

Peter D. Hart Research Associates, Inc.

ELI/New Harvest Focus Group 2 Transcript

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KRISTIN: I'm Kristin. I live in Bel Air, Maryland, with my husband Tim. We don't have any children, but we do have a dog. I am a designer and illustrator, and I co-own a small ecommerce business with my mom. And then what do I do when I . . .

MODERATOR: Have free time.

KRISTIN: For free time? For free time, I like to knit and do other crafty things.

MODERATOR: Okay. Great.

TYLER: I'm Tyler. I live in Sandhill(?) with a bunch of my friends. And I'm an audiologist. In my free time I'm a big Penn State fan, so I go to the Penn State games, and I also like to go hiking and tracking.

TUN: My name is Tun(?) . . . I live in White Marsh with my wife and a kid, and we are expecting one more.

MODERATOR: How old is your child?

TUN: He is 14 months old. And what else? I'm have a couple businesses with the, one is called Control . . . it's home renovation(?). We don't do it here, we support from here. And investment company, which is we do in real estate. And I want to do the astrology thing.

MODERATOR: Astrology?

TUN: Yeah. It's on my checklist. I haven't done it yet.

MODERATOR: Okay. David.

DAVE: I'm Dave. I live over in Lanham. I live with my wife Jill. I have a daughter, but she's married, and a dog. And I manage part of the technology division for T. Rowe Price. And in my spare time I'm an avid diver.

KARA: Hey, I'm Kara. I live with my husband, my stepdaughter, and both of my sons, and my mom.

MODERATOR: And how old are the children?

KARA: My stepdaughter will be 12 in January, my son will be 8 in March, and the youngest just turned 3.

MODERATOR: And your mom as well, you said?

KARA: And my mom. Yeah, my mom lives with us. And I work for the State of Maryland. I am a licensed specialist for the . . . childcare.

MODERATOR: Okay, great. Welcome.

JUDY: My name is Judy. I live at Mount Washington. I am spouse-free. I have no children. I borrow other people's children, and then I give them back. So I'm always the favorite aunt. I owned a real estate title company. I'm happily retired. And in my spare time it's really nice to catch up on about dozen years' worth of sleep.

KARA: I live in Parkville, and I sleep like Judy.

MODERATOR: Jen.

JEN: I'm Jen. I live in Westminster, which is in Carroll County. I share custody with my ex-husband of our two kids, two boys, eight and ten, almost nine and ten. I'm a substitute teacher part time, so I can have my kids more. So I'm working part time. And in my free time I have a little farm and I have a lot of farm cats. And I'm trying to get them all spayed and neutered. Rounding up cats.

WOMAN: Just when you think you got it all, there comes another one. Right?

MODERATOR: Jim?

JIM: I'm Jim. I live in Hunt Valley with my wife and three dogs. I sell software. And in my spare time I coach a girls' AU basketball team, which consumes about ten months of my free time. So there really isn't a free time.

FERNANDO: Fernando, I live in Perry Hall with my wife, and I've got an 18-month-old daughter. I work as a poker dealer at the Horseshoe Casino, and I've been, you know, I've worked at a couple different casinos in the area of Maryland. And I guess in my spare time like I'm really big into sports, so I like to, you know, play soccer, a little bit of basketball, and I love to watch like the Orioles, the Ravens. And I also like fantasy sports, so.

DAVE 2: Dave, I live in Havre de Grace with a wife now and three kids. As far as free time, it's gone. I just had a set of twins in the beginning of November. They're great, but they're easier than, well, my son . . .

WOMAN: Two boys, two girls?

DAVE 2: Two girls, and my son. He'll be three this month, so. The girls are a lot easier, so far.

MODERATOR: And when you're not at home, what are you doing?

DAVE 2: I work for the Army's, the U.S. Army's Ergonomics Program, and we just try to figure out ways to reduce musculoskeletal injuries with various equipment or activities. Reduce the . . .

MODERATOR: Well, welcome everybody. Everyone have a pen in front of them? I'm going to pass out booklets. And if you would just put your first name at the front of the booklet. I know everyone likes to read ahead and be prepared, but I'm going to ask you not do that. I want us to all be on the same page at that same time. And I will tell you when to turn the page. It's got this really dire warning at the bottom, do not turn the page until instructed to do so. I am asking you to turn just to the next page, which will say Handout A on it.

JUDY: You did want our name on this, right?

MODERATOR: I did. Just your first name is all I need on the front page. So you have two, you have Item 1 and Item 2. For Item 1 I'm going to write something on the easel. And what I'd like you to do is just write down the words, images, thoughts, ideas that come to your mind. I sometimes describe this as the thought bubble when you see a cartoon character or someone in the cartoon, and there's that bubble that pops up as they walk down the street is what is on your mind. But when I, when you read this or hear this, what's on your mind?

And this is cellular agriculture. So this is not a test. I'm not trying to figure out if you know what it is. If you think you know what it is, want to write the definition down, that's great. But this is not, no one's on the spot here. This is really just meant to understand what this makes you think about. Cellular agriculture.

MAN: Be . . .

MODERATOR: It can be more than that. A few words, phrases, sentence, sentence or two . . . I didn't give you a lot of room so I don't want you to write like a long essay. If you think you know what it is, write that down. But more importantly, just what ideas, images, thoughts come to your head.

And then you have Item 2 below that, I want you to do the same exercise, but this time the phrase is cultured meat. So the first one was cellular agriculture, the second one is cultured meat.

