer-reviewed data in terms of what has happened from an environmental perspective with today's biotech crops, there are some fairly compelling benefits for society. What people are talking about is they society, but they are not
personal, I don't touch them personally, and that is a very big communication challenge.

Greg, we welcome the use of your 850,000 members in your newsletter to talk about those benefits to consumers, and that is the kind of help that if people are convinced that these environmental benefits are real that I hope someday as an industry we get it, if people believe that these environmental things are real and that they are important.

I wanted to point out what has happened in corn and soybeans is that they had been very successful, first-generation traits. As a result, we as a company and other companies have followed the same path and have poured profits from those crops into the second generation. We have got second-generation traits now that we are looking at in field trials that have some additional benefits for growers in the environment, like the drought tolerance that I talked about earlier, but we also have now traits that we are talking to companies like Kraft about that are going to make a difference that are personal consumer benefits, improved health profile in oils, better-tasting soy protein, and a land-based source of long-chain omega-3-fatty acids.
Omega-3-fatty acids have been shown to have significant health benefits in terms of reducing cardiovascular risk. The main source today comes from fish that eat algae, and having a land-based source from the algae will make a much larger supply without putting pressure on fishing, but more importantly have a much larger supply of long-chain omega-3-fatty acids.

These products are now in development. We have them in plants that are expressing these things. So, in the first-generation crops where biotechnology has been successful, we are not that far away from these consumer traits. We would love to get there with wheat, too, but I think it is going to follow the same model as Daren mentioned earlier.

MR. RODEMEYER: Any other panelist want to respond at this point? If not, we will go at this point to the audience for some questions.

We have people with microphones here, and if you could please get up on both sides. Go to the microphone, so we can have a transcript, and identify yourself and ask your question.

PARTICIPANT: My name is Greg Conko[ph]. I am
with the Competitive Enterprise Institute here in town.

   My question is directed primarily as Greg Jaffe since he and I have spoken about this before.

   In July of this year, BASF commercialized a wheat variety that was genetically modified to be tolerant to its own proprietary herbicide clear field. Now, it wasn't modified with recombinant DNA, but rather with a technique called mutation breeding in which the seeds were exposed to a mutagenic chemical causing random genetic mutations, one of which happened to produce a tolerance to clear field herbicide.

   Because it is not RDNA, mutation-bred crops need to go under no review by USDA, no review by EPA, no review by FDA, even though scientists I think would agree that mutation breeding is characterized by considerably greater uncertainty, less precision, and therefore, greater risk.

   So my question is in view of CSPI's position that RDNA-engineered crops are under-regulated, why is it that I can't get you interested in the question about the fact that mutation-bred crops are completely unregulated in the United States and everywhere in the world, except Canada?

   MR. RODEMEYER: Greg, that sounds like a question
for you.

MR. JAFFE: Thank you for the question, Greg.

I think that from our perspective, any new crop that had a food safety risk or potential food safety risk should be reviewed, and if they have an environmental risk, they should be reviewed and approved before they go out there.

We have historically a regulatory system in the U.S. that didn't regulate any traditionally bred crops, and they have defined "traditionally," but in a very broad sense, to include, as you said, mutagenesis, chemical mutagenesis, all kinds of techniques that have produced mutagens that have gotten genes or traits that have been important to breeders. So I don't disagree with you that we shouldn't be reviewing other crops that also raise food safety or environmental concerns.

I don't agree with you that other scientists in this room or there are other scientists out there who think that we should be regulating mutagenesis for traditional bred crops. I think there is a very strong lobby and a very strong group of scientists who believe that those shouldn't be regulated. They also believe that biotechnology
shouldn't be regulated.

I do think that biotechnology, by adding a gene, you are adding it in randomly. There are unintended effects and other things that can occur that don't necessarily occur with your example, and I do think those risks need to be also assessed.

MR. CONKO: If I could just follow up. Are you saying, then, that CSPI will be calling on FDA and USDA and EPA to regulate mutation-bred crops?

MR. JAFFE: Your question addresses two things, and I think I am separating those things. One is the risk assessment and food safety risk. Another is risk management or perceptions by the public.

When Congress passes laws, we don't pass laws, we don't address things solely based on risk. We also look at consumer confidence. We look at consumer trust. We look at what consumers are concerned about. We regulate lots of things in our society that might not have the risk that one would think, but that because there is a concern about that.

So, when we are calling for additional regulation of biotechnology, part of that is because we think there are benefits to this technology and part of it is because we
also think there are consumer concerns about this
technology. One way to alleviate those concerns is to have
a greater involvement by the Government to alleviate those
contcerns.

I am not sure the public has the same concerns
about your mutagenesis example. Maybe if you spread the
word to enough of the public out there about all the risks
attached to that, maybe there will be an uproar for
regulation of that and then maybe we would be more
interested in pursuing that.

MR. RODEMEYER: Daren?

PARTICIPANT: Regulation should be public interest
and not safety.

MR. RODEMEYER: Daren, go ahead.

MR. COPPOCK: I thought I might just comment that
there was broad scientific consensus that mutagenesis does
not mean the same thing as biotechnology or genetic
engineering.

When that clear field variety was released -- and
there are a number of clear field varieties already in
production -- the question was asked and answered at the
time the clear field varieties were released that that extra
layer of biotech regulation was not necessary or appropriate.

One might make the flip-side argument that biotech varieties are more heavily regulated than anything else that we do in terms of variety development in wheat. So, with that level of analysis, the consumer ought to take a very great degree of reassurance and safety from that conclusion.

You could really take that kind of an argument to an extreme, Mike, and say that since these plants reproduce sexually at some points in their cycles that we ought to have a politically correct group, make sure they are doing it in an appropriate manner. I think that would take it a little too far.

[Laughter.]  

MR. RODEMEYER: We won't even touch cloning. We won't go there.

Questions?


This question, I guess, is for Daren or for Jerry, and it goes to the benefits, the environmental benefits that we have seen in cotton. Cotton seems to have been the
shining star and the tonnage saved with using Roundup Ready. How is wheat grown? Can you tell me how does wheat relate to corn or soy or cotton in the amount of spraying that must occur during a season? Will you see those same types of benefits that we have seen in cotton, or would it be more along the lines of corn and soy?

MR. COPPOCK: It would be much closer to corn and soy.

The cotton savings is primarily in insecticides. We are using multiple applications of some fairly potent compounds that have to be used to control boll weevils and other insects out there.

I think the primary benefits to wheat will be, number one, in a shift to safer compounds. Glyphosate [ph] Roundup is an extremely safe environmentally benign compound, and so, as you see, it replaced other kinds of chemicals in the rotation. You will see some sort of a benefit there that will be hard to quantify, but it will be there.

The other one that I think is more important is, as you look at the other trait that is in the shoot, disease resistance to a disease that we call -- it is called
Fusarium head blight. We had this lovely term called "scab" that describes it.

As you see, resistance to those kinds of diseases show up in wheat plants. Then you will be able to dramatically reduce the level of fungicide that we have to apply to wheat as it is growing out in the field.

MR. RODEMEYER: Other questions? Go ahead.

PARTICIPANT: Don Doering [ph] at Winrock International.

My question is about the anti-biotech activists. What I am sitting here and thinking about as we talk about what the American public as a whole thinks, but not of the politically active American public, it may have a very different cost benefit with regard to Roundup Ready wheat and they can mount up a very potent anti-advocacy campaign in a fraction of the time and cost than Monsanto develops a product.

In their cost benefit, they loathe Monsanto, they hate Philip Morris, they distrust the regulatory system, have their own scientists, don't like subsidized industrial agricultural, and don't like the global commodity system. So that is a caricature, but generally true.
So I kind of wonder, Monsanto, how can you reach in and engage Kraft? How do you regard the threat of that kind of a consumer opinion for your brand? How do you reach and educate and engage those groups in regulatory reform and around the benefits? Because they haven't yet been mentioned here.

MR. RODEMEYER: Well, that should take a few more hours to answer, I would think.

Jerry, maybe you might want to try to talk about that first.

MR. STEINER: I will take some panelist help on this one.

I guess it is a fabulous question and one, Don, that keeps me up at night.

I don't know that there is a simple answer to this because these kinds of forces in society are exciting for media and that is the reality, and we have to live with that. So I believe that part of the answer here really needs to be that, one, benefits have to be real, have to be proven, have to be peer-reviewed, and then there needs to be simply a lot of people, maybe not the most politically active people always or the people that are going to save
the most, but there needs to be a lot of people who are well-voiced in talking about these benefits, and it is going to simply take time for that whole process to happen.

I think that we can do a whole lot better job in being open and engaging and working with people to build that kind of constituency, and I know that that is going to take some time to do.

MR. RODEMEYER: Ron?

MR. TRIANI: We have been a big target of anti-bioterrorism, as you probably know, and we stand on the fact that we look at the safety of those ingredients and we look at what our consumers are telling us. The ingredients that are in commercialization now and for the consumers that buy our products, we do not see many of our consumers voting against biotech soy or corn that we use in our product.

It is interesting that we have had a number of dialogues with them. What I struggle with is our failure to even come together on any common position. We thought at least the science basis for an argument would be a common area, which obviously as you pointed out is not.

We continue to look for ways to engage with the people that find genetic engineering something they don't
want, to understand what the basis for their concern is. What we have found is a lot of it is environmentalists. One of the biggest critics of us is The Sierra Club, and they are not really concerned with whether or not the food that you eat is going to have some long-term effect on your health when you are 70 if you are 20 today or your children or your children's children. They are more concerned with the environment and find the food industry to be a target that is very obvious and is very close to every American because all of us in this room and everyone in the country eats food. It was mentioned before that safety is something that consumers are very, very sensitive to.

I don't know what the answer to your question is, but we are going to continue as a member of the food industry -- and other large companies are doing similar things -- try and figure out and constructively engage this whole issue, but I don't have a quick or easy answer for you.

MR. RODEMEYER: Go ahead.

PANELIST: I might just add to a perspective from the marketplace.

Those that are opposed to it actually have choice,
and that is the good thing. Organic, for example, is one of
the fastest-growing categories of food out there, and that
is really what this is about is ensuring that there is
choice out there.

I know, Ron, you would rather make just one kind
of Oreo, but you are always obviously coming out with new
products. It reminds me of many years ago, former USDA
Secretary Dick Lane took the Soviet Agriculture Minister to
the Giant grocery store out in Baileys Crossroads. We are
walking down the aisle, and there was lots of mustards,
about 20 different kinds of mustard. The Soviet Ag Minister
said, "Well, why do you need so many kinds of mustards? In
the Soviet Union, we have one kind, the kind we have had for
many years, and it is the best kind."

What I think Americans and increasingly other
consumers in other parts of the world want, they want
choice, and that is what the system needs to deliver.

MR. RODEMEYER: Go ahead, Ron.

MR. TRIANI: Let me make one comment. Do you
think organic Oreos is a different product than regular
Oreos?

[Laughter.]
MR. TRIANI: We are not sure that Oreos made with genetically engineered wheat is a different product from Oreos made with conventionally grown wheat.

MR. RODEMEYER: Questions from the audience. Yes, sir.

PARTICIPANT: I am Jeff Becker. I work at Congressional Research Service.

I guess we are all here in Washington talking about this because Congress is in Washington.

Greg, you were saying that maybe more regulation or tighter regulation or more aggressive regulation is the way to go, and others have said we can help through better education of consumers and all those sorts of things. That is a long way of saying is Congress doing what they are supposed to be doing right now, are there ways that they could help move things along with regard not only to the biotech wheat, but the whole argument of biotech.

MR. RODEMEYER: Greg?

MR. JAFFE: I think that Congress needs to get engaged and get involved in this issue.

I know the Federal Government made a decision back in 1986 with the coordinated framework under the Reagan
administration to use existing laws. That was at a time when technology was very much at its infancy. We didn't know what products would be about. We didn't know about things like plants growing pharmaceuticals. We didn't know about transgenic animals, the glow fish that everybody has read about in the last 4 weeks in the newspaper, or biotech wheat at that time. I think that now is the time for Congress to look at the set of laws and agencies that are out there regulating this technology, look at the public concern in the U.S., look at the public concern worldwide, look at the impact it is having on our international markets, on our agriculture, and put in place a better system of regulation that gives the consumers more confidence, that can be used as a model for the international arena, as I think Mike Jacobson said when he introduced this.

There are a hundred countries that are going to be putting together biosafety regulations, and they can't use the U.S. as a model for their regulations because we have this hodgepodge put together of three different agencies and numerous different statutes.

One of the things that I advocate for, Senator
Durbin introduced a bill for the Genetically Engineered Food Act, which would update the Food, Drug and Cosmetic Act to give FDA the authority to say that genetically engineered wheat is safe.

Right now, they don't have the authority to say that. I guess they could if they want to, but they are not going to do it unless Congress tells them to do it, to say that the food is safe. I think that would help consumer acceptance in the U.S. and worldwide. So I think that is a start, a bill like that where we would give FDA some tools to address this technology and both address the risks, ensure that these products are safe for Ron and his industry, but also to give consumers both here and the rest of the world an independent look at their safety.

MR. RODEMEYER: Anyone else want to talk about what Congress should do? Gary?

MR. BLUMENTHAL: I just want to clarify something. From 14 years in Government, many different layers, and now in the private sector here in Washington, the system is actually a lot more robust system of check and balances than perhaps one might believe if we say FDA doesn't have the authority.
In truth, FDA, EPA, USDA, they constantly play a game of Gotcha with each other. I would chance to say that about every one of us in this room, we make our living off of determining whether something is good or bad coming out of Government and whether we say the glass is half full or half empty depends on what side our bread gets buttered on.

I guess I would say there probably is room for improvement this. I think APHIS just came out with some revision to its own process, and FDA still has some pending changes out there. Fortunately, all of what we do in this room does push the system towards improvement over time, but I am also not sure it is as dark and dire as some make it out to be.

MR. RODEMEYER: Daren?

MR. COPPOCK: Just a quick comment. We would agree that mandatory affirmative safety finding by FDA would be useful and helpful.

I think just about everybody in town that works on these issues would agree with that point of view, but I don't agree that we have to go to the Hill to get that authority. Our conclusion is FDA has the authority that they need, and they just need to make the right decision
MR. RODEMEYER: Ron?

MR. TRIANI: I think it is fascinating that when we ask consumers about our regulatory people, that they have an extremely high confidence level in FDA, USDA, and the other regulatory agencies in protecting them from health risk in food. Yet, for the sake of transparency and to improve consumer confidence, it is probably about education. If you had a trusted individual or organization say this product is safe, you would go a long way to address any potential question that a consumer might have when they pick up a product that happens to be made by a genetically engineered wheat or Roundup Ready wheat.

So I think when we look at this, we are not looking necessarily for more regulatory authority. We are looking for the regulatory authorities that have already looked at the science to actually say publicly this product is safe. We have been frustrated in our ability to get them to do that.

One last thing, when we went through the Starlink episode, I was in the job a year. That was a very, very interesting time for Kraft and for the food industry. We basically came out with three premises. One was we got to
have the analytical tools ready when a produce is commercialized. So, if there is an event, we will have the ability to detect and find and deal with whatever the issue is. The second piece is no split approvals. Animals are not humans. Humans are not animals -- well, humans are not animals is probably not a big issue. Animals are not humans, and we got that. The third was we said we need mandatory consultation.

I think we sit there and talk about mandatory consultation, but what we are really asking for is for the Government to tell the American public, we looked at this stuff and it is safe, because they have, and yet, they are unable to do that for whatever reason.

MR. RODEMEYER: Jerry?

MR. STEINER: We talked a lot about safety. I just want to point out, we treat the process as mandatory. I can't imagine any company not.

Second, for the sake of Roundup Ready wheat, this is the same gene producing the same protein as in Roundup Ready soybeans, Roundup Ready corn, Roundup Ready cotton, which has been consumed by millions and millions of people since its introduction in 1996.
I hope that there is confidence in this panel in the safety of Roundup Ready crops that are approved. Roundup Ready wheat is in the regulatory process, and that is what the Government needs to decide.

MR. RODEMEYER: Anyone else from the panel want to go one more round on that? If not, let's go over here to the question. If you can get the microphone and identify yourself.

PARTICIPANT: Betty Hileman [ph], Chemical and Engineering News.

Benbrook [ph] Consulting Services did an analysis, and they found that during the first 3 years of biotech corn and soybeans, less herbicide was used, a lot less, but in the last 3 years for which they had USDA figures, more herbicide was used. Is that analysis correct, and what is going to happen with wheat if it is correct? Will more herbicide be used on wheat than is used now? What will be the case?

PANELIST: So Benbrook did a study. It was not peer-reviewed. There are several other peer-reviewed studies that are out there that document the 30 million pounds of pesticide reduction in 2001 just on the herbicide.
It is 50 million if you look at all the crops, including cotton that was asked about here earlier.

We have never actually seen the numbers that Mr. Benbrook has used. He was the only person to get the numbers, but from the reading that I did do of his study, I believe what he has largely done is mixed a couple of things together. So, when we cite these numbers, we are looking at the in-crop use versus the end-crop use.

In addition to the in-crop use, as more people move to no-till, which has all of the environmental benefits that we described earlier, it is going to have a change in the prior-to-planting amounts of herbicide because we are replacing tillage with the herbicide system. I think what he has done is some numbers that mixes those two things together.

MS. HILEMAN: What does in-crop mean?

PANELIST: In-crop use means that it is after the crop is -- if we are specifically looking at weed control for the growing of that crop, oftentimes what a farmer will do -- I will compare two tillage systems, your traditional one and a no-till kind of systems.

In a traditional tillage system, you are going to
use tillage to go over the field and use that physical disturbance of the soil to kill the weeds that are growing, plant the crop, and then put a weed control system in place.

In a no-till system, you allow the stubble of the previous crop to stand. There will be some weeds that are growing in that crop, and then you many times will spray over the top of that stubble to kill the weeds that are existing and growing, but you allow that stubble to stand which provides protection for the soil and then plant the crop, and you will have the end-crop weed control after. So I am comparing in-crop to end-crop because that is the only fair comparison that you can really make.

MR. RODEMEYER: Question here? Cathy?

PARTICIPANT: Hi. I am Cathy Hart. I am an independent journalist and author of "Eating in the Dark" about genetically engineered food.

I am trying to represent perhaps consumer questions here. So I guess what I want to ask Ron and Daren, in particular, and all of you, though, first of all, where is the consultation? How close are we to having Roundup Ready wheat approved?

Second of all, given that it is coming into -- and
I guess my biggest question is, are you working with the regulators and pressuring them not to approve it at all, given that 93 percent of consumers in all the surveys for years, as we know, decades, are saying they want genetically engineered food labeled. Well, the wheat is going to come into a country that doesn't have labeling. As Ron has said, there is a lot of questions about how consumers are going to receive this here. We already know how Europe is going to receive it.

Also, I guess for the wheat growers, my question would be in '99 when genetically engineered corn became more widespread, U.S. corn growers lost $300 million in exports to Europe that has never been regained.

Soybeans. The U.S. used to be the top soybean exporter in the world uncontested. Now, with two-thirds of our crop and more being genetically engineered, we are not. We right now export half the wheat. We export half their crop. What is to make you think that those exports won't plummet just as the others have?

So I guess my question is where is the reality here. We have got a world out there and consumers who are very nervous about this product. So I am just wondering how
you all are approaching the regulators.

MR. TRIANI: Let me address two pieces of your question.

MR. RODEMEYER: This is Ron.

MR. TRIANI: This is me, yes.

One is even though consumers have expressed -- let's talk about the U.S. -- have expressed some concern about genetic engineering, they certainly have used that expression in terms of how they purchase products.

Granted, there are some areas, like organic, that are growing, but they are growing for a number of reasons, not just because they are not non-GE.

So we don't see that, and in fact, we can cite Oregon by saying here is a State where they actually put the question on the ballot, and the majority of consumers said, "No, we don't want labeling." What we have learned is it depends on how you ask the question.

We asked the question: Is there anything on the label that you need? The answer is: No. We got enough stuff on the label. We don't need that.

The next question, would you like to have "genetic engineering" on the label? Sure. Would you like to have
"transfat" on the label? Sure. Would you like to have the
country of origin on the label? Sure.

So I am not so sure if there is a big enough issue
to require labeling. In fact, we don't see it in the
marketplace at the point of purchase. We don't see it in
the voting booth yet.

In terms of labeling, we don't see a high demand
of our consumers for labeling in the U.S. as we do in
Europe, for example. So we don't label in Europe because
our consumers have told us with their pocketbook that they
will not buy a product that is genetically engineered.

The other piece is we are not putting any pressure
on the agency to make a decision not based on sound science.
Most of the food industry has agreed with the agency that
we want regulations that protect public health, and they
have to protect public health based on real science. If
there is no real science issue, then it is a matter of
consumer preference. That, we have a little concern because
we start to see consumers say to us they are uneasy about
this because they don't see any benefit. When there is no
benefit and they start to think about risk, even if it is
infinitesimal, it starts to perhaps sway their opinion about
what they might do in the future.

MR. RODEMEYER: If I can add to the question. If I am reinterpreting this, I will apologize, but I think there are two questions there, where are we in the regulatory approval process at this point and then, secondly, given the fact, as we have all acknowledged, all the panelists have acknowledged, there are these consumer acceptance issues, what beyond regulatory approval will need to be done. I think both Jerry and Daren would probably be appropriate to discuss both of those.

Jerry, do you want to start with that?

MR. STEINER: Sure. As far as where we are in the regulatory process, that really is the purview of the regulators. We find out when it happens.

Probably, the most important point I would just make, though, is gaining regulatory approval in the U.S. is not the trigger for launching this product. We have made the six commitments with the wheat industry that we have outlined. We know we have more work to do to make all that happen. We are going to introduce this product when the market is ready. That is what the commitments are all about.
The second point, I just wanted to talk about a little different point in what you had raised here, and that is that I want to talk about soy and corn. The actual facts would say that exports out of the U.S. have actually increased since biotech has been introduced.

You actually cited the share of exports. So, in the case of soybeans, the U.S. has a smaller share of exports, but that is not because the U.S. has lost any markets. It is because Brazil is growing at a 20-percent compound annual growth rate in planted area and Argentina has grown substantially, and both of those countries are using biotechnology very aggressively in their production systems.

In the case of corn, you are right that that market was lost when there was a difference between the two regulatory systems. What has really happened is it has moved over to Hungary which is now coming into part of the European Union. It is actually a relatively small quota that was a very special niche that Portugal and Spain had as a quota prior to joining the European Union. It has all really become part of an inter-new broader EU trade. So it is really a much different set of issues than what it might
seem on the surface.

MR. RODEMEYER: Daren?

MR. COPPOCK: That is what I was thinking as well.

The soybean situation is because of Brazil, and that is really one where we imposed a boycott on Japan several years ago and encouraged them to set up a soybean factory in Brazil. So now Brazil is in the soybean business. So it is a counterproductive policy that we enacted some time ago.

As far as what we are doing with the regulators, again, we are not trying to pressure anybody into anything, but we think these ought to be scientifically based decisions.

We are not going to go to a regulator and say, "Gee, delay the process. Stop everything." What we want them to do is follow through with the scientific process, ask the questions that need to be asked, answer those questions, give us the science, and then we will proceed on that basis.

MR. RODEMEYER: Very good. Yes, sir. I think we will have time for this and one other questions.

PARTICIPANT: Joe Mendelson [ph] with the Center for Food Safety.
A quick comment and then a pointed question. One, if you want to increase the dialogue with environmentalists and consumer groups, you can stop by not characterizing their views.

And, Mr. Triani, I think it was very unfair how you characterized my colleagues at The Sierra Club because I am sure they disagree strongly with your statement.

The other thing, if we want science-based assessment of this, I would hope that Monsanto and National Association of Wheat Growers would agree that the USDA should do a full environmental impact statement in conjunction with Monsanto's position with deregulation when that decision happens.

We have never had a full environmental impact statement on any crop that is science-based. It also involved public involvement, and I think that would go a long way towards alleviating environmental concerns, if that is your issue.

One question on Fusarium directed towards Ms. Mallory-Smith, and that is, would the Fusarium wheat create a difference in the ecological profile of volunteer wheats? In other words, is that a competitive advantage? You made
the distinction between Roundup Ready, the issue being with chemical use versus drought resistance or salt tolerance. I wonder where the Fusarium wheat would fall.

MS. MALLORY-SMITH: I think that would be a little bit difficult to answer specifically, but sort of intuitively, you would expect that it would have an advantage in the system where, again, when you talk about volunteer wheat, you are talking really about a weed now. So you have given it this advantage where it might be able to survive without having fungicide applications. I think the same thing would be true when you talk about cross-pollenization with weed species where you may have that advantage that wasn't there before, ecologically.

One of the things that I would point out though is that we have already been breeding wheat -- I haven't. I am not a breeder. I am actually a weed scientist, but wheat has been bred and had many characteristics put in it already. One of the things that we have been able to find in those populations are wheat alleles that have moved over the past 10,000 years or whatever.

Some of those alleles, for example, foot rot resistance, has already been moved conventionally into wheat
and now has been moved into the wild species. So I don't see the transgenic specifically or what creates the problem.

MR. RODEMEYER: Any other panelist want to respond?

Let's take one more question, the gentleman over here in the front.


Mr. Coppock, the soybean growers, the American Soybean Association rather effectively killed at least a couple of variety of soybeans that were approved in the United States and not approved in Europe.

If Monsanto attempts to go forward with commercialization without your growers being satisfied about the market, will you attempt to kill this product?

MR. RODEMEYER: That sounds like a good last question.

MR. COPPOCK: Thanks for your softball question.

We are not at the point of making that decision yet. What we are doing is working with Monsanto, with other registrants as they bring traits forward.

I think the key issue for us in the Roundup Ready
wheat situation right now is that this is going to be introduced in hard red spring wheat which is primarily produced in the upper Midwest of the United States and Canada. Those are the only places that produce hard red spring.

So, for us, both Canada and the United States need to go to market at the same time with hard red spring wheat in a Roundup Ready variety, and Monsanto has pledged to us that they will have approvals in the U.S., Canada, and Japan. So I think in the case of hard red, that base is covered. The other stuff is too far down the pipeline.

MR. RODEMEYER: Very good. Well, first of all, on behalf of myself and the Center for Science in the Public Interest, I would like to thank everyone for attending me today, and please join me in a round of applause for our panelists.

[Applause.]

MR. RODEMEYER: I think we all know a lot more now than we did about 2 hours ago about the challenges for biotechnology and Roundup wheat.

I would also like to remind everyone that a transcript of this session should be available on the CSPI
website in several weeks.

Thank you very much for coming today.

[End of Policy Forum.]