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ELI/New Harvest Focus Group 1 Transcript

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**MODERATOR:** What I want to do is go around and have . . . introduce themselves. We can start with Dana. And just tell us your first name, where you live in the greater Baltimore area, what you do, if you're in school, or you work, or you're at home, and then who else is in your household with you. And finally, when you get free time, and I know that's very precious, but how you like to spend that free time.

**DANA:** Well, I'm a Lyft driver. I live in Baltimore City, living on Campus Street. What I do in my free time is watch the Ravens if you haven't noticed. What else . . .

**MODERATOR:** And you live on your own, anyone else in your house?

**DANA:** And I live with my girlfriend, yeah.

**MODERATOR:** Great. Okay. Thanks. And would you turn your nametag sort of towards me? That would be great. Karen.

**KAREN:** Hello . . . Happy Holidays. I'm Karen, and I am retired CO, but I work part time for Baltimore County Public School as a school bus attendant. It's just me and my husband at home. The girls are away at college. They come home Friday and Monday.

**MODERATOR:** Oh, fun.

**KAREN:** And then free time, we play cards, have family game night. They bowl. I don't bowl anymore, but they bowl. They still bowl, things like that.

**MODERATOR:** Great. Welcome. Wendy.

**WENDY:** Hi, my name is Wendy, and I live with my husband. And we live in the city, in the . . . area. And we're retired. My husband has a at-home business. He fixes toy trains. But for my, I like to do volunteer work. I volunteer at the hospital to help fund raise. And I have two cats. And for free time, we like to take walks a lot.

**MODERATOR:** Okay. Great.

**RODNEY:** My name is Rodney. Just me and my youngest son, who's also away at school right now, but a computer network specialist with the state and spare time, I coach football.

**MODERATOR:** Sorry, what did you say you do with the state?

**RODNEY:** Network specialist.

**MODERATOR:** Okay. And you coach football too?

**RODNEY:** Yes.

**MODERATOR:** Okay. Great.

**LAUREN:** I'm Lauren. I live in Arnold, which is near Annapolis. I work full time for Allstate Insurance as customer service. I'm a part-time student, and my dad is my roommate. And my free time, I just spend with my boyfriend.

**MODERATOR:** Great.

**JESSICA:** Hi, I'm Jessica. I live in Pasadena, Maryland. A quality control asphalt technician, so I like design asphalt mixes and test them. I live with my fiancé and my two children, which my daughter is two, and my son is six. In my free time, I play a lot of board games, and I guess video games. We like game nights and stuff.

**MODERATOR:** Okay. David.

**DAVID:** Hi, my name is David. I am a distribution center operations manager. I live in Baltimore City in Federal Hill-Locust Point area with my wife and our dog we rescued from BARK. So that's always part of our free time. In addition to that, anything outdoors, sports, side home improvement jobs here and there, that's about it.

**MODERATOR:** Okay. Great. Danielle.

**DANIELLE:** Hi, my name Danielle. I live actually here in Towson. I live with my parents and my younger sister. I'm currently in college. I'm studying scenography. And in my free time, which I have very little of, because I go to school, and I work. I'm a front desk receptionist. And during that time, I just go out with my friends and just like eat basically.

**MODERATOR:** Okay. Good. Sean.

**SEAN:** I'm Sean. I'm a commercial diver, underwater welder. I live, currently in Halethorpe and Trappe, Maryland, family . . . kind of back and forth. My, I bought the house, my, I moved my mother in. She . . . so my mother, two Great Danes. They keep everybody pretty well occupied. Spare time, I try to do as much recreational diving as I can in the Caribbean, stuff like that, try to get out when I can. Like he said, outdoors, anything, kayaking, hiking, just away from the house.

**MODERATOR:** Caribbean sounds pretty nice.

**SEAN:** It was last week.

**RANDY:** I live in Owings Mills, daughter, my daughter moved out, left me a dog, named Odin. And I'm a glass contractor, and all my spare time, I like go to social groups, different things.

**MODERATOR:** Okay. Great. And I live in Washington, D.C. I have 2 children, 9 and 13. And when I'm not doing this, I'm hanging out with them and my husband, so, and our dog that we adopted as well. So thanks for joining me. I want to get started and have a sort of a broad question for you, which is when you think about technological advancements, innovations, developments as it relates to agriculture, what have you heard, anything? I know you're not, none of you are specialists in that field, and that's okay. Just have you heard anything about developments in the field of agriculture? No.

**MAN:** Tons of stuff, like gene manipulation with seed for crops and all.

**MODERATOR:** Okay. So gene manipulation of seeds for growing crops.

**DAVID:** I was going to say, they're doing I think some kind of cloning to produce more crops, I think. And I don't know much about it, but trying to, I guess feed the world with science as opposed to just growing food.

**MODERATOR:** Okay. Feed the world with science. Okay.

**MAN:** There's a lot of cloning . . .

**MODERATOR:** A lot of what?

**MAN:** They're cloning stuff. I mean, they're always . . . seeds, they're doing more and more.

**MODERATOR:** Okay. Dana.

**DANA:** . . . placing seeds for farmers, like they said, like David was saying, to give more bug resistant, easier, faster-growing crops.

**MODERATOR:** Okay. And would you say, anything else anyone has heard beyond what . . .

**WOMAN:** They also . . . growing plants in greenhouses in water, versus . . .

**MAN:** The hydroponic, right.

**MODERATOR:** Okay. And would you say, generally speaking, you're, I guess I'll get people to raise their hand. When you think about these kinds of developments and any other that may be on the horizon, as it relates to agriculture, so technological developments and innovations, are you more hopeful and excited about those developments, or are you more concerned and worried about them, or are you kind of in the middle?

So who says, I'm more hopeful, just raise your hand. Got Randy and Rodney. Okay. Who says, I'm more worried and concerned? Got one, two, three, four, five people. Okay. And who says, I'm in the middle? Okay. Three. That adds up, so it's good. So, Randy and Rodney, you were both more hopeful. We'll start with you. Just briefly, kind of why are you feeling that way?

**RANDY:** Maybe because maybe more food I guess.

**MODERATOR:** Okay. So yield more, we'll get more food. Okay. Rodney.

**RODNEY:** I just think it's a lot of really smart people working on it that, you know, can figure something out and maybe think about some of the things that we have now that people 40, 50 years ago couldn't have dreamed of who are not in that field also.

**MODERATOR:** Okay. And those of you who are a little more on the, you know, I'm a little more concerned, I'm a little more worried, why is that?

**WOMAN:** I would say that I've seen, I mean, it's probably a little biased, the documentary I watched about GMOs, so genetically modified organisms, I don't think there's a long-term research on the impact on our health from eating these unnatural generated . . .

**KAREN:** And I just feel like they getting away from the basics, stuff in the ground growing up. I mean, growing, not growing up, but growing and us eating from just that. You know, it's just getting too crazy I think all of that cloning and, although, like he said, it's been around for a long time, but, yeah.

**MODERATOR:** Okay. And then Sean and David and somebody else is in the middle for that . . .

**DANIELLE:** Can I say something about my concern?

**MODERATOR:** Yeah.

**DANIELLE:** Oh, just along with like long-term effects and everything, I sort of feel like almost we be like guinea pigs to everything, all the new things they would be coming up with, and we wouldn't really know the side effects that we would get.

**MODERATOR:** Okay. David.

**DAVID:** Yeah, I mean, I think the technological advances are great in terms of helping feed people and maybe mean we'll produce more or, you know, it could create jobs and open doors. But kind of along the same concerns, a lot of this stuff isn't tested. I feel like a lot of the things that are being put out are so sustainably and organically grown, and, I mean, just like so much is stripped out of them to the point where like part of that used to be growing up where you needed a certain amount of something to build an immune system and a tolerance to certain things in the world. And now, all that being gone, like again, what are the long-term effects of that?

**MODERATOR:** Okay.

**KAREN:** The development of the children today, I mean, they're maturing at a much younger age, and the scientists, some scientists believe that it has to do with the changes in their diet.

**MODERATOR:** Okay. Anyone want to add anything else to that? What I want, does everyone have a pen in front of them? I'm going to pass out these booklets. If you could just put your name at, on the front page, just your first name is all I need. And I know everyone here is a fantastic student and likes to read ahead and be prepared. I'm going to ask that we all stay on the same page at the same time, so don't read ahead please. So once you've got your first name on here, I will ask you to just turn to the first page. It says, Handout A. So it says Item 1, Item 2.

What I'm going to do is I'm going to tell you a term, a phrase, and what I want you to do is just write down what words, images, ideas come to your mind. If you think you know what it is, and you can define it, please go ahead and do that. But I'm also interested in kind of your feelings and reactions and what it makes you think about. And so this phrase is cellular agriculture. And I can write it down too. And this is not meant to be a test. So if you don't know, that is completely okay. It is more, what does this make you think about?

So it can just be a few words. It can be a few sentences. It doesn't need to be, I didn't give you that much room, so it doesn't need to be a whole essay. But I sometimes refer to it as like the thought bubble. You see a cartoon, somebody is walking down the street, and you see that bubble that pops up. Here's what's on their mind. What's on your mind when you hear the word cellular, the phrase cellular agriculture? Don't look it up.

**MAN:** No, no, I'm not. I'm sorry.

**MODERATOR:** I'm just kind of . . . confiscate all your devices. No.

**MAN:** Google it.

**MODERATOR:** No, I'm joking. Second, Item 2, the term is cultured meat. So again, what's the thought bubble. You hear cultured meat. If you know what it is or think you know what it is, please put the definition down. But more importantly, this is not a quiz. This is not a test. It's what comes to your mind when you hear cultured meat? That's

Item #2. So what I'm going to do is have people just go around and tell me, you don't have to read it verbatim, but just give me an idea of what you wrote down for cultured meat, what that made you think of, words, phrases, idea. Then we'll talk about it a little bit. And then, I'm sorry, cellular agriculture, starting with number one. And then we'll talk about cultured meat afterwards. So just start with Randy, and just around.

**RANDY:** Cloning the plants.

**MODERATOR:** Cloning the plants, okay. Sean.

**SEAN:** I said like reproducing cells in a plant to create more hardy crops or sustainable crops.

**MODERATOR:** Okay. Danielle.

**DANIELLE:** Like our future way of food supply.

**MODERATOR:** Okay.

**DAVID:** Just applying science to enhance agriculture.

**JESSICA:** I said unnatural, manmade.

**MODERATOR:** Okay. Unnatural, manmade. Lauren.

**LAUREN:** It made me think of the biology of plants and using that to facilitate or generate more growth or development.

**MODERATOR:** Okay. Rodney.

**RODNEY:** I thought of most science fiction, and maybe the ability to grow stuff in poor conditions.

**MODERATOR:** Okay.

**WENDY:** My, the first thought was science and then the growth and land development of the agriculture.

**MODERATOR:** Okay.

**KAREN:** I couldn't think of anything.

**MODERATOR:** Okay. That's totally fair. And, Dana.

**DANA:** Yeah, gene manipulation, manmade, inherent deficiencies, overabundance, enhancements, kind of . . .

**MODERATOR:** What was last one, deficiency?

**DANA:** Yeah, I figure it will be enhanced in certain ways and deficient in others.

**MODERATOR:** Okay. So had anyone heard this term before I mentioned it? No. Okay. And would you say, I mean, I kind of heard what people's general sort of top of mind thoughts were. Would you say that your thoughts about this are more positive, hopeful, more concerned, negative, or are you just kind of like, I'm not sure? Who says they were more on the positive side, and that can be, I'm not saying you're like, you know, ready to . . .

**RANDY:** I . . . positive when I think about it.

**MODERATOR:** Okay. And the reason is?

**RANDY:** It's just possibilities.

**MODERATOR:** Okay. And, Sean?

**SEAN:** I mean, Elon Musk is trying to colonate(?) Mars. How would he do that? I mean, that's what kind of came to mind when I started thinking about cellular agriculture and cultured meats and all of that.

**MODERATOR:** Can you, is . . .

**SEAN:** Mars, I mean, the ability to grow crops in non, like not normal conditions, even something as simple as growing something in a desert. So the ability to create a food product that can grow Ethiopia. You know, in an environment where it probably shouldn't, but to feed people. I'm sorry if it doesn't have all the carbohydrates you need, but you eat.

**MODERATOR:** Okay. Other thoughts people had? I mean, who said, I kind of tend to be more concerned and have a more negative . . . images? Karen.

**KAREN:** Because that's what I just thought they were getting away from the basics, like stuff growing in the ground and feeding the animals what they used, the stocks or whatever that they used to feed them, and now they're injecting them. You know, it just get, leaving the basics.

**MODERATOR:** Okay.

**KAREN:** And that's a concern like all this stuff. Chickens are so big now, and my daughter is over in Nairobi, and she said their chickens are so small, like their fruit and vegetables are so fresh, she said it's so different from over here. They say manufactured to me.

**MODERATOR:** Okay.

**SEAN:** I used to work on a chicken farm. I could tell you some terrible things.

**KAREN:** No, I love chicken. Don't do that.

**SEAN:** They'll get so big, they'll break their own legs.

**KAREN:** What?

**MODERATOR:** Wendy, did you . . .

**MAN:** They don't, a lot of places don't do that anymore.

**KAREN:** Oh, okay.

**MAN:** They're getting away from that.

**MODERATOR:** Did you put your hand up and say you were more concerned?

**WENDY:** I'm concerned because, I mean, I know that we need to do this because the planet is being, I mean, we're reaching the over, over limit with the population, so we have to feed all these people. Our water is getting, there's a big shortage. And my only concern would be that I feel that they really need to do better research, better studies.

**MODERATOR:** When you say they, who's they?

**WENDY:** The, these, the people that, the scientists who come up with these ideas of cloning the fish with this to create a tomato, what's the effect on the human beings? You know, that's my big concern. Because like I said before, with the children, their bodies have changed, I mean, completely from when we grew up. And they're eating, I mean, the same thing, but there are more chemicals and more preservatives in these foods, and what is it doing, you know, to them?

**MODERATOR:** Okay. Jessica, what about you?

**JESSICA:** What was the question?

**MODERATOR:** Just kind of what's your reaction? How would you characterize, just think about cellular agriculture, I haven't given you a definition or anything, but just based on what you were thinking about, how are you feeling about it.

**JESSICA:** I guess it's a little worrisome. But then again, it's actually, I mean, it's kind of neat. I mean, I'm kind of in the middle of it. I mean, it's like something new, so. But then, again, we don't know the effects it will have on us.



**MODERATOR:** Okay. Anyone else want to add anything about cellular?

**DANA:** Well, my opinion is it's not so much the science. I believe the science can be solid, but we have half country that doesn't believe in global warming, so and half the country that don't believe in regulation. So the actual application of food war, like we had an arms race, a food race, where you have countries from around the world, most probably not following the strict guidelines, and corporations cutting corners to create the better, greater super food for the next, you know, to corner the market, that's my concern is that I don't trust corporations to be, to provide food that's not naturally grown in the best interests of most people.

**MODERATOR:** Okay. And any other reactions to what Dana said or other thoughts about this? Let's talk about cultured meat. We're going to start with Dana this time, and go the other way. Just generally kind of what images, words, ideas came to mind?

**DANA:** Exposed meat, Petri dish, cured(?) meat, bacterium, again gene manipulation, enhanced again in some areas, loss of benefits in others.

**MODERATOR:** Okay. Karen.

**KAREN:** I was just thinking manufactured meat.

**MODERATOR:** Manufactured meat. Okay. Wendy.

**WENDY:** The same, it's heavily, manufactured meat, I mean, processed meat that has so many chemicals in it to keep it fresh for longer periods of time on the shelf. Just sounds disgusting.

**MODERATOR:** Okay. Rodney.

**RODNEY:** I kind of had that same react, Petri dish is the first thing that popped in my head, just not appealing. The thought is not appealing.

**MODERATOR:** Okay. Lauren.

**LAUREN:** I think you think kind of of vegan and vegetarian, like the protein alternatives and eliminating the need to slaughter or breed animals.

**MODERATOR:** Okay.

**JESSICA:** I thought of, I guess I thought of hormones and preservatives.

**MODERATOR:** Hormones and preservatives?

**JESSICA:** Yeah. I don't know. That's what came to mind.

**DAVID:** I first thought of enhanced or just all meat products, and then I thought of like manmade meat substitution products, completely fabricated.

**MODERATOR:** Okay.

**DANIELLE:** I just thought of like un-tasteful and just not naturally produced.

**SEAN:** I thought of like, two people have said, like a grown product, be it a meat substitute or be it the actual meat, you know, from a cellular level, maybe in a Petri dish, however, but basically grown meat without the animal itself. That's kind of what I think.

**MODERATOR:** Okay. Randy.

**RANDY:** Like chemical induced, some kind of preservatives and . . .

**MODERATOR:** Okay. Go ahead.

**KAREN:** I was just thinking, you know, I mean, as we talk about everything that they're doing to the meats, and you often think like, oh, no, I'm going to be a vegetarian or something like that. But then they also doing things to the vegetables too, so what do you do, you know? So . . . situation.

**MODERATOR:** And so would you characterize your reactions, feelings, thoughts about cultured meat positive, you know, you're positive, hopeful? You're concerned worried. Kind of where do you fall on that? It sounded a little different, the reactions to the two, but I don't want, I want to make, you know, I'd rather hear from you. Is there kind of a different reaction from cellular agriculture to cultured meat?

**RANDY:** For me, yes. A positive kind of reaction to cellular agriculture, but cultured meat just, the sound is not appealing.

**MODERATOR:** Okay.

**KAREN:** And I'm the same on both of them. I'm really not for either one.

**MODERATOR:** Okay. Other, are there other kind of reactions or feelings you had about cultured meat beyond what you told me that was on your paper?

**MAN:** I'd say just kind of for me generally, a little more negative than cellular agriculture.

**MODERATOR:** And why do, I mean, why do you think that is?

**MAN:** Just doesn't carry the, it doesn't. It sounds so unprofessional and just like . . .

**MODERATOR:** But do these things sound like they're different things?

**SEAN:** No.

**MODERATOR:** Sean says no. Who says they . . .

**MAN:** Yeah, I say . . .

**KAREN:** They sound like it anyway.

**MODERATOR:** They sound different?

**KAREN:** Yeah, yeah, they sound . . .

**MAN:** Cellular agriculture to me seems like just an all-encompassing field. You know, maybe cultured meats are part of that in my mind, but, yeah, to me, they sound different.

**RANDY:** Agriculture just makes me think plants. It makes me think growing vegetables or creating vegetables. But meat is . . .

**DANIELLE:** I think it's like the same idea, just two different versions I guess of the . . .

**MODERATOR:** Okay. Sean, you agree? Okay.

**SEAN:** Yeah, I mean, agriculture is, I worked in the agriculture industry when I was a kid. I mean, I saw slaughterhouses. I saw chicken house, and that was, so I have a little bit of a different idea of agriculture. I can understand a lot of people, when they see the word agriculture, they think of plants most of the time. But maybe because I was in that industry when I was younger, you know, I think of it all. I think of cattle, chickens.

**DANA:** But to counter his point, I grew up on a farm, and seed splicing been going around trying to make more insect resistant, longer-lasting crops. That's, that part has been going around.

**MODERATOR:** The seed splicing?

**DANA:** Yes, for a long, long, ever since the agriculture been, farmers have been trying to find a better seed. When you start talking about . . . manipulation, people have an idea what their leaf look like and what they expect from it. And naturally, unnaturally occurring meat I think tends to put a negative connotation in most people's minds. That's my personal . . .

**MAN:** You mean, like veal? I mean, that's pretty unnatural.

**DANA:** Not a fan.

**MAN:** You don't want to see it.

**MODERATOR:** And just to, and I appreciate what you said. And that's good insight. But also, you said a negative connotation in people's mind, but what about your mind?

**DANA:** Yes, yeah, I grew up on a farm. I'm used to killing my own meat. Like . . . every day, I mean, it's an ugly process of killing meat, but it's a natural process. Everything dies. So the idea of having meat created from . . .

**KAREN:** Another source.

**DANA:** . . . another source is a manmade meat is, I think, an unnatural occurrence. And it's not something that most people ever, other than watching *Star Wars* and seeing it, you know.

**MAN:** We man make cars. We man make paper. We man make . . .

**KAREN:** Right, exactly.

**MAN:** . . . I mean, you're writing on paper. That's from a tree.

**KAREN:** From a tree, right.

**MAN:** So when you really get down to it, it's just because it hasn't really been done yet is why people don't accept it.

**KAREN:** Yeah. Oh, okay.

**MAN:** You know, they're, there's not that much really going on. There's not, they haven't experienced it so people are, I mean, it's like jumping off the high dive at the swimming pool. First time is tough. After that, it's a lot easier and easier and easier, so.

**DANA:** You . . . belly flop.

**WENDY:** But if you make . . .

[Simultaneous discussion]

**WENDY:** If you're making paper from a tree, that's different. What are you making the meat from if you're not getting it . . .

**MODERATOR:** So to that point, what I'm going to have you do is turn to the next page. So this gives you a description of what cellular agriculture is. You just read it, and then at the bottom, just write down your reactions in a few words. So now that you have

more information, you may have more questions, but based on what you've got here, if you have questions, you can put those down. Your reactions, your thoughts, just, you know, couple sentences, a few words, doesn't need to be a long essay. Does this jog anyone's memory? Anyone heard about this now that you read a little bit more? Sean says yes. No, anyone else? No. Okay.

**SEAN:** They've grown human ears in a Petri dish.

**MODERATOR:** They've grown human ears?

**SEAN:** Yeah.

**MODERATOR:** Dana, you said you've heard. Okay. So in terms of, in terms of the medical field, you've heard it?

**DANA:** Yeah.

**MODERATOR:** Okay. And what are people's reactions? Now you've gotten a little more information, Lauren, what are you thinking?

**LAUREN:** I mean, I'm trying to go into the healthcare field, so to me, it sounds interesting when it comes to growing skin and things like that to help us. But what are the repercussions of us ingesting that for food? Like . . .

**KAREN:** Right.

**LAUREN:** . . . that doesn't sound natural. I mean, obviously, it's not, but what are the repercussions of natural versus these generated foods?

**MODERATOR:** Okay. Rodney, what were you going to say?

**RODNEY:** I have a really positive outlook on it for clinical applications also, burn victims, that kind of thing. That's great. Growing an ear for somebody, that's, I'm really positive about that. But as a food source, maybe for vegetables. It's still not the best that I want meat grown that way.

**MODERATOR:** Okay. Why?

**RODNEY:** I just, you know, meat can go bad if it's not treated right or not preserved right. I'm just scared of meat that's not from a real living animal.

**MODERATOR:** Okay. David, what about you?

**DAVID:** My first thought was kind of wondering how much this is already happening. Like not to be a conspiracy theorist, but I'm like, wait a minute. Are we already eating this stuff?

**MODERATOR:** Okay. Sean, you're nodding your head.

**KAREN:** To me, it's . . .

**MODERATOR:** Other reactions?

**SEAN:** I think it's great. I mean, I put forward thinking and necessary. I mean, there's going to come a point where on this planet, there's completely becoming overpopulated. The whole point of, you know, I hate to keep bringing him up, but Elon Musk looking at, you know colonating Mars is, it's things like that are going to be necessary. We're going to have to figure out a way. I mean, you talk about sci-fi and space travel and all that, I mean, how are you going to eat? When they start doing things like that and going that far away to find other places to live, it's going to have to happen. Sorry.

I mean, it's where it's going. It's going to have to happen. You know, you come back to the global warming thing. I don't know if I necessarily believe we're causing it, but it happens. It's happened throughout history. You know, the planet does things to itself. It cleans itself, ice ages, whatnot, what's going to happen? So, I mean, I think the forward thinking of being prepared, you know, and you don't have to. That's the benefit of being, you know, in America. But when it comes time . . .

**DANA:** But I think . . .

**SEAN:** . . . and you're hungry, and knowing the cows are dead, you can deal. You know, you just got to be, I think you got to be open and prepared for really, for anything. And as far as the meat being preserved and stuff like that and worrying about, I'm more worried about where the cow is raised or how it was raised.

I think I would actually be more prone to eat something like this because I think it would be less likely, because it's been, the meat has been scrutinized, all the way to the cellular level, as opposed to the meat free range or whatever you want to call it. I mean, I've seen, cows living in some, and chickens living in some terrible conditions. If it's grown in a Petri dish, it never lived in that condition. It didn't wallow around in its own feces, you know, as a pig, things like that, so.

**MODERATOR:** Okay.

**SEAN:** There's benefits to it, and, yeah, I know it's a little weird, but . . .

**KAREN:** It's very weird just to think about, I'm telling you. I'm like Lauren, you know, and the chemical aspect, when you think, oh, a burn victim will be able to get skin. It's like, yay, you know. But on the other hand, this, this, this, I can't fathom . . .

**DANA:** Yeah, I think either pushing it from an analytical level instead of a visceral level, a plant is like . . . that you love but barely knew. Meat is something that you watch grow. Meat is like, you know, your pet dog that you have a familiar connection with. And when people think of plants, they think of plants in the abstract. So if it's grown,

you throw a seed in the ground. You don't really see it until later, almost at the end of the process and until the flower bloom or whatever. Meat, the animals you watch grow, and it's a different connection, at least of Americans with meat than it is with plants.

And to see something that can be formed into just about anything, into an ear or a liver or watch a . . . steak grow without any animal attached to it on a scaffold, and then try to put that in your mouth is like trying to . . . of Silly Putty form it into a steak and putting that into your mouth. There's the initial rejection of this is abnormal process. And that's just my feeling on it. It just is just a visceral reaction. I mean, I can look at the sci-fi and think forward thinking and know that there is . . . food shortage and climate change and even if we grow food on Mars, but I've never had to eat the food from the Star Trek beam machine, you know.

**MODERATOR:** Jessica, what are you thinking?

**JESSICA:** So I guess, I feel a pretty positive vibe out of it. I said it would help create more jobs, help with disease and animal cruelty. And I guess I'd be like, I don't know, I'd be concerned about the effects that it would have on us, like and I don't know how I'd react to it actually being on my plate and trying to eat it. So but I can see the positive side of it.

**MODERATOR:** Okay. I'm just going to sort of record, you can help me remember, but kind of you mentioned some benefits, and people have mentioned some potential downsides. So we've talked about just feeding the planet. We've talked about animal cruelty, avoiding that.

**MAN:** To piggyback on that one, I had, I've been thinking about something else . . . you know, when you see a slaughterhouse, then you can, some people are pretty grossed out by it, and they say, oh, we can produce the meat like this. But then the worry for me would become, you know, overpopulation of animals. You know, like the deer population when they, in places . . .

**MODERATOR:** You're saying, because we are . . .

**MAN:** Because if you stop using the animal, and you're using the animal cruelty ideas as the reason to do this, then I think you could end up creating the, well, don't kill the animals, don't kill the animals. We can just make the meat. Then what's going to happen?

**MAN:** You'll probably . . .

**MAN:** Too many of them.

**MODERATOR:** So that's two sides of the coin.

**MAN:** Right.

**MODERATOR:** There's also two sides of the coin on some people were concerned that, I think, Rodney, you said, it's not an animal grown as a regular animal and . . . kind of the safety aspect. I'm shortening what you said.

**RANDY:** Well, I guess I had a question. Well, not a question, I guess a comment on that is, why would we have to do either/or? Like if we're growing food, does that mean we still can't, you know, I mean, use cows or chickens, the real ones, you know what I mean? So I have a choice to go to the market and buy actual burger or a Petri burger or whatever you're going to call it. You know what I mean?

[Simultaneous discussion]

**MODERATOR:** Okay.

**WENDY:** But if the earth, if the earth as scientists say would become so overly populated, we won't have land. And, you know, to spare, because you'll need it for people to live on, not for animals to graze on. And that's what they, and that's where that making it in the Petri dish is going to come in very handy.

**MODERATOR:** Okay. What other benefits or downsides have I failed to capture that we've talked about here, that you think are important? I mean, you I think mentioned just ingesting it and the health . . .

**LAUREN:** Yeah, just like what kind of effects would it have on us, like long term?

**WENDY:** It's like the humans being, we're guinea pigs right now until they figure it all out.

**MODERATOR:** Okay.

**MAN:** I think helping eliminate like the animal disease, avian flu, mad cow, so on, so forth.

**MODERATOR:** So, okay. Less risk of that . . .

**MAN:** Right, carrying on. I mean, you can probably eliminate even E. coli at some point from . . .

**MODERATOR:** Okay. Other things, Randy, anything you would add?

**RANDY:** Not really. I mean, basically, you know, overpopulation is a, what's my concern.

**MODERATOR:** Okay.

**RANDY:** If you don't slaughter them.



**MODERATOR:** Overpopulation of the animals?

**RANDY:** Yeah.

**MODERATOR:** Danielle, anything you would add, either pros or cons, benefits or drawbacks?

**DANIELLE:** I'd probably think about it like economically, like what's going to cost more, what's going to cost less, and who would be able to afford either/or?

**MODERATOR:** Okay. Kind of a question mark. Any other things that people would want to add to the list? Who would you want to hear from about it? Like who do you . . .

**MAN:** Trust no one.

**MAN:** I would want to hear more from the medical side of the scientific issue or seeing what kind of benefits could possibly be gained there.

**MODERATOR:** In terms of the organ tissue and things like that?

**MAN:** Yeah.

**MODERATOR:** Okay. And I want to focus on the food product side, so I appreciate that people seem to be interested and excited about that part. But we're going to talk more about the using cellular agriculture to develop food products. So on that, you know, when it comes to that, who, I can't bring them in. It's too late, and last-minute notice, but if I could invite someone here, who would you want to hear from?

**WENDY:** Well, if, on that side, I would think you would have to talk to farmers who are going to use all these seeds and see, you know, what their reaction is to, does it change anything when it's growing? Does it, is it as usual that you would do, I mean, do you do the same exact thing growing these plants, kind of plants versus natural plants?

**MODERATOR:** Okay.

**MAN:** I would want to hear from someone who's been eating this stuff for 20 or 30 years . . .

**KAREN:** Yeah, that's . . .

**MAN:** . . . before I dove into it.

**MODERATOR:** Other, any other thoughts on that? Anyone else you'd want to hear from? Anything in here that you thought was just not clear that you'd like more

information about? And I am not a scientist or a doctor, so I probably don't have all the details for you. But anything you'd say, gosh, this didn't make sense to me, or I really would like to know more about what they're talking about here? The other thing is we talked about cultured meat or cultured beef. Another term for that is clean meat. Better, worse, does it make you think of the same thing or not? What's your reaction?

**WOMAN:** It's more positive.

**MAN:** Right.

**MODERATOR:** What?

**WOMAN:** Sounds more positive.

**MODERATOR:** More positive?

**MAN:** Sure.

**MODERATOR:** Yes? Rodney.

**RODNEY:** Cultured is a terrible word for it, to use with meat. It's just, to say it's clean is really better?

**MODERATOR:** Why is cultured a terrible word?

**RODNEY:** Every connotation I thought of was negative when I cultured meat. Clean meat, I didn't think of any of that. May still have some of the same, you know, skepticism, but . . .

**WOMAN:** You didn't think of a cow in France?

[Simultaneous discussion]

**MODERATOR:** And how far off do you think it is that there would be cultured meat or clean meat or any food products that are made this way?

**RODNEY:** It's already happening.

**KAREN:** Yeah, I think it's already happening.

**MODERATOR:** Yesterday, it's already happening, it's already happening. You had questioned, David, if it was already happening.

**RODNEY:** I just have an opinion that once we start talking about things like this, in the . . . form . . .

**WOMAN:** It's already in effect.

**MODERATOR:** So what about when, how far is it from it being at, I don't know what grocery store you have here, Harris Teeter we have, or Giant or whatever, you know, when you go to your grocery store, or you go to the restaurant, how far, like how far off do you think it is that you'll be able to purchase this?

**DANA:** As soon as you can get an FDA approval.

**RODNEY:** I was going to say that. That would be more legal than practical.

**MODERATOR:** So you think it's there now, and it's just not through the regulatory process?

**RODNEY:** Yep.

**MODERATOR:** Okay. Other people think that? So, I mean, are we talking, do you think like in five years, you'll go do your grocery shopping on Saturday, and you'll be able to buy this? Or is it like 20 years?

**DANA:** Five.

**RODNEY:** Closer to 5 than 20.

**DANIELLE:** I give it like ten.

**JESSICA:** I'd say ten.

**MODERATOR:** And what is it that makes you think that?

**SEAN:** I think milk stuff is way sooner than that.

**MODERATOR:** Okay. Why?

**SEAN:** I don't know. It just, milk has always been one . . .

**RODNEY:** Has already tampered for milk substitute products already.

**SEAN:** . . . where they tamper with a milk, yeah.

**MODERATOR:** Okay.

**SEAN:** I've seen some bacon that looks suspect, you know at the store. Turkey bacon just does not look like . . .

**RODNEY:** Oh, it's great though.

**SEAN:** Well, it tastes good, but look at it. It's like cut in a shape. It looks like it's grown. It's like . . .

**MODERATOR:** Now what about, when you think about food products, you have sort of things you eat, so agriculture you'll probably see things you eat, and then you have things like leather and other things that you don't eat that are still come from an animal. Are you any, do you have a different feeling about this when it comes to creating things you eat versus things that are not consumed?

**DANA:** Yes.

**RODNEY:** Yes.

[Simultaneous discussion]

**SEAN:** Watch it grow leather boots?

**KAREN:** Right, exactly.

**WENDY:** . . . to say, yeah, for like leather shoes or coats . . .

**KAREN:** Yeah, it's a necessity.

**WENDY:** . . . things like that.

**WOMAN:** Right.

**WENDY:** Yeah, I think that would be, I would wear it. I don't think I want to eat it, but I would wear it.

**MODERATOR:** I'm just saying in terms of your concerns about the downsides or the risks or the reasons this would concern you, are they there when you're talking about nonfood products like leather or fur?

**DANA:** Not for me.

**MAN:** Not at all.

**MODERATOR:** Okay. And then what about, if you think about food products, there is meat, meat products. That may be chicken. That may be pork. That may be beef. And then there's other food products like milk, eggs, things that come from animals but that are not actual animal tissue.

**SEAN:** There's the other one.

**MODERATOR:** What eggs?

**SEAN:** Eggs and milk.

**WOMAN:** Suspect though.

**MODERATOR:** You think the . . .

**MAN:** Close or happening.

**MODERATOR:** I don't know. You're saying you think they're happening or close, okay. But is there a distinction in your mind when you're weighing the risks/benefits between food products that are some form of meat versus food products that are eggs or milk or dairy or other things?

**KAREN:** It comes from the animals.

**MODERATOR:** That come from the animal.

**RODNEY:** For me, no, because, I mean, they've been doing so many things with dairy for so long because of people that's, have lactose problems anyway. So, I mean, there's a lot of benefits to not using natural milk or dairy products.

**MODERATOR:** So you're saying you do make a distinction between . . .

**RODNEY:** Yeah, I would have less of an issue with milk and dairy stuff because it's, I believe it's already been researched and been tried.

**MODERATOR:** Who agrees with what, less of an issue with dairy or eggs or things that are products that come from an animal versus actual meat animal, you know, products?

**RANDY:** I agree with that.

[Simultaneous discussion]

**MAN:** Well, it eliminates a thing, the things that he was talking about earlier, about seeing the animal grow and all that. If it's an egg, or if it's milk . . .

**KAREN:** Yeah . . . it doesn't matter.

**MAN:** . . . and it's coming from the animal. You're not necessarily . . .

**MAN:** Not killing the animal, right.

**MAN:** . . . harming the animal, so to speak.

**MODERATOR:** What were you going to say, Lauren?

**LAUREN:** I think just slightly less concerned. I mean, I've already used milk substitutes, and tried the cheese and things like that, so I would think I would be more okay with that.

**MODERATOR:** Okay. Can you, at the bottom of Handout B, just write down, basically, based on what you know now, do you think the benefits of cellular agriculture outweigh the risks, or the risks outweigh the benefits? So just write benefits outweigh, risks outweigh, or you can say equal if you really believe it's equal. And, I'm sorry, my handwriting is really bad. Just write it down at the bottom of Handout B.

So who said benefits outweigh the risks, raise your hand? Got Sean, Jessica, Rodney. Who said risks outweigh benefits? Raise your hand high so I can see. We got Danielle, David, Lauren, Wendy, Karen, and Dana. And that leaves Randy, and anyone else who was in the middle? No, just Randy.

**MAN:** I'm probably closer to middle, but you said that after I already wrote down.

**MODERATOR:** Okay. All right. Well, so what I want to do now is have you turn the page to Handout C. These are various applications for cellular agriculture. Either it has been used this way, or it could be used this way. Read it through. There's a little space beneath of these that you can write a couple words, your reaction to this if you feel like it. You don't need to write a long essay again. But just maybe one or two words or a sentence after each one about your reaction to each of these, either current or potential applications. I'll be right back.

So I just want to talk about, you know, you've now seen some applications or potential applications for cellular agriculture. Just before we talk about each of them, what are you thinking now? How are you feeling about this?

**WENDY:** Kind of scary.

**MODERATOR:** Kind of scary?

**KAREN:** Yeah, yeah, yeah. Like they said, it's . . .

**MODERATOR:** Sean, is that a thumbs up?

**SEAN:** Oh, yeah. There we go, cheese and milk, and it's all right there.

**MODERATOR:** But, Karen, you're saying?

**KAREN:** That this stuff is all, I mean, that they already know some of this stuff.

**SEAN:** What's the one in jellyfish, memory.

**KAREN:** It's unnerving, like, wow.

**DAVID:** Reproducing the enzyme in jellyfish, in medicine too.

**MODERATOR:** But you're saying, it's, you said it's scary. And you said they're already doing this. And then you said, wow.

**KAREN:** Yeah.

**WENDY:** Well, if these are true, and . . .

**KAREN:** Yeah, yeah, that's what I'm . . .

**MODERATOR:** These are true.

**KAREN:** Yeah, that's what I'm saying, 1978.

**SEAN:** I think I read about the hamburger, now that I think about it. I knew, actually, about these other ones. I, but now that it's, you know, you're right, I think I read about the hamburger not long ago.

**MODERATOR:** Okay.

**SEAN:** It's interesting.

**MODERATOR:** Danielle, what's your, what are you thinking now?

**DANIELLE:** I'm not honestly like scared or anything. But for the first two, knowing that we were able to get insulin that way, and that just sounds safer to have insulin from, it says identical as insulin you have now than compared to animals, which is like a different species. I don't know. I'm sort of looking towards it like in a positive light, I guess health-wise, but not really food-wise, again still. We don't want that.

**MODERATOR:** Okay.

**KAREN:** It made me feel like when Sean had said, like it's already here. It's happened. They just have to go through the formalities. I wasn't even thinking it was that close. I'm thinking, hmm, past ten years or something. But after reading this, I'm like, wow. I take insulin, so that's why I was like, wait a minute. I read it like three times. Wait a minute. Wait a minute.

**MAN:** Be quite surprised what the organs of animals are used for.

**KAREN:** My goodness gracious.

**MODERATOR:** So, Lauren, what are you thinking?

**LAUREN:** I mean, I was kind of half and half. Some of them, I was more positive. Like the insulin and the milk production, that seemed a lot less cruel, to not keep a cow on the lactating state sounds really cruel actually. But like the rennet, that was a surprise to me. I just learned about that in microbiology in school, and I had no idea that it was produced now versus taken from the animal and the bird, sounds weird.

**DAVID:** I mean, see that 1990, they have to be approved.

**KAREN:** I know. That's what I'm saying. This one says '78. This one say 1990. I'm like, wait a minute, 1978 . . .

**MODERATOR:** Jessica, what is your, what are you thinking now that you've seen it?

**JESSICA:** I guess I just see it more in a positive light. I mean, it's the future we're living. I mean, I don't know. I don't see, I mean, I see how it can be scary with food, but, I mean, if we can find better, more stable ways, less cruel, less, I don't know. It just seems, I've seen it mostly . . .

**MODERATOR:** Okay. David, how about you?

**DAVID:** I guess I'm seeing a mix of things that have been tested and in production and proven safe if not helpful. I mean, people are benefitting from insulin. It's made that a better process. You know, the cheese enzyme has been around for over 25 years now. So nobody took a bit of cheese and dropped dead in 25 years. I'm okay with that. But, you know, then there's the hamburger, one, in 2013, that's been grown in a lab. So, you know, still need to, for me, I would still just like to see a lot more about that.

**MODERATOR:** And what does that mean, a lot more about what?

**DAVID:** I mean, more research, more information, more safety data, more, you know, benefits versus drawbacks for future production and use.

**MODERATOR:** Okay.

**DAVID:** Kind of like the things that we've, I would say we've seen from, say, number one, you know, I'm sure at some time, this conversation was going on about whether or not this would be okay to use for insulin. Now that we're looking back on it, we see generally, from what I know, it seems like it was a pretty good move. But as far as, you know, food that we eat, and growing meat in labs, it seems to just be . . .

**KAREN:** Skeptical.

**DAVID:** Yeah, yeah, just uninformed, I would say, just in general.

**KAREN:** Yeah, because it's food, right.



**MODERATOR:** Okay. Rodney, what are you thinking?

**RODNEY:** I guess like everybody, number one, I put great on the first thing because if you get a, seems like to me, an unending supply of insulin. That's a win. That's fine. The two and tree was just okay because, like I said earlier, I already kind of figured they were doing it with milk and with all the substitute dairy products. I'm still iffy about four. But I don't eat beef anyway, real beef. So that wouldn't appeal to me, but I want the opportunity to choose between a real burger, and I just want that opportunity to choose.

**MODERATOR:** So if there's still choice, you're okay with it?

**RODNEY:** Yeah, yep. Absolutely.

**MODERATOR:** Okay. Did you want to say something, Wendy?

**WENDY:** I think, I wouldn't have any problem with this if I could be really assured that they're using a true genetic, the true genetic code, not, you know, shortcutting.

**MODERATOR:** Modifying.

**WENDY:** Right. Because then, I mean, that's science. I mean, if you can guarantee that you're doing it, you know, by the code, the true code, then there's, there probably would not be a difference between that cow or the . . .

**SEAN:** Well, you can go back to research and Dolly, I don't know if you remember Dolly.

**WENDY:** Yeah, Dolly.

**SEAN:** Dolly the goat, or sheep.

**WENDY:** Sheep.

**SEAN:** They cloned an entire animal from stem cell research. They made it. It was alive. So that was 20 years ago or more.

**RODNEY:** That was longer than 20 years ago.

**SEAN:** Yeah, and . . . or more, right?

**MODERATOR:** But to your point, again, I'm not a scientist, so someone, if I say something really wrong, someone will tell me. But, for instance, with the meat, it is, there are cells taken out of an existing animal's, you know, muscle tissue. And that is what's then replicated in a, you know, using the scaffold that we talked about to create the larger piece of meat.

**WENDY:** As long as there's a overseer that makes sure that that experiment goes by the book, by the code, because we're human, and humans make, they'll take shortcuts that, if they want to make more money, the, you know, they will honestly do what they have to do to not carry out the experiment maybe the way that they're being expected to. And I would, someone would have to be there to honestly, step-by-step through the whole study.

**MODERATOR:** And do you have a thought about who that someone is?

**WENDY:** No. Someone who's very informed on it, on this. I mean, someone in science, I'm sure. Someone who has a good knowledge of . . .

**MODERATOR:** And I don't mean an individual person, but what kind of . . .

**WENDY:** Oh, I mean, well, department that's, I mean, that . . .

**MODERATOR:** So government agency, academic?

**WENDY:** Government misses too much stuff. You know, you don't want government into a lot of things.

**MAN:** Or a . . .

**WENDY:** But the science, the science field.

**MODERATOR:** Okay. Anyone else want to say, did you want to say anything, Randy, about it?

**RANDY:** No, I agree with what they're saying. I mean, same . . .

**MODERATOR:** Okay. Is anything on here more, were you more comfortable with anything on here than something else? Anything on here that concerned you?

**RANDY:** No.

**MODERATOR:** No, okay. Anyone want to say anything else about any of this? If you could, at the bottom of Handout, go ahead, Karen.

**KAREN:** Yeah, what Miss Wendy was saying, it just makes me think like with everything else, it's . . .

**MODERATOR:** I'm listening.

**KAREN:** . . . I'm not going to say financially motivated, but it just seemed like it just all comes to money. When she was, when Miss Wendy was saying that if it's, you know, done a proper way, and, you know, this, that, and the other, they'll take shortcuts and

it'll end up being about finances and like we've seen, like everything else in the world. It's just monetarily motivated. And it just seem like it'll just come down to that.

**MODERATOR:** Is there some example in your mind when it comes to food that you're kind of equating that to? Or is it just a general . . .

**KAREN:** Yeah, just general like what Miss Wendy was saying, she was just saying, you know, long as it's done a proper way, and long as it, the proper person does this, and things are taken from here, taken from there. And it'll end up sound, sound like to me, it'll be cost, not as cost effective. And then that's when the money is going to come into effect.

**WENDY:** Well, we would, the humans will suffer from it if, you know, things like that happen. And they, then down the line, they say, oh, I'm sorry. If, you know, if you were in this study, you know, 15 years ago, you need to see a doctor now because there was an error that happened along the line.

**RODNEY:** That depends on who's funding the research.

**WENDY:** Exactly.

**SEAN:** It's the great stem cell debate from when George Bush was in office. It comes down, I think the biggest concerning part is where does it stop? I don't think the meat, the food, any of that is the issue. I think it's the great, the only concerning part to me is we've all seen the movies . . . *I, Robot*, all of, you know, all, and now, we're getting a whole lot closer to all of this artificial . . .

**KAREN:** Yeah, to all of this stuff, you're right.

**DANA:** Cloning actually.

**SEAN:** . . . human stuff, actually cloning. So my only concern is, you know, the precedent becomes set when we do accept this finally. When we do, because right now, it seems like a lot of people are like, oh, no. But when you look back at other things that have gone on, because become acceptable. You know, I remember when cell phones were out. You know, my grandparents were like, I don't want that. They tell you it causes cancer. Don't stand near the microwave, all of that. But now, everybody has a cell phone. You know, nobody cares. You know, so it's become a, these things have become acceptable. So when this becomes acceptable, it really opens the door for something that I'm not sure I agree with to become acceptable.

**MODERATOR:** Which is?

**SEAN:** And that's cloning humans. And that's . . .

**MODERATOR:** So it's more where this takes you, the path they're going on, not . . .

**SEAN:** Right, it's a weird fine line, because I don't mind the parts, and I don't mind the harvesting of parts to help people. You know, if you lose a leg . . . put a leg on.

**KAREN:** Right, right, but.

**SEAN:** But the whole thing, human mind, the human brain.

**MODERATOR:** Okay.

**SEAN:** So I just worry where it goes. This, great, but where do we go?

**KAREN:** When does it stop?

**SEAN:** Oh, guys, hang on. And then, of course, how do you enforce that? How do you make that stop because we've seen our government and what they do?

**WENDY:** Yeah, once it's, once it's in, once it's there, there's no going back.

**SEAN:** It's a precedent.

**MODERATOR:** Well, will you write at the bottom of Handout C, the same thing? You've gotten a little more information now. Do you think the benefits outweigh the risks, the risks outweigh the benefits, or do you think they're equal? Just write that at the bottom of Handout C.

**SEAN:** Of course, you got to show a hot dog. It's always a hot dog. They always want to mess with my hot dog.

**KAREN:** You know, I love hot dogs too.

[Simultaneous discussion]

**MODERATOR:** Who said, who changed from the first time?

**RANDY:** I did. Benefits.

**MODERATOR:** You did? You moved to benefits? You moved to equal?

**MAN:** I eased back to equal, yeah.

**MODERATOR:** Okay. Which you were sort of at before.

**MAN:** I was kind of at already, right.

**MODERATOR:** Benefits, you moved to benefits?

**LAUREN:** Yes.

**MODERATOR:** Okay. And the reason you moved, Randy and Lauren?

**LAUREN:** I guess I didn't realize how much it's already being used, healthcare and some of the food products we already eat.

**MODERATOR:** Okay. And, Randy.

**RANDY:** We said, about the same, we're using, you know, I didn't realize that it's already in production and it's already here.

**MODERATOR:** Okay. I'm going to show you a video. If you want to jot down any reactions, you can just do it on the, this page over here, so the opposite page. But you don't have to. We'll just talk about it. This gives you a little more information. And then we'll talk about what you are seeing. Can everyone see?

[Video played]

**MAN:** He didn't want to move anymore.

**MAN:** He's not so helpful right now.

**MODERATOR:** We're relying on the Internet right now.

**MAN:** Oh, okay.

**MODERATOR:** And not so good. Hold on.

**MAN:** Remember when they said the Internet will never take off?

[Video played]

**DANA:** Don't trust corporations . . . put stuff in your food and . . .

**MODERATOR:** All right. I'm going to start it one more time.

[Video played]

**MODERATOR:** Okay. Sorry, I . . . technical issues . . . sorry. I do not know.

**MAN:** Want to reset the Internet connection?

**MODERATOR:** Well, it's weird because I can see the whole thing on the . . .

**MAN:** It's amazing. No matter how advanced they get, unplugging and plugging it back in always . . .

[Video played]

**MODERATOR:** All right, so did that, reactions to that? Is that helpful? Did you get any more information? Did it in any way affect the way you think about this? What were your reactions to that?

**WENDY:** My questions would be, if they're going to create their own meat, is there going to be an animal there, or are they just going to have a steak?

**MODERATOR:** No. There will not be an animal there. So another example, there's a different video that we didn't show you, rather than we raise chickens, they're essentially through this process that you'll end up with chicken breast or the meat of the chicken. But you don't have to actually raise an entire chicken.

**WENDY:** It won't be, what if you wanted the whole chicken?

**MODERATOR:** Well, they'll still be . . .

**WENDY:** Able to do that?

**MODERATOR:** Yeah. I mean, this is not saying that people can't still raise chickens. But that we, they can, through this process, create the meat, which is what most people eat.

**MAN:** And grow chicken breasts, right.

**MODERATOR:** Chicken breasts.

**WENDY:** Oh, so it'll be limited.

**MODERATOR:** Or a steak or a ground beef patty essentially. But that it's creating it without the entire animal. So you're use, it's creating, you know, the muscle is usually what you eat, right? So that, it's growing that muscle, but not in the animal.

**DANA:** How long before, to creating meat in the lab becomes so cost effective that raising meat becomes not an option or only an option that the rich can afford? Because if you can create them in the lab, mass produce it without the cost of raising, killing, and moving to market, all of it, all the process of where you may create a few jobs in the automation of growing it, you reduce all the farmers and the farm laborers and the truckers and all that. So all those people are gone. And then all of a sudden, this meat is so readily available, so easily affordable, the option of having real meat becomes, or grown meat becomes not an option at all or an option only for the very wealthy, so . . .

**RODNEY:** Kobe beef. But we have some sort of those options now, right? You have the option to go to a chain supermarket and buy vegetables or go to Whole Food and buy organic vegetables. So those options are there now.

**DANA:** Yeah, but . . .

**RODNEY:** I mean, it may become a bigger disparity in the price at some point, you know.

**DANA:** Yeah, a huge disparity because as you say, the difference between Kobe beef is not that different that the average person can afford. So because it's there does not make it affordable. And it's in the . . .

**RODNEY:** But the thing, Kobe beef and regular beef is a huge difference between real cow and . . .

**SEAN:** Well, it's the preparation. And what he's talking about is the cost of preparation. You figure, I mean, okay, so you think you raise a pig. Well, there's a whole lot that went on before that pig got raised. There was a farm, and they grew corn. You know, he grew that corn, and then . . .

**DANA:** That corn was shipped.

**SEAN:** . . . harvested that corn, then shipped that corn in a truck to, you know. You start looking at the price of fuel and all that, there's all that involved in the beginning. When the fuel prices go insane, the combines aren't going to run. The trucks aren't going to run. So then this becomes really affordable, and then you're looking at, well, I have to feed my family. So am I going to pay \$3 for this Petri dish-raised chicken, or am I going to pay \$100 for this farm-raised chicken? And, you know, you see the price now, the disparities in the like free-range chicken, stuff like that's always more expensive.

**DANA:** Right.

**SEAN:** Which is kind of weird to me because less products.

**RODNEY:** Exactly, and you got less expenses . . .

**DANA:** You have less people working.

**RODNEY:** So it's the same thing with this. What are the regulatory prices going to be? How is that going to affect the price of it?

**MODERATOR:** But Dana's concern, your concern you're saying is that this leads to kind of a . . .

**DANA:** Single option.

**MODERATOR:** . . . the haves and have nots.

**DANA:** Yeah, same . . .

**SEAN:** The loss of jobs and . . .

**DANA:** . . . loss of jobs, the economic down and hit because it will wipe out your agricultural segment. I mean, if you can mass-produce from a factory with a few people or a few side researchers or scientists, what do you need farmers for? What do you need truck drivers to move this stuff for? What do you need farm hands for? What do you need . . .

**RODNEY:** Wasn't that the same, didn't somebody have that discussion, when you start automating mass production . . .

**DANA:** Well, yes. And that happened too. And that happened quite a little while, we . . .

**SEAN:** But you create new industries and new ways of . . .

**DANA:** But not at that, not at the rate. That is why . . .

**WOMAN:** Yeah, farmers aren't going to become a scientist.

**DANA:** Well, not a farmer, yeah, right.

**SEAN:** Well, and also, on an even more scientific note, do you realize that the corn in the United States creates more oxygen in the air than the Amazon Rain Forest itself, the corn, in the United States? So, I mean, you start eliminating agriculture, what else are you eliminating? Breathable air, ozone layer.

**MODERATOR:** So I'm curious though. Do people think this is going to eliminate, I mean, this seems to be a topic, which is, some people say I want to, Rodney, I want to have a choice. I don't eat meat now, but if I did, I want to have the choice. And some people say, that doesn't mean that raising livestock is going to go away, but this is going to be an additive, a way of having more meat or other products than we have now.

**DANA:** Well, actually, it will chase it away. And not, and it won't take long. There's the ability to be able to produce this meat will only get cheaper, more efficient, and more fast sent to the market and more faster. You can put one of these processing centers in every city and have no need for over-the-road trucking. You can probably . . . facilities probably with a handful again of researchers. I mean, it will be an almost totally automated system.



**MAN:** Absolutely.

**DANA:** No farmer will be able to compete with the cost of production for . . . as the gentleman there said, Sean said, for raising a pig from an infant up. Just the cost to feed alone is staggering, the cleanup cost, the . . . is, and once this process is up and running, there is no way our agriculture section can compete. So there's a complete loss. And where we . . . were probably high paying, but at very, very minimal amount of jobs. Not only this, this meat is open to manipulation, depending on who's in charge of FDA or who's in charge of monitoring these corporations.

I read too much about corporations' cost-benefit analysis. If I poison 1,000, but I get paid \$1 billion, I get paid tens of millions on that billion. It's chump change. It's worth it. I've seen DuPont know that they was poisoning pregnant women, sending out their Teflon issue. I've seen corporations do that. And when, what people here fear is the lack of regulation. From administration to administration, the person in charge of the regulations changes, which changes what the product can and cannot consist of. So, yeah, the, I don't know . . . but knowing what I know, worries me.

**MODERATOR:** Okay. Now we haven't really heard from that end of the table. Reactions to the video and anything it made you think about?

**JESSICA:** I guess it, I mean, it didn't have much information. Like I feel like it should have had more. It was really simple. I just, it's a weird way to introduce that because it's like a big scary topic, so . . .

**MODERATOR:** Okay. What about you, David?

**DAVID:** Yeah, not a whole lot of reaction from the video different than . . .

**MODERATOR:** Are you thinking about things any differently, or any new thoughts based on the conversation that happened?

**KAREN:** I'm not. It still seems unnatural to me. Excuse me, I'm sorry.

**MAN:** No, no, not right now.

**MODERATOR:** Lauren, what about you?

**LAUREN:** I don't know. The video was kind of like cutesy, cartoon, like, oh, look how positive this can be. But it doesn't really mention anything negative. It just says, for more information go to this website. But are you really going to do that? Probably not.

**MODERATOR:** Randy, what about you?

**RANDY:** Not really. About the same.

**MODERATOR:** What, cultured meat seem to be a term, or cultured beef, that people did not particularly like? Clean meat you seem to like better. Any other name or term you think would be preferable? Is there a better way to describe this?

**WENDY:** Actually, in the modified meat.

**MODERATOR:** Modified meat?

**SEAN:** Yeah, that might not be a good term though.

[Simultaneous discussion]

**SEAN:** I mean, any time, I've seen genetically modified written on things, and I'm like, I worry about taste. And it's something as simple as an oyster. Anybody who enjoys oyster knows that if you get an oyster in a different place, from a different water, it has a different taste. My concern would be the flavor of this. And in a cow, it comes down to what they eat. Kobe beef, it's what they eat. Veal, it's what they eat. If you're not feeding it, how, what is that, is it going to taste? You know, if it, I mean, the hamburger, did somebody eat this hamburger? Did it taste good?

**DANA:** Right.

**SEAN:** That would be my concern would be taste.

**MAN:** That's crossed my mind too. I mean, there have already been a lot of studies done . . .

**WENDY:** And a tomato doesn't taste like a tomato anymore.

**MAN:** . . . I mean, chicken doesn't taste . . .

**SEAN:** Well, it depends on where you grow it. I mean, you know . . .

**MAN:** The amount of salt and seasonings that's used today versus couple decades ago, is staggering. And a lot of that . . .

**RODNEY:** Because you have to.

**MAN:** Yeah, because it doesn't taste like anything anymore. I mean, a lot of that is also because, you know, we're all now a world full of foodies. But, you know, and home chefs, but a lot of that, I guess has been linked to the fact that food has already been stripped of its flavor compared to what it once was. So this to me seems to further that.

**MODERATOR:** Stripped food that's flavored.

**KAREN:** Right.

**MODERATOR:** Okay. What I'd like you to do is turn to Handout D. And this is actually a two-page handout. These are reasons people have given for why encouraging further research on cellular agriculture is a good idea, why we should do this. So these are arguments in favor of it essentially. What I want you to do is read them.

I want you to circle the two that you think are the most important reasons to encourage this, these developments in cellular agriculture. And if there's anything you really don't like, you can put an X next to it or strike it through. Anything you really do like, if you could circle the word or the idea. And then we'll just talk about your reactions to these arguments. Number nine should not be on this page. So just ignore it for now. Just . . .

**SEAN:** Now, I'm going to have to read it.

**MODERATOR:** You can read it, but we're going to read arguments on the other side next, so if you could just save it, I promise you'll still get to react. So just one through eight. So now that you've read these, are you feeling any more positive? And if you, anyone say, yeah, you know, this makes me think more about benefits? It makes me feel more positive here. Lauren is shaking her head no. What struck you here, Rodney?

**RODNEY:** I mean, I circled one and three, to me, would be the best reasons to do this. But one with a kind of a concern also is immediately, I thought, then who controls that food supply? And how is that used or divided or, you know, is that used as something somebody mentioned food wars earlier, and I could just see, you know, that being an issue for sanctions against some organizations, some countries, some access that were not affiliated with do we use holding back on some of this food supply as a weapon at that point?

**SEAN:** It's done now. They do it today.

**RODNEY:** But if we had this, and farming is out of the question, then that's an even bigger weapon.

**SEAN:** Sure.

**MODERATOR:** Let's just go around and tell me the two you circled, Lauren.

**LAUREN:** I circled actually seven and eight, so more about the animal cruelty part being more of a benefit.

**MODERATOR:** Okay. Jessica.

**JESSICA:** I circled three and four.

**MODERATOR:** Three and four.

**JESSICA:** Yeah.

**MODERATOR:** Okay. David.

**DAVID:** I still haven't circled any, but I guess I'm sort of leaning toward maybe five and three.

**MODERATOR:** Okay. Danielle.

**DANIELLE:** I circled four and five.

**MODERATOR:** Okay. Sean.

**SEAN:** I circled part of three and four.

**MODERATOR:** Okay. Randy.

**RANDY:** More like six and seven.

**MODERATOR:** Okay. Dana.

**DANA:** One and two.

**MODERATOR:** Karen.

**KAREN:** I haven't circled any yet.

**MODERATOR:** Will you ever?

[Simultaneous discussion]

**KAREN:** Yeah . . .

**WENDY:** One and four.

**MODERATOR:** Okay. So it tended to, and everyone know there was an eight on the next page, right, not nine? So let's talk about one, three, and four first off. So one, you know, Rodney already talked about why that was important to him, but he does have concerns about the controls of food supply. Any other reactions or thoughts on Statement #1?

**DANA:** We already have stuff rationed on the planet, I mean, and we know that when weather change, that they ain't able to produce foods where water, sea level rising and the amount of farmable land, and ability to produce animal crops or . . . sustenance is going to be challenged. We know where the previously agriculture areas are going to

change, that the DOD is already preparing for the great shift in the food chain. We're all, harvest belt is going to shift. So being able to have a supplement, especially for nine and a half billion, and seven billion people in the world, and we have mass starvations in the world now.

Nine and a half billion people more, two and a half more billion people will definitely create an issue on, strain on food supplies and the ability to get food to people and ability to, which is why I can't listen to the downside earlier, the ability to put a processing center somewhere that doesn't need to transport the food very far would be beneficial to area that have very low transportation systems, so.

**MODERATOR:** Okay. Any other thoughts on number one?

**WENDY:** I think with the global warming, and the droughts that we have, and I think eventually, it's going to affect any of the like cows or chickens or, I mean, because it's going to get to a point where it's too hot for them to be outside. They're, not enough water to give them. So maybe we're heading down, maybe that's what they're trying, why they're trying to do this is because there will come a time when, you know, they won't be that much meat around.

**MODERATOR:** Okay. What about number three? Safer, purer product than traditional cattle parts, four of you selected this as most important. Why is that? I don't remember who did.

**RODNEY:** I did. Just because you hear so many stories, conditions in slaughterhouses, I heard that, you know, down they used to show some of the chicken processing plants, how bad they are. If you can do that safer and cleaner than the, you know, I'd be for that.

**MODERATOR:** Okay.

**SEAN:** Yeah, I mean, I mentioned the E. coli earlier. Just, I mean, the ability to eliminate things like that, it's funny, because I circled this one, but I was thinking about something, and then we read one we weren't supposed to read. You know, it . . .

**MODERATOR:** Okay. There's two sides to it.

**SEAN:** Well, and I guess I'll wait for that part of it because that's, that's one I've had a hard time with for a long time, and it's not just with food. It's with hand sanitizer, all of that, people just, nobody has immune systems anymore because of that.

**MODERATOR:** Okay.

**SEAN:** But, yeah, I mean, you see these things, like the big, I think it was a spinach one not real long ago, they had E. coli. I mean, if these things aren't produced in these environments where they can be tainted. Or people with allergies, not allergies, things like that, if these things are produced around other products, and they're specifically

done, boom, by itself, that's it. This animal never ate that, never did this, I think it could be, you've got a . . .

**MODERATOR:** Anyone else have anything to say about number three? Number four.

**WENDY:** Well, it's good not to have the antibiotics in the food. I mean, because there's, I mean, there's so much in all the meats that are out there, unless you're really paying attention to what you're buying. And the, it's already been proven that our bodies are not able to use antibiotics to fight off colds and things like that because we have so much of it in our system already that it's, you know, it's useless.

**MODERATOR:** Okay.

**DANIELLE:** Just for the colds, I guess, it's caused by a virus, right, so antibiotics wouldn't be able to help it.

**WENDY:** No, no, I mean, but when, any disease you get that you need an antibiotic . . .

**DANIELLE:** Right, that would be for like bacteria. But the reason why I thought it was . . . too just because that's something really scary to think about, to think that if you do get sick, and this has affected you that way, and there's nothing else that can help you, the chances of you surviving or being really ill, like they just increase.

**MODERATOR:** So is this one of the ones you circled?

**DANIELLE:** Yeah.

**MODERATOR:** Any other thoughts on number four? People who thought that was important?

**SEAN:** Just saying there's antibiotic-resistant viruses. I mean, we just use too much antibiotics and stuff to this day that these viruses have become resistant to all that. And then they throw another antibiotic at it, and another antibiotic. I mean, I've watched what happens in a chicken house when two chickens die. And then the next day, 150 of them are dead. And then they guy comes in from the, from Purdue or Tyson and goes, pfft, and then they're all fine. I mean, you were just watching them drop, and then the next day, they don't.

**MODERATOR:** What, are there other, I mean, there are other statements on here, that not as many people selected, but anything else people want to say about arguments or statements here that you found as compelling reasons why it's important to continue the development of cellular agriculture?

**DANIELLE:** I think on number five is something I . . . secure for us to know, that food is going to be there. Even over things that we can't control, like the weather, but having people able, being able to control the food, and knowing that that can still be there for

us. So I feel like it's everyone, or I'm able to give me at least security to know about like there's just one way I can survive with.

**MODERATOR:** Okay. And that sort of relates to something that he was saying earlier about global warming.

**WENDY:** Right. Well, the, it's already a proven fact that the waste from the cows or that is affecting the ozone right now, and the pollution in the air. So we, it would help with global warming and, you know, for our part.

**MODERATOR:** Okay. What about the animal welfare? I think Lauren, you were the one, seven, and eight, were you more . . .

**LAUREN:** Yeah, I mean, I was more so number eight about waste. I feel like, not just the U.S. but a lot of first-world countries just waste, they're so wasteful and just pollute the earth with garbage. And it was really help with that portion of it. We have so much wasted.

**MODERATOR:** So, Karen, you've been really skeptical throughout. Is there anything here for you? And that's, everyone can have their own point of view. That's the great thing about these groups. But anything here that makes you think, oh, you know, maybe this maybe could be a good thing? Or is there nothing here that really sways you?

**KAREN:** Nothing sways me, but, I mean, because there's still the . . .

**MODERATOR:** Is there anything that makes you feel a little more open like, well, maybe I should just keep an open mind?

**KAREN:** I was trying. I read it. I was trying to read it twice just to see if something would jump out at me to be like, well, maybe. Maybe number four, but, yeah, maybe number four.

**MODERATOR:** Okay. So the idea of the antibiotics not having that?

**KAREN:** Yeah, yeah, yeah. But just still with me, it's just the manufacturing of food, not, I don't mean seen insensitive, but I'm like animals been getting slaughtered all my life. That doesn't bother me. You know, but for other people, maybe it does, for us to eat. But so not even that one. But like I said, maybe number four. But I just still have a problem with manufactured food, you know, meats and stuff . . .

**MODERATOR:** So at the bottom of this, of the second page, could you just write, I know I sound like a broken record, but now you've had arguments beginning to say this is a good thing, benefits outweigh the risk, risks outweigh the benefits, or are you feeling equal?

**KAREN:** About which one? Oh, second one.

**MODERATOR:** Yeah, the bottom of Handout D, the second page, just, you know, you've gotten a little more information, you know, just indicate. Maybe you haven't changed your view, but and that's fine too . . . anyone change their view? Anyone move to saying benefits outweigh the risks? No. Anyone say move, become less positive? No. So this didn't really change where people . . .

**WENDY:** Well, actually, I had in the benefits outweigh the risks under certain conditions.

**MODERATOR:** Okay. So now, if you turn to the next page, Handout E, these are statements people made about why encouraging this kind of research and . . . is a bad idea. And we should not do it. So these are arguments against. Now I want to remind you, the last one on the previous page, number nine, that's also an argument against. So be a little flexible for me. Include that one in so there will be seven in all. And then select the two that for you are the most important reason to discourage, to not do this kind of research.

**SEAN:** Are we doing the circle thing again, or . . .

**MODERATOR:** Yeah, circle two. And include, there's seventh one here, which is on the other page. You can just write number seven at the bottom and tell me if you circled that.

**SEAN:** You can only circle two?

**MODERATOR:** Yep, two. So let's start with Randy. Just tell me the two that you circled. Have you circled any?

**RANDY:** I did one. I'm thinking of three and four.

**MODERATOR:** So three and four.

**RANDY:** Yeah.

**MODERATOR:** Okay. All right, Sean.

**SEAN:** Three and six.

**MODERATOR:** Okay. Danielle.

**DANIELLE:** Two and six.

**MODERATOR:** Okay. David.



**DAVID:** Three and seven on the page before.

**MODERATOR:** Okay. Jessica.

**JESSICA:** Two and three.

**MODERATOR:** Two and three.

**LAUREN:** Two and three.

**MODERATOR:** Rodney.

**WENDY:** Oh, I'm sorry, two and nine.

**MODERATOR:** So two and nine.

**WENDY:** Yes.

**MODERATOR:** There's not a nine.

**WENDY:** You said . . .

**MAN:** Nine is on the other page.

**WENDY:** Oh, yeah, sorry.

**MAN:** It's actually got a nine even though it's seven.

**MODERATOR:** I'm really trying to forgive myself . . . Rodney.

**RODNEY:** I did five and six.

**MODERATOR:** Five and six, okay. And, Karen.

**KAREN:** I did four and five.

**MODERATOR:** Okay.

**DANA:** Three and seven.

**SEAN:** It's good to see that none of us have any morals.

[Simultaneous discussion]

**SEAN:** . . . I was waiting for somebody to grab it.

**WOMAN:** We almost did. That's the . . .

**MODERATOR:** Why did no one pick one? Is that a concern for people, but other things are more of a concern?

**SEAN:** I think that other things are more.

**KAREN:** Other things are more, yeah, yeah. Like I said, they may get slaughtered all my life. That's what I know, right.

**SEAN:** It's animals. It's not humans. You start getting humans, then we're going to talk about number one.

**KAREN:** Right, right, exactly.

**MODERATOR:** Okay. So when you talk about, as you said earlier, cloning in humans, then that's where the moral concern . . .

**SEAN:** Right, and that's again where the precedent. Where does this stop is my concern. So I lean towards one a little because of that. It's one of those, right now, I'm okay, but.

**MODERATOR:** Okay.

**RODNEY:** I didn't pick one because if you had those moral problems with this kind of food, then you're probably going to have the same moral problems with slaughtering live animals with, I can't really, you know, say that either one is going to bother me that much.

**MODERATOR:** Okay. So let's talk about the ones that got the most votes. Number three, the traditional agriculture, it could put traditional agriculture out of business, harming our economy, leading to job loss. So I know Dana really kind of articulated that already.

**RANDY:** Right, exactly. About, you know, the truckers or the less truckers and less people going to get food elsewhere. It's going to be more local.

**MODERATOR:** So, I mean, is that what you think is going to happen, that this would end up sort of essentially putting out of business regular traditional raising of livestock?

**KAREN:** Pretty much.

**DANA:** Could.

**MODERATOR:** I mean, is that, do you think that's . . .

**RODNEY:** It's possible, and I think that's a way off.

**MODERATOR:** It's a way off.

**RODNEY:** I don't think it would put everything. I just think too many people still want a choice.

**KAREN:** But like David said, it's not going to be afforded . . .

**WENDY:** It may not happen now, but in the future, near future, it probably would happen. That would probably become a real problem.

**RODNEY:** But to me, and unless, like somebody said earlier, we had these processing plants in every jurisdiction or every city. Somebody has still got to truck it from place to place when they produce it.

**MODERATOR:** Okay. Anything else anyone wants to add about number three? What about number two, might behave in unpredictable and harmful ways that could harm people's health?

**WENDY:** Only if they mess up the genetic code. That would be my concern.

**MODERATOR:** So if they're not genetically modifying these foods, they're not genetically modified organisms, which they're not. Your concern is that they somehow, someone would start doing that.

**WENDY:** I think so.

**MODERATOR:** Okay.

**SEAN:** Well, when you start trying to give, okay, a piece of beef, you know, people are big into protein now. You're trying to give a piece of beef a lot more protein, you know. Then what is that, you know, 78 grams of protein in that piece of beef jerky, what is that going to do to a person? I mean, there's a little . . .

**DANA:** That's if you use chicken protein, and it could be beef.

**SEAN:** Right, there's a little bit of that. And then, yeah, and then it becomes, well, let's add flavor. So maybe we need to use this to add to this. And then who knows where it goes?

**RODNEY:** Then you . . . in the first place.

**WENDY:** Red dye #7.

**SEAN:** Right, then we're back to . . . you know, and we're dealing with Ramen noodles again.

**DAVID:** I think in general, any process that we're trying to control runs a certain risk of error. I mean, it's just like anything else. You know, I mean, anything we produce, anything we manufacture, there's, where there's a human element or even an automated element, I think there's room for error there. Not to say there isn't with naturally grown animals. Obviously, we've seen, you know, food-borne illnesses and different breakdowns of stuff. But I just don't think that this process eliminates that. It just kind of shifts the focus to maybe a different set of rules that we're not looking at yet.

**MODERATOR:** Okay. Number seven, which is only the . . . number nine, several of you also selected that, this idea that, you know, more people today have allergies because things have been more antiseptic and is this going to mean that that becomes even more of a problem? Sean, you had wanted to talk about that before. But if anyone else also wants to . . .

**DANA:** And that's, that's one of, the point he was making, our planet live in the same, it's symbiotic. The more, and we see it more and more. He said he doesn't believe global warming is human made. I don't understand how you can have seven billion people polluting and not have it be manmade.

**SEAN:** That's not exactly what I said.

**DANA:** I just, okay. But you can't have billions of hundreds of millions of cars and factories chugging out pollution. So we are moving further and further away of interacting with our planet in a natural way. So, yes, when we move away from live animals, livestock, they're raising it for our food, we gain some benefits. We don't have the methane gas that's going into the atmosphere, which is a huge plus. But at the same time, as he said earlier, what happens to those animals? Do we overproduce? Do we cull the populations to keep them to a certain limit?

What is the natural balance of having this, these animals in this habitat to create, I mean, like we have a shortage of honey bees, and it's affecting crops across the world because there's nothing to pollinate the forestry or the crops. We are creating an imbalance that I believe that we can't come back from. And the more we automate, one, the less, the lazier humans get, the fatter, the more we . . . earlier, what happens when they say we need to add more taste to this meat, or we can beef this up and make it more, for lack of a better word, we can make it higher in protein or better for you?

What are the downsides? What are the long-term effects of eating unnaturally produced meat? I mean, it has some economic level. And plus eating is a deeply personal experience. Putting something on your body that you can take off if it breaks you out, you take it off and never wear it again. Once you eat it, the effects that it have inside of you that you don't know, and you go to the doctor, and nobody can tell you what's wrong.

But then you go to the doctors and you come to find out, oh, this has been having a negative effect, and it's just so many different areas of untouched, un-researched

negative to it that I can see. But to me, it would take 20 years of some community ingesting this meat and seeing that some of the effects of what it had before I would feel comfortable eating it.

**MODERATOR:** Okay. And, Sean, did you want to say anything about the anti, antiseptic and what that . . .

**SEAN:** Well, no, I mean, I just, you read about it all the time. And I work as a commercial diver. We swap that dive had around all day long. There's typically, unfortunately, not a whole lot of antiseptic used, and I go home, and, you know, other people are sick. And I'm like never sick. You build up immunities to things over time when you're not constantly getting rid of, I mean, a flu shot is the flu. They give you the flu.

**KAREN:** Yeah, yeah.

**SEAN:** So if you don't have these things being given to you, you know, some of it's given to us through the food. Some of it's given to us through the air. Then when these things do come along, I mean, an extreme example is look what happens to a person with AIDS when they get the cold. You know, or because their immune system is so weakened, look what, it devastates them.

Is that what's going to happen to all of us? Are we going to be in a sense creating a situation where we have low immunity due to things? And then we're just going to create a huge problem. And I think we've already begun that with a lot of the hand, you know, sanitation . . . you know, wash your hands, wash your hands, wash your hands.

**KAREN:** Yeah . . .

**SEAN:** And then they're sick all the time.

**MODERATOR:** Okay. And then that's, on the other side, weighed with, you know, not having antibiotics in the meat so . . .

**SEAN:** Right, and that goes into the, they work together, correct.

**MODERATOR:** Did this, did seeing Handout E really change anyone's view? Why don't you at the bottom again write, you know, do you think the benefits outweigh the risks, the risks outweigh the benefits, or are they about equal, given everything that you've seen?

**SEAN:** And all cholesterol is not bad.

**MODERATOR:** And I'm not going to ask you to do that another time tonight.

**SEAN:** And one said something about cholesterol. All cholesterol is not bad.

**MODERATOR:** Okay.

**WENDY:** I know. That's what I was thinking when I read that.

**SEAN:** You got LDLs and HDLs . . . you don't want to get rid of everything.

**WENDY:** No, that's what I'm thinking . . .

**MODERATOR:** Did anyone change their view? Let's just go around and tell me where you are on benefits versus risks, Randy.

**RANDY:** Again, the benefits more . . .

**MODERATOR:** You're on benefits outweighing the risks?

**RANDY:** Yeah.

**MODERATOR:** Okay. Sean.

**SEAN:** I'm still equal. But I feel like I'm a little more equal than I was, benefits outweigh the risks. I'm a little more in the equal. There's some things I wasn't . . .

**MODERATOR:** Okay. Danielle

**DAVID:** Risk outweighs benefit for me.

**MODERATOR:** Is that a switch for you?

**DAVID:** Nope.

**MODERATOR:** Okay. Jessica.

**JESSICA:** I said benefits outweigh.

**MODERATOR:** Okay.

**RODNEY:** Benefits greater than risks.

**WENDY:** I had risk outweighs the benefits first. And . . . I'm leaning more to the equal side.

**MODERATOR:** Okay.

**KAREN:** And then it's the benefits, I meant the risks outweigh . . .

**MODERATOR:** I was going to say, what happened?

**KAREN:** Yeah, I meant the risks outweigh the benefits.

**MODERATOR:** Dana.

**DANA:** Risks outweigh the benefits.

**MODERATOR:** Okay. So what I want you to do now is just before you turn the page, who do you think, who, what, I don't mean an individual person, but what entities, organizations, or otherwise do you think are involved in regulating or overseeing this area of science, so cellular agriculture? Do you think it is overseen and regulated in some way?

**DANA:** Yeah.

**WOMAN:** Yeah.

**MAN:** Sure.

**MODERATOR:** And who do you think . . .

**WOMAN:** FDA.

**MODERATOR:** FDA.

**SEAN:** USDA.

**MODERATOR:** USDA. Okay.

**DANA:** NIH.

**MODERATOR:** NIH.

**DANA:** I was probably Department of Agriculture.

**MODERATOR:** You say Department of Agriculture?

[Simultaneous discussion]

**DANA:** Department of Agriculture has to be involved, all that's left . . .

**SEAN:** It's like nobody thinks that's dairy. But it's U.S. Department of Agriculture, USDA.

**WENDY:** Oh, okay, because I was, okay, okay.

**MODERATOR:** So when you, is, you say those are the entities you think are involved. Those are all governmental agencies, right? Is there anyone else you think should be involved in the oversight and regulation that you didn't mention?

**MAN:** Anonymous.

**MAN:** Anybody involved in . . .

**KAREN:** Well, I think being a common person, but we know that's not going to happen.

**WENDY:** The common, common man?

**KAREN:** I mean, just, yeah. That's not going to happen.

**WENDY:** People like us?

**KAREN:** Yeah.

**WENDY:** People like you?

**KAREN:** Right.

**MODERATOR:** Rodney, what were you saying?

**RODNEY:** Anybody involved in research, food research.

**MODERATOR:** Okay.

**SEAN:** What is that organic organization, the big one that gets on top of all the regulations? Crap.

**MODERATOR:** Dealing with organics?

**SEAN:** Yes.

**MODERATOR:** And who do you have the most confidence in?

**WENDY:** NIH.

**MODERATOR:** NIH?

**RODNEY:** Yeah.

**SEAN:** CDC, NIH.



**MODERATOR:** Jessica, do you have a thought?

**JESSICA:** I don't know . . . actually.

**MODERATOR:** Lauren.

**LAUREN:** Probably CDC.

**MODERATOR:** Okay.

**DAVID:** Just to back up one, I'm not sure what the group would be, but some representation from the farmers' side of things. Is there a union group of some sort . . .

**SEAN:** Well, the USDA does it. I have friends that lobby for the USDA.

**RODNEY:** But not government, just you mean as for farmers themselves, some kind of group?

**SEAN:** Right, not government, yeah.

**MODERATOR:** Okay. If you would turn to the last handout . . .

**SEAN:** It's lobbyists. I got friends I went to school with, and their sons are all lobbyists for their family farms.

**MODERATOR:** So this has a variety of organizations, entities, and I want to know how much confidence you have in each one to be given primary responsibility for determining . . .

**SEAN:** Primary?

**DANA:** Primary?

**SEAN:** Change game there.

**MODERATOR:** . . . determining and managing the potential risks related to cellular agriculture. So the higher your number, the more confidence you have all the way to complete confidence at a ten. Zero means you have no confidence in that entity. Just give each one a rating from zero to ten. And then circle the one of these here that you say, I have the most confidence in. Each one will get a rating from a zero to a ten. And you'll circle the one that you have the most confidence in. And if you think there's something missing from this list that should definitely be here, you can put it at the bottom.

So who said they had the most confidence in the U.S. Department of Agriculture? Sean and Randy. Who has the most confidence in the U.S. Food and Drug Administration? No one. Who has the most confidence in companies that are

developing foods using cellular agriculture? That's incorrect there. No one on companies. What about university scientists and researchers involved in developing this? Who says they, oh, we got two. Scientific bodies or panels such as the National Science Foundation? NGOs and consumer watchdog groups? One, two, three, four people. What we can have here just like, U.S. Congress?

**SEAN:** Everybody put a zero?

**MODERATOR:** Popular or renowned chefs? No. Okay. So let's hear about NGOs. You can talk, Sean, after we hear from people . . .

**SEAN:** Absolutely, absolutely, sure.

**MODERATOR:** To those who circled it and said, I have most confidence in NGOs and consumer watchdog groups, why is that?

**RODNEY:** To me, it's the one that seems more like a group of different interests put together. So it's not one particular interest. You know what I mean, it has maybe a certain agenda?

**MODERATOR:** Okay.

**WENDY:** The same. Even, I mean, I've put, for the same reason, I took university scientists and researchers. But I think they're both pretty much . . .

**MODERATOR:** Go together?

**WENDY:** Yeah, absolutely.

**MODERATOR:** And, Dana.

**DANA:** I agree with her. I just believe and . . . and that they would want to have all the information, whether there's opposed to putting out positives. Even though I got university scientists and scientific bodies rated high, they can be in tune with money. I just don't think that the NGO and consumer watchdogs, that they want to get all information out. And then you can make an informed decision without an agenda. So even if their agenda is to whether it be PETA or something, I think that they are more likely to provide all information.

**MODERATOR:** Okay. Sean, what were you going to say about . . .

**SEAN:** I mean, PETA is a prime example. I don't think that they do give you all the information. I think that they, these organizations tend to be not necessarily swayed, but I think they tend to be a little more lopsided because they have an agenda. There's a reason why that organization was created.

**MODERATOR:** Okay.

**SEAN:** And they're, that in itself is the definition of an agenda.

**MODERATOR:** Okay.

**SEAN:** So I would just worry . . .

**MODERATOR:** Friends of the Earth, Union of Concerned Scientists, Consumers Union, are those, do those mean anything to anybody? I mean, because it didn't say PETA. I'm just, but you just assumed . . .

**SEAN:** No, I know, and he said PETA. So I just was saying, but there's a prime example.

**MODERATOR:** Okay. All right. USDA, U.S. Department of Agriculture, Randy, why was that one that you said you had most confidence in?

**RANDY:** I think it, both A and D I agree in. I think it's more research in agriculture, and I think the, both of them, the university scientists.

**MODERATOR:** Okay. Anything else you want to say about USDA, Sean?

**SEAN:** I mean, I ranked like four different ones at the same number. So it was a hard choice to say, I mean, the university scientists, I also threw in, NIH, and CDC. So it was a tough one. But with, the U.S. Department of Agriculture, their only problem, the reason I wouldn't have given them a higher rating, and I think I gave them an eight, is the agenda. You know, their concern would be to preserve the ability of agriculture and growth.

Then again, if they are the main primary overseer of this, then they're, I think that they would be the, personally, I think they should be the one because they are the one on the other side of the fence as well. So it sort of puts everything in one corral instead of making a group, grabbing a group that only defines one side of it. If you have a group that already does define it, then you're merely just adding this additional thing to it.

**MODERATOR:** Karen, who did you say you had the most confidence in?

**KAREN:** Excuse me, F and nobody got a ten from me . . .

**MODERATOR:** Okay. Well, what about this university scientists and researchers, D? Did people give high numbers to that?

**RODNEY:** Yeah.

**WENDY:** I did.

**MODERATOR:** No, David didn't. But you did, other people did. Dana did, Rodney. And why, Rodney?

**RODNEY:** Just because a lot of times, those researchers are working earnestly, you know what I mean, trying to come up with something even though, and I understand how grants all work at universities, and somebody funds those grants. So there's probably an agenda back there too, which is kind of the reason I took F because I don't have a problem with an agenda as long as there are opposing agendas at the same table, and you can kind of come to something that way.

**MODERATOR:** So what I'd like to do is if you'd pass up your booklets to me, I'd just like to close out by going around the table and just if you had the opportunity to speak to the people that are, people, organizations, whatever, that are developing cellular agriculture, you can say whatever you want to them. What would you want to say to them as they're developing . . .

**MAN:** Come on, that window is . . .

**MODERATOR:** We'll start with you . . .

**RANDY:** This could be more healthier for us. I mean, the chemicals that would be put in there are, they could be affected by them.

**MODERATOR:** So you're wondering if it's even more healthy?

**RANDY:** Yeah.

**MODERATOR:** Okay. Sean, what . . .

**SEAN:** I mean, again, it comes down to just be careful. Tread lightly. Be careful where you go. I like the idea, again, for the crazy idea of space travel. You know, how do you sustain food for these long periods of time? I think it's a great idea. I think it is the future. I think it is going to have to happen. But I hope it will only happen in a scenario like that because I worry that we'll lose the earth and the farms and the things that make earth what it is. So if we, we need to keep this thing in control as small as possible in a sense, used for the good an incentive, destruction . . .

**MODERATOR:** Okay. Danielle.

**DANIELLE:** Just that, I guess, it's great that we're looking out in the future of good possibilities, but just not to like forget how we naturally made things and how things once were. How . . . to the point where it's like eating like an actual bird is like a crazy idea. It's like, what? So let's not forget how we originally did things.

**MAN:** You mean, a real cow?

**MODERATOR:** David.

**DAVID:** Yeah, along the same lines, just, you know, proceed with caution, and let's not forget that while this may be one option, it probably isn't the only option. And things like focusing on other types of preservation and reversing bad habits could also be other ways to look at continued sources for food. Growing population and all that other stuff.

**MODERATOR:** Okay. Jessica.

**DAVID:** And, sorry, I know it's about the food, but keep in mind the medical benefits too as we go through that.

**MODERATOR:** Jessica.

**JESSICA:** I kind of agree with Randy. I don't want, I would probably ask them, what about like the medical side of it?

**MODERATOR:** Do you mean like the health effects or . . .

**JESSICA:** Yeah, the health effects, sorry.

**MODERATOR:** Okay. Lauren.

**LAUREN:** I would just say, don't let profit, I mean, keep your sight of the little guy. And don't, think about the long-term effects versus just the now benefits.

**MODERATOR:** Okay. Rodney.

**RODNEY:** I'd say, just ask that they be inclusive in the process. Get ideas from a lot of different places, not kind of chase one agenda.

**MODERATOR:** So if you looked at that list at the end that I showed you, would you like to have a lot of those groups involved? Is that what you're saying?

**RODNEY:** Too many people kind of makes it . . .

[Simultaneous discussion]

**RODNEY:** . . . so, I mean . . .

**KAREN:** Too many hands.

**RODNEY:** . . . just a couple, but some different size, yeah.

**MODERATOR:** Okay. Wendy.

**WENDY:** Okay. I would, this pretty much what's being said now. Just, you know, take your time, don't rush, you know, don't do it for, like she said, for the money. I mean, consider your children, your grandchildren, and the future children to be born. Just do it right. Don't take any shortcuts.

**MODERATOR:** Okay.

**WENDY:** I mean if it's this crucial to humanity, human life on this planet, do it right.

**MODERATOR:** Okay. Karen.

**KAREN:** Don't do it.

[Simultaneous discussion]

**KAREN:** . . . after this discussion, it's coming, but I don't even want to think about it, but . . .

**MODERATOR:** Is there anything, I mean, you're saying it's coming. You think it's happening. Anything you'd say . . .

**KAREN:** I mean, like a few things that I read, like I said about the incident someone got clinical parts of it, you know. That's me, but it still doesn't like change. I guess it's just hard for me to fathom, you know.

**MODERATOR:** Okay. Dana.

**DANA:** Transparency. Be open. A lot of it . . . cigarettes, kept the information about cigarettes hidden for generations. NFL kept concussion of . . . hidden for generations. I don't have the . . . multinational corporations are going to have my best interests at heart. They're going to have their shareholders' best interest at heart. But the more transparent and more open and more access to information I have, then I can read my, for myself and make the informed decision myself. But if you lack all access to all the information, then I can never know why it is what it is. I need to know, so transparency is the one thing I would want any corporation to provide.

**MODERATOR:** Okay. Great. Well, you guys have been really generous and thoughtful . . . and I really appreciate it. There is going to be a second group out there. I want them to come in like you, without really knowing what we're going to talk about, so if you have this desire to talk about cultured beef or anything else, I'd ask you to wait until you get to the parking lot. When you go out, they'll have a thank you note for you, and then I'll . . .

[Simultaneous discussion]