So let's talk about the first one, cellular agriculture. Anyone think they've heard of that before? No, nobody. So what does it make you think of? What were the images, ideas, thoughts that came to you in your head? Anyone.

WOMAN: Cell phones.

MODERATOR: Cell phones.

MAN: Cell towers.

MODERATOR: Cell towers.

WOMAN: Farming.

JUDY: Farming

DAVE: Farming.

WOMAN: I thought about genetically engineered food, crops, GMOs.

MAN: In a center for GMS.

MAN: Is that like fast-growing food?

[Simultaneous discussion]

MAN: Chromo cells.

MODERATOR: What did you say?

MAN: Chromo cells.

MODERATOR: Okay. And what did you say, Kara?

KARA: I said labs and test tubes.

MAN: Medical research.

TUN: I thought about the sustainable food supply, climate change, efficiency.

MODERATOR: Okay. Would you say that your reactions, your thoughts, your images are more positive, more negative, or just kind of neutral? Do you have kind of a feeling one way or the other?

TUN: Well, concern about the food supply, including population. And I came from a different country. I came from Burma. It's called Myanmar. It's between India and Thailand. And we are not making enough as used to be, even we're not keeping up, and we're not the only country that's not keeping with either technology or climate change.

MODERATOR: And so you were saying that the food supply is not keeping up, so that makes you think?

TUN: Yeah, something to come over to an efficient way to make more food, also safer way. Not necessarily what we can make in the lab and this in turn causes problem down the road. So a sustainable supply. I don't know if that has anything to do with it. Actually, I never heard of it, so.

MODERATOR: So cellular agriculture, do people tend to have kind of a positive association, negative, or are you kind of just really not sure?

JUDY: Sort of . . .

WOMAN: I . . .

JUDY: I'm sorry.

WOMAN: No, you can go ahead.

JUDY: Sort of benign. I was thinking more along the line of medicinal rather than agricultural feeling, and not a positive nor negative.

KRISTIN: Yeah. I would have to know more information before I could make a judgment of whether I felt like it was a good or a bad thing, because I wouldn't want to be ill-informed.

WOMAN: I didn't really know.

TYLER: I kind of thought negative. Like I just thought right about food, and it sounds like a pretty intense thing to do with your food. If I went to the grocery store and saw those cellular agricultured, I probably wouldn't buy that.

MODERATOR: Because?

TYLER: Because I don't know what it means.

KRISTIN: It's not phrased in like in a . . .

KARA: Layman's term.

KRISTIN: Yeah, exactly.

TYLER: I'm like folding . . .

JIM: Food from technology when you say we're cellular, having sold data products in the past, my mind automatically goes to a technology space.

WOMAN: Yeah, mine did too . . .

JIM: And then trying to tie in to agricultural with that.

MODERATOR: So tying technology to agriculture.

JIM: Well, from that side. Well, I start from the technology perspective, and then try to tie in the agriculture piece of it. So it was, but I didn't understand what the two terms meant together.

MODERATOR: Okay. Fernando . . .

FERNANDO: I mean, I just sort of, like technology and those things sort of came up. So I guess for me the connotation of it might be a little bit controversial. You know, obviously it would be something scientifically based that is meant to, I guess, increase efficiency or production, but that, you know, some people might not agree with it, you know, the methods of it, or just depending on what it is. But, you know, there seems to be like some controversy over GMOs. All the people who are, you know . . . and supportive of GMOs but . . .

MODERATOR: And for you personally, your reaction?

FERNANDO: I mean, I think I was a little bit ambivalent. I guess I needed to find out some more information about the process, what it entails.

DAVE 2: It's, I thought about the GMOs, and that was, I would say it's not preferred, but probably necessary . . . some kind of like, I don't know how you put that . . .

MODERATOR: And can you, why do you say not preferred but probably necessary?

DAVE 2: I probably, if I find the option, I'd rather have something what I knew it was, what it was supposed to be in my backyard and I can grow it. But I know that's not probably, there's a lot of crops or whatever that need, are modified somewhat to be able, you know, build up some type of resistance, either to drought, bugs, whatever. So to me it's, I would prefer it not be, but I know for whole scale, you know, for like large scale it would be probably, you'd probably have to. It's probably better to see that than pesticides or . . . parts of the world that wouldn't be able to grow.

MODERATOR: Okay. Any other things we'd want to say about cellular agriculture? Let's talk about cultured meat. What were the things . . .

JUDY: Cellular agriculture sounded a whole lot better once you put up cultured meat.

MODERATOR: Okay. What were the words, images, thoughts that came to people's minds?

MAN: Something that was bioengineered and produced in a lab.

KARA: Yeah, I put nonorganic.

MODERATOR: Why would you . . . put?

KARA: Nonorganic.

MODERATOR: Okay. Let's just go around the table. Judy.

JUDY: I put cloning and famine reduction.

MODERATOR: What about you, Jen?

JEN: That just made it sound like it was rotten. Like if you grow a culture in a lab, into mold.

MODERATOR: Okay.

JEN: Very simplistic.

JIM: When I thought about it, I thought about the farm-raised and they have a big, fat, healthy so when they're being reproduced and the meats are being processed into meat that's going to be going into my body, that they're more healthy and the, the products that go into my system are more healthy than just the pasteurized, when they're being pastured in the field and eating whatever.

MODERATOR: Okay. So this would be a healthier. Fernando.

FERNANDO: I wrote FDA inspections, I guess either because, you know, maybe previous methods of raising livestock or producing meat might not have been like up to par. And that's their response for maybe like cultured meat would require a different kind of set of standards so that, you know, the FDA will approve of different kinds of cultured meat. You know, I'm not super familiar with them. But those are sort of the images that came up with me first.

MODERATOR: Dave.

DAVE 2: I didn't know what to think, really. I had two images in my head. I had, you know, Slim Jims and . . . and then like, you know, the aged like steaks would cost \$60 or \$70. So I didn't know.

MODERATOR: You didn't know which of those.

DAVE 2: Yeah, for the Slim Jims or for a good steak. I don't know how they, I know they age them for a long time, so some of them for like 30, 40 days or so they hang them.

JUDY: It did bring to mind that perhaps there could be some sort of a product that was meat-like but vegan or vegetarian, which could help. And there was a show on last week that was a mystery. Was it, was the company going to make their meat, their cultured meat vegan or go another route and consider it halal or kosher, which would make them more money. So it was just . . .

MODERATOR: It was something you watched, you're saying?

JUDY: Yes. Yes.

MODERATOR: Okay. Kristin, what did you write down?

KRISTIN: I said like genetically engineered cows or chickens, or maybe cows, chickens that are eating crops that are, because I know cows in this country are fed with corn, and the corn is, you know, probably genetically engineered. So, you know, how is that, just going off of the cellular agriculture. That's what then I thought of.

MODERATOR: Okay.

TYLER: I thought about engineered meat, and I started thinking about like meat like Spam. I don't know what it is. I'm not going to eat it. It's kind of negative.

MODERATOR: Okay, Tun?

TUN: I thought about for a similar reason methane gas reduction. And I've been in India, the, it's only talk about, we mostly we're talking about beef, or not necessarily, but most of us assume it is, we talk about that. Almost entire country don't eat that, and yet they are, I don't want to say healthier, but where I came from we don't really have like slaughterhouses like this more organic, I guess, meat, organic meat because we don't really have that kind of mass production, versus here. And also they are creating a market to portion sizes.

The, if you go to, when you go to a different country, even the same McDonald's, you don't have the same portion size as U.S., it's a huge difference, and . . .

JIM: They have a Small Mac?

TUN: There is like small, I mean, fries like this. There's no super-sized cup or anything. It's a small cup. The sodas, I mean, there's, I believe it's eight ounces and the portion size.

MODERATOR: Dave, cultured meat, what came to your mind?

DAVE: So I was going back to the original taste as something about being bioengineered and modifying DNA in the meat.

MODERATOR: Okay. Kara.

KARA: Oh, nonorganic.

MODERATOR: Okay.

KARA: . . .

MODERATOR: I'm sorry. And so cultured meat. I mean, Judy kind of said her, how she feels about this, but more positive, more negative, more in between in terms of . . .

KARA: It's scary to me, so I guess negative.

KRISTIN: It's not a good play on words.

TUN: That's the most important. If you say something like some, most of the people don't understand, a lot of people will not buy it just because they don't understand it. So it's more, they have to do more education.

MODERATOR: Well, I just want to know kind of when you hear cultured meat, do you tend to have, does that give you a positive good feeling, a negative feeling, are you just thinking, well, I don't really know so I'm going to withhold judgment?

JIM: I think it's more, being in sales I think it's a play on words. It's just a fancy way to say that your meat is more healthy or it's organic. I mean, I'm a vegetarian but generally I try to eat healthy and eat more fish and healthier food. But again . . . vegetarian and meat, there's not a real good way to put it. If it's healthy or not, it's just, or if it's organic it's still not great for your system.

KRISTIN: For me it kind of is a, it kind of, it just doesn't sound like a good two words together. And maybe for me I'm a little bit biased, because my husband worked in a deli and I would hear disgusting things and just about it. And so he'd come smelling like lunchmeat. So for me, it just wouldn't have like a good connotation, I guess.

JUDY: I think it's the words themselves. I think cultured meat just does not sound like something you would want.

MAN: I agree.

MODERATOR: And do you think cultured meat and cellular agriculture would be related, would be similar?

KRISTIN: I think a lot of people like to apply labels that people don't necessarily know what they mean, and they technically could mean the same thing and then they could technically also mean not the same thing, so.

JIM: Well, in today's world of being politically correct, it kind of, to me, falls in those lines with you're trying to say the things that people want to hear and aren't offensive, that sound the way they should sound. Those are the terms that when you put those together, that's what comes across to me.

MODERATOR: Okay. But it's trying to make it sound better.

JUDY: Well, to me it's . . .

MODERATOR: Although some people . . .

JUDY: It doesn't seem that cultured meat is trying to sound better. It sounds like the worst possible thing, if you term something in order to send it to people, to have people interested in it.

JEN: Just in an English like literary way, it just doesn't sound great.

MODERATOR: You say gross?

JUDY: Yes. My first word on here was ugh.

MODERATOR: . . . what was yours?

JEN: It just sounds, the word cultured makes me think of a . . .

KARA: A Petri dish.

JEN: I'm around children all the time, so I just think of like strep throat test and they did a culture. And cultured is another word.

TYLER: I would think if I had a choice between . . . meat that said it's cultured meat or meat ground using cellular agriculture, I'd say, that must be real meat. The cultured meat, I think, what is that?

JEN: Sounds like it's preventive.

TYLER: Yeah, yes. Something off about it.

MODERATOR: So if you would turn to the next page. This gives you a description of what cellular agriculture is. I'd like you to read it, and then there's a few lines at the bottom where you can write down your reaction. So it could be a few words, it could be

a few sentences. I don't need you to write a ton, but just this is what it is, what's your reaction? So if you can wrap up your comments. So, Kara, what's your reaction?

KARA: I don't know. This is a little bit weird to me. And I wrote that I wouldn't consider these foods or products real without coming from its natural source. And I would be concerned about long-term effects. Because it just seemed too much science and lab. I mean, I . . . and I just like, I don't know. So anything that's just seems like too many things that's not natural going into it kind of makes me feel weird.

MODERATOR: Okay. Kristin.

KRISTIN: I just said that I thought it was a really interesting concept, and it would make it more convenient to be possibly vegetarian or sustainable or be able to feel good about eating meat and things like that. And I have friends who are like vegetarians and vegans, and they always eat like the fake bacon and stuff like that. And I was like, well, what's the point of that? Because you don't want animals to be killed, but then you are eating something that tastes like the animal.

But I think it would be, it would make it convenient for people who thought that, you know, they didn't want to have to eat animal products or have animals go through, you know, well, I mean, they'd obviously have to get the cells from animals, but there probably would be less, you know, environmental impact of, you know, having chicken farms and all.

TUN: The first thing came to my mind is ethic, ethically how they're going to help people . . . react. Some people might not agree to it and some . . .

MODERATOR: What about you? I mean, I want to, I appreciate you thinking about other people, but I'm interested in what you, your reaction is.

TUN: For me, I don't have any problem with it. The, of course it's advanced technology and efficiency. I think it's going to be very good for the, of places that can't grow . . .

MODERATOR: You mean parts of the country or the world?

TUN: Yeah. So personally, I'm okay with it.

MODERATOR: Okay. What about you, Dave?

DAVE: So the first thing I started thinking about, it gets into the whole concept of cloning and . . . like the first thing it leaves in my mind is my dog died, so I'm going to have another one made. And that just kind of creeps me out a little bit. And it's ultimately not the real product. And, you know, I'm with Jim. I'm a meat person. I know it's not good for you, but, you know, the concept of you giving me a tofu burger and it's supposed to taste the same as a regular burger, it's not the real thing. So I don't care what you tell me. To me, it's never going to have the same taste or consistency or feel. So it's automatically something I'm not going to be interested in.

MODERATOR: But so are you saying you think that this is the same as cloning or this is cloning?

DAVE: Well, to me, if you're starting with the cell from something else and forcing it to reproduce through some . . . to me, then I'm equating that to cloning. You're reproducing something starting with a cell or DNA.

MODERATOR: Okay. Other thoughts? Jen, what about you?

JEN: I personally don't, wouldn't really want to eat it, but I think it's a good idea maybe for other countries that need, you know, ways to produce more food. But I like the tissue engineering idea, because, you know, for like organ transplants for, my son has Type 1 diabetes. So he's always talking about, when is the cure? We're going to have a cure, we're going to have a cure. And that's like something that's meaning . . . just makes me feel . . .

MODERATOR: Other reactions?

TYLER: You could only say that cloning, that this could be a slippery slope down that path. I mean, looking at those cell tissues, like that's, that would be fantastic if we can grow organs for people who need it. But I feel like that could just lead us down a path where . . .

WOMAN: . . .

TYLER: Yeah. And my initial reaction on that was . . .

JUDY: . . . anyway.

TYLER: If I knew that that was where my meat was from, there's not a chance I would eat that.

MAN: That's what I . . .

TYLER: If I knew that like, if I read, if I went and bought, you know, hamburger and I saw this is how it was made, I'd just probably throw it out.

MODERATOR: But is why?

TYLER: It creeps me out.

KRISTIN: But if you saw how meat was produced in America and how chickens are kept in, you know, these large, dark barns and things like that, you would maybe think about that a little differently too. I think it's about how educated you are on how, you know, meat in this country is produced, so.

JUDY: Yeah. I think a lot of us don't want to go out and kill our own meat, but we don't want to know how it's killed. I think this is cloning, but starting on a cellular level, and I don't have a problem with that. I don't think I'd want to eat like the first ten years' worth of experiments, but maybe after that I do see it as mass food production. We're in a world that's starving. And just because here in America we have fewer people who are starving and we don't see them doesn't mean that we don't need some sort of protein. And I think that's very important. I don't, but it would also be nice for the vegan and vegetarian people to get some protein that perhaps is meat-like although not been meat since that first cell.

MODERATOR: But is it not meat?

JUDY: Huh?

MODERATOR: Is it not meat to you?

JUDY: I don't know. That's where the fine line comes in. Is it meat if it started as a meat cell, or is it something completely different? I don't know.

MODERATOR: So it is meat that, so there's a culture taken from cow, you know, muscle, which is essentially what is used for different areas, muscles of the cow or, you know, different parts of meat. So that tissue is taken, and then in, outside of an animal it is then grown using, as it says, a scaffold and then there's food that it, so it basically can grow the tissue into more, into meat that then can be . . .

JIM: Like a chia pet? I was just joking. But I mean, it's, I'm a technology guy, so I'm all about the technology advances and building upon technology. But a piece of meat to me is like a piece of steak would be from a cow. And then taking . . .

JUDY: But once they put it in front of you and it's not from a cow, you don't know the difference.

JIM: I wouldn't know the difference, you're right.

MODERATOR: Well, then that's . . .

JIM: But I know what I'm reading right now.

MODERATOR: . . . just trying to answer Judy's question of, you know, this is not grown to a full animal.

JUDY: Right. It's . . .

MODERATOR: The tissue that comes out, that is replicated, it's from a cow or a chicken or whatever that animal.

KRISTIN: Does it look like a piece of meat? That's my question, would be my question. If it looked like a steak, then I would say yes, it's meat. But then if it looked like a mashed up like whatever, then it's maybe a protein product. I don't know.

JIM: But Judy's points are, I mean, in several countries this, if we're going to experiment with something like this, that would probably be a great place to start, because there's less to lose . . .

KRISTIN: We also want other people to . . . on us?

JIM: What do you have to lose?

JUDY: We already started. When you come to the medical issues, they're already cloning skin and organs and things like that. And I have an easier time with that, like maybe someday I'll need an arm and I'll be able to make one. I have a little bit of an easier time with that than deciding whether this is meat or not meat. But I think if it's cloned from meat and don't, you don't need to make a decision as to whether or not it is meat. If you aren't a vegetarian, then I see no problem with this product.

MODERATOR: So my understanding, I'm not a scientist and I'm not a doctor, this is what I do, public opinion research, but cloning involves creating an entire, you know, another living being like an animal. But this is just at a cellular level growing more cells, but outside of an animal in another, you know, in another . . .

JEN: But so my question is, is so we can clone organs, that's fine. When you start to clone more of it, an organ, then does it become a body? So and is that, would that body then be considered a full animal or human? So like how, what portion of cloning of a cow is it then considered a full cow, or is it just considered muscle?

MODERATOR: Regarding cloning is when you're taking a full cow with a nervous system and the circulatory system and the brain and everything else. This is just replicating the cells of the cow muscle, you know, outside of the animal. But keep . . .

JEN: Everybody is using the word cloning so, I mean, you know, I . . .

JUDY: Because it is cloning from a cellular level. You're not cloning an animal, you're cloning this particular . . .

WOMAN: Piece.

JUDY: . . . piece of the animal. Right.

TYLER: I'm looking at just what, I mean, this economy, what connotation I get from reading this is kind of like, oop, kind of makes me think of cloning. It may not be, obviously, but it sort of pops in your head.

KARA: Yeah, I didn't get, I don't . . .

JUDY: No, go ahead.

KARA: I'm just trying to like visualize of what would be going into it, like the cells. Like I just see all these people like in covered up from head and toe, and they're like just taking stuff and just adding it. Like do you know what I'm, like how you see that food? That's what I see in my head, but it's just the cells and they're trying to make it so then it can taste like hamburger. Like I don't, like I'm, it's freaking me out to like what would they be putting into it to make it do and do all the stuff that it would be doing if it wasn't a cow?

WOMAN: Well, stem cells, right . . . I would think.

FERNANDO: Well, see, this goes on and says, and other animal products. So what are we, I mean, what other animal products?

KRISTIN: It says leather and fur. Well, you have to grow an entire animal . . .

FERNANDO: Right. So this does get into . . .

KARA: . . . take the skin.

FERNANDO: . . . cloning.

MAN: But, no, you just get . . .

[Simultaneous discussion]

MAN: And then growing more skin or more product.

JUDY: Is this any different than the GMO work that they're doing on, say, vegetables or . . .

MODERATOR: Well, it is because these are not genetically modified. The, you know, they take tissue from a cow's whatever muscle. That's just, they're not modifying that tissue in any way, those cells. They are just replicating them, but they're not changing the genetic makeup of them, which is what a GMO is. So they're not changing the genetic makeup of the tissue of the cow or of the meat.

KARA: So they're copying it. But then after you get a copy, like what is making it do the rest of it?

DAVE: Right. It's like . . .

KARA: It's just like it's just giving you a copy. If I copy this, I will have another piece of green paper, but how am I changing that piece of green paper into a pack of green? You know what I'm saying? Like I don't . . .

MODERATOR: It's growing and replicating, and that's what I said, you know, there's a scaffold to grow the food with cells to feed on while they grow. So there's some things . . .

[Simultaneous discussion]

KARA: So it would just be others, like what other cells?

JUDY: All of the same meat cells.

DAVE: So basically, when something grows, cells divide because it's fed by blood or something nutritious, and that's the whole thing we're, I think everybody is struggling with. What's causing, when you're outside of a body just sitting on a lab table, what's causing that to happen, I guess? It's hard for us, I guess, to imagine that that can happen outside of, you know, a bio system of a person or a cow or an animal or something that's living.

MODERATOR: So have people heard of this happening in the field of, you know, muscle, organ tissue, organ skin, that kind of thing for medical uses?

WOMAN: Mm-hmm.

JUDY: Well, the ear that was grown on the side of a mouse. I mean, we're doing it. It's being done. So why not be able to genetically . . .

MODERATOR: So it's sort of taking that application but putting it for food.

JUDY: Right.

TYLER: But, see, to that point, it was attached to something that was living. So you can see that the blood supply is getting fed and it's going through something but natural . . .

JUDY: I don't think it was meant to . . .

TYLER: But of the question, if you're just growing a steak, how do you do that without it having that system to be able to produce and multiply and grow?

KRISTIN: But my thought is is that if I'm willing to take an ear or an organ from something grown in a lab, why wouldn't I be, you know, why wouldn't I eat a steak grown in a lab? I mean, that's my like, if I'm willing to take an organ, I mean, I guess it's different. But, you know, I'd rather eat a steak grown in the lab than to know that a, you

know, that a cow was, you know, I'm no vegetarian, but to know that I wouldn't create suffering for a different animal.

JIM: I guess at 1:00 a.m. in the morning after a night out, I probably would eat it.

MODERATOR: David, you've been very quiet. So I'm curious what you're thinking.

DAVE 2: I would, I'd try it. But I can't imagine it being the way a regular piece of meat would taste just because, everything, the texture, the taste, because I don't know how you would get it without adding other things, you know, you just . . .

KRISTIN: The whole body.

DAVE 2: . . . of the cow, when you slaughter it you take, you know, you butcher it up. Depending on what that animal did before that, it's going to affect how it's going to taste. So, you know, what was it fed, you know, how much, how long was it living? You know, I don't know how you would clone that meat to, assuming like it's life, you know, to get it to where that, how it tastes, how it, texture and everything.

JUDY: Well, it would be the life of the animal that it was cloned or, or . . .

DAVE 2: Yeah, but I don't . . .

JUDY: It's still original . . .

DAVE 2: Oh, I don't know how like, if I took this cell out of, you know, this two-year-old cow and I butchered it, you know, does that cell contain everything you need to know, like was it grass fed, what was it fed, you know, the two months before it was slaughtered?

JUDY: Are there fat cells. Does it get more . . .

DAVE 2: I don't have, I, so I would try it. I probably wouldn't like it because I wouldn't eat anything that's kind of been replicated like that . . .

FERNANDO: What if . . .

DAVE 2: . . . the way it was.

FERNANDO: What if it tasted exactly the same . . .

KRISTIN: Well, what if it tasted better? I mean, because if they can genetically . . .

FERNANDO: I feel . . .

KRISTIN: . . . modify or if they modify it to taste, you get the best cow.

MAN: Yeah, if it's, I mean . . .

KRISTIN: Maintain the cells from the best cow.

MAN: I'd try it out.

MODERATOR: So I want to, you probably said some of these things as we've gone around the table, but I just want to sort of document, what do you think the benefits? Let's talk first about what are the benefits of cellular agriculture as you read it on the green page?

JUDY: Food supply.

MAN: We don't have to kill that many.

MODERATOR: So food supply.

KRISTIN: Sustainable for the environment too.

MODERATOR: Environmental sustain, environmentally sustainable.

JUDY: Well, maybe. It depends on what it takes to grow these things.

KRISTIN: True, but I would find that the amount . . .

TUN: It would be much less . . .

MAN: Yeah, that's . . .

KRISTIN: The less methane from having cows and the less, you know, nitrogen from, you know, if it's chicken too.

MODERATOR: What, and did you . . .

JEN: The water supply.

MODERATOR: . . . Tun, say something about not killing animals?

JIM: I would say it would certainly make PETA or PETTA, whatever the hell, happy.

KRISTIN: No, it wouldn't make PETA, they're not happy with anything.

MODERATOR: What are the other benefits?

KRISTIN: I mean, it could taste better.

JIM: Well, I mean, you start there and then if that certainly worked, then obviously they're going to build on that, and what else can they produce. So they're going to start with the food piece of it, and then, again, there are organs and there are other living things that you could build upon it in that same model. Could we be reproduced to, again, diabetes or whatever that may be to help the human body? You start with things that aren't of very much value, and you build upon those and you learn.

MODERATOR: Other benefits?

FERNANDO: I would imagine at some point it would reduce costs, unless the technology that they use to sort of grow or replicate the tissue is really astronomically expensive.

JUDY: And we'd probably have to have hunting season for all the cows that are now free . . .

MODERATOR: What, are there other benefits you want to put on here? Do you want to go to the risks, the drawbacks?

KRISTIN: Not as many jobs for farmers.

MODERATOR: Jobs.

TYLER: The end of the long-term effects.

KARA: That's what I . . .

MODERATOR: That's health effects?

TYLER: Also increased costs.

MODERATOR: It might increase cost?

TYLER: Just from, I'd only imagine. I don't know how long it takes . . .

JIM: For the funding.

KRISTIN: From the beginning.

[Simultaneous discussion]

MAN: Just how long does it take to . . .

JIM: For research.

MAN: . . . grow steak?

JUDY: It would also create jobs for the chemists and the, whatever employees . . .

KRISTIN: Top tier.

JUDY: . . . farmers.

TUN: Culture shock would be one of the drawbacks.

MODERATOR: What do you mean?

TUN: Like people don't know what it is. No one, they're informed that, okay, well, I might not want to eat that.

MODERATOR: Other risks?

JIM: Well, the money has got to come from somewhere. I mean, you're looking at, and that's probably going to come from discretionary government spending. It's got to come from, somebody has got to fund the research on this. So that, those funds have to come from, probably some from the government, which comes from the taxpayers.

KRISTIN: I could also see it becoming something that the government becomes more involved in, and then thus, you know, having more laws and . . .

MAN: Regulations.

KRISTIN: Regulations that people . . .

MODERATOR: Is that a good thing, bad thing?

KRISTIN: I personally would say it was a bad thing. But it depends on where you sit politically, I guess.

JUDY: But that would also be a positive thing, because you don't want people creating bad products.

MODERATOR: I was going to say you're concerned about long-term health effects, but maybe you don't think government is the one to . . .

KRISTIN: To be, yeah. So, you know, this day and age. I think there's a lot of division in our country, and it's just something that could make a lot more division than there is now.

MODERATOR: Other risks?

JUDY: More pleasant division than . . .

JIM: One thing is when the FDA gets involved, they have to be a part of that and . . .

KRISTIN: One, the FDA would definitely be, right? I mean.

MODERATOR: Other risks or benefits that people want to highlight? Sounded like taste is a question mark.

KRISTIN: Could be good or bad, texture. I mean, if you're going to go for.

JUDY: Well, if you get far enough down the road, nobody will know what real meat tasted like anyway.

KRISTIN: Yeah. I mean, they say bananas like they say in crops and stuff, like the version of a banana that we have today is not anything like the version of a banana we had 100 years ago, but people don't know, you know.

MODERATOR: How do we have, there's a concern with jobs, farmers, you know, the loss of jobs in this agriculture.

TUN: . . . because I'm thinking, I'm assuming that, about this mass production on this one will cut down a lot of human jobs. It's going to be done in the . . .

KRISTIN: Or a lot of like low, low, you know.

MODERATOR: I mean, do you see this replacing the raising of livestock and sort of traditional meats, or is it augmenting?

TYLER: I can see that if it catches on and it's cost effective, then it's, they're going to mass produce it, and then it will be so cheap that it will, would you rather pay, you know, \$1 for this or \$35 for that. It's . . .

JIM: Well, it could, it could help because there are going to be the traditionalists who at this point Dave and I might be willing to trust, unless that, like the old-fashioned meat that the farmers are like, well, we produce this. And if you want this, this is what it's going to cost you.

MODERATOR: Unless it's 1:00 a.m.

JIM: Unless it's 1:00 a.m. Then when you go get anything you want, then it doesn't matter.

MODERATOR: And you're saying there may be a market for . . .

JIM: There might be.

MAN: That was . . .

JUDY: . . . relegated to the vegan aisle, and nobody will pay attention to it.

KRISTIN: Yeah. It all depends on how it . . .

JUDY: How much . . . at.

TUN: That, there definitely will be a huge, huge market, not necessarily developed . . . but out there. It's a huge market, but they may not make money here. But technology come here, but definitely market out there. Because either you eat this or you die. That's the moral situation. A lot of places are facing that kind of situation. So I don't think they will even question anything, taste or texture or color or whatever.

WOMAN: . . .

TUN: Yes, for the meat. And then the, a host country will be more than glad to buy that. That's what happening with the genetics . . .

WOMAN: Genetically . . .

TUN: . . . medications.

WOMAN: Oh.

TUN: Medications. Like when we pay so much here like about, for example the Hepatitis C, the new, \$100,000 per course. In India they do it for \$500. The government subsidizes their money. So I can see that there's a huge market for it, and it's profitable.

MODERATOR: So if you could talk to someone who really knows, and who would you want to talk to to get more information about this? Like who would you trust and think would know the kinds of things, be able to answer the kinds of questions you would have? I don't mean an individual necessarily, but the type of person or organization.

FERNANDO: The scientists that helped develop the cellular agriculture.

TUN: Depends on if they are on the payroll of the company.

[Simultaneous discussion]

KRISTIN: So, I mean, maybe the FDA and, at that point.

JIM: Yeah. Again though, that's when it comes, I mean, you, there's different messages being sent, but don't mean you see, I mean, you can just look at Facebook

and you see articles every day that come out that make you think one way because the article is slanted. So the message is being delivered how the message wants you to think. So at this point, I wouldn't know who to go to because there's not, there's no information out there. There's not enough information. And you'd have to research it on both sides to get a better feeling for the pros and cons.

MODERATOR: And, Tun, you said companies you wouldn't trust. Is that what you were saying?

TUN: No, not necessarily. I'm saying that if the, if you're reading the research funded by their company, it's more like a pro for that company. So it depends on if it is independent research funded by the government, third party, has nothing to do with anything, anybody on both sides, then it might be more trustworthy than . . .

MODERATOR: Government, than privately funded.

TUN: Right.

KRISTIN: But at the same point, you know, sometimes companies are, you know, in the pockets of politicians. So, you know, then the government, and then it's another like thing. You don't know.

DAVE 2: That's why like you would think the FDA would be a good starting point, but I'm kind of like can't trust them 100%.

JUDY: I think it would take a long time and a lot of research before I'd be interested in deciding whether or not to use a product like this.

TUN: For the personal choice, I think it will absolutely based on where your position is and where you are. And in this country, we have a choice. We can afford the choice, but most . . .

JUDY: Yes.

TUN: But somewhere . . .

MODERATOR: When do you expect to have that choice in your grocery store? Like when do you think that cultured meat or cellular agriculture products will be available in your meat aisle?

MAN: . . .

WOMAN: . . .

WOMAN: Fifteen years.

TUN: I think it's the price that's . . . we will say. Because if you compare . . .

MODERATOR: If it's what?

TUN: The price. Right now, the meat is going to cost you, right now organic milk, I think half-gallon is four bucks. I buy it for my son. So and versus a gallon of the regular milk is what, maybe at \$1.99, whatever it is. It's now it's double. If the prices triple or duple or whatever, then people . . .

MODERATOR: No, but I'm really saying at what point do you think it will be something that is a product that a consumer can buy in the grocery store?

JUDY: For a . . .

JIM: A consumer here or a consumer in the world anywhere?

[Simultaneous discussion]

KRISTIN: Well, anywhere. I would say 10, 15 years. In . . .

[Simultaneous discussion]

KRISTIN: I don't know when this is start, like has started, but scientifically, I mean, if you're saying we'd go to Mars by 2020, why can't we have, you know?

MODERATOR: What were you saying, Kara?

KARA: I think if they're asking us about it now, it's probably already . . .

[Simultaneous discussion]

KARA: They just want to . . .

MAN: They just labeled it differently.

KARA: . . . people are going to be see in cellular agriculture.

JUDY: The manufacturers are behind the curtain.

TYLER: Yeah, I'm thinking it's to the point that somebody is getting ready to take this to the FDA and get it approved for sale, and the question is . . .

JUDY: Or at least the process itself.

TYLER: And the question then is, how long does it take you to get through that process?

JUDY: So ten years.

WOMAN: Yeah . . .

TYLER: I'd say it's like five.

FERNANDO: Five or ten.

KARA: I would say . . .

JUDY: The FDA doesn't work . . .

JIM: So are we allowed to tell people that we were in the forefront as it all comes down?

WOMAN: . . . yeah.

KARA: We signed a thing saying we couldn't talk about it.

MODERATOR: You signed a thing saying that you would be recorded and that you were comfortable being recorded.

JUDY: No. Something we signed said we couldn't talk about this.

KRISTIN: No, it said it in the first, yeah.

TYLER: Nondisclosure?

KRISTIN: I read the whole . . . it was like don't talk about it.

JIM: I didn't mean to digress. I'm sorry.

MODERATOR: What did you say?

JIM: I didn't mean to digress.

MODERATOR: Oh, that's okay. You can talk about it. So cultured meat, people weren't so keen. There's a lot of . . .

JUDY: It's a, it just has a bad connotation.

MODERATOR: What about clean meat?

KARA: Oh, people would go for that.

[Simultaneous discussion]

JIM: Okay. What is that? Clean meat is like cultured meat? Is that another term for cultured meat?

MODERATOR: I'm asking you if you heard about clean meat . . .

KARA: It kind of reminds me of, like I don't know if you've ever seen the video online of how they make McDonald's chicken nuggets, where they like bleach it and then it's like this, like paste, and then they form it into the things. But when I think of clean, I think of like it, like meat being like bleached in like chemicals, things like that.

JUDY: Like insulin.

KARA: Yeah.

JUDY: Yeah, I wonder if clean meat would do it.

TYLER: I think people would go for that. I don't . . .

[Simultaneous discussion]

TYLER: If my choices were cultured meat or clean meat, I would definitely go with clean meat.

KARA: Oh, yeah.

MODERATOR: So cultured versus clean . . . is better?

WOMAN: Clean.

WOMAN: Clean.

MAN: It would be better.

KARA: It sounds better. I don't know if it is, but . . .

MODERATOR: Okay. And, David, you're sustaining or you don't care?

DAVE 2: Probably cultured is . . .

MODERATOR: You think it's better?

DAVE 2: . . . than clean meat, like you actually cleaned it with something.

KARA: Yeah.

[Simultaneous discussion]

MODERATOR: So at the bottom of this Handout B, could you just write down, I want you to indicate, do you think that overall, based on what you know so far, do you think the benefits outweigh the risks when it comes to cellular agriculture? Do risks outweigh the benefits, or do you think that they are equal? Just write benefits outweigh, risks outweigh, or equal.

JIM: I was kind of okay with the meat the way it was before . . .

JUDY: I'm going to look at every . . .

MODERATOR: If this were happening, would you want it to be labeled?

MAN: Yes.

JUDY: Yes.

MAN: You know I do.

MODERATOR: Does anyone say I don't care? No. Okay. So who, just raise your hand if you said benefits outweigh the risks. We've got one, two, three, four, five, six.

JUDY: But there are caveats to that.

MODERATOR: Okay, that's fair. Who said risks outweigh the benefits? Three people. And who said in the middle? Okay, one. Okay, caveats are what?

JUDY: Oh, if it's properly handled and supervised. I don't want some shyster down the road growing meat in his garage and being able to sell it.

MODERATOR: Okay. Any other caveats?

JUDY: I want some sort of governmental standards.

MODERATOR: Oh, one other question. So, you know, you kind of touched on this, but how do you feel about cellular agriculture to develop non-food products like leather or fur versus food products?

TYLER: Totally down with it.

WOMAN: Yeah.

MAN: Yeah.

MODERATOR: You're down with the non-food. Does anyone have a problem with non-food products?

JUDY: Yeah, I don't care.

MODERATOR: Don't care. Dave?

DAVE 2: Don't care. We've got leather and fake leather today.

FERNANDO: Pleather.

KRISTIN: But it wouldn't be pleather though. It would still be . . .

JUDY: Oh, leather . . .

KARA: It would be clean leather.

WOMAN: Clean leather, there you go. See, that sounds a lot better though.

WOMAN: Clean leather sounds . . .

JUDY: Well, you know, cultured pearls.

JIM: Those are cheaper.

[Simultaneous discussion]

MODERATOR: Cultured leather?

JEN: Cultured leather doesn't sound bad. You're not eating it.

KRISTIN: I think people are just worried about what's going into their bodies these days.

MODERATOR: So when it comes to food, do you make a distinction between meats, you know, chicken, beef, pork, whatever, versus other food products that could come from this, which would be milk, eggs?

FERNANDO: Anything I would put in my body. Anything that's going to come through and digest and . . .

MODERATOR: So you don't make a distinction whether . . .

FERNANDO: And through my organs.

MODERATOR: . . . meat itself or . . .

KRISTIN: I mean, I already drink like lactose-free milk and stuff like that. So does that? You know, I have a dairy allergy, so. I don't find that any different, I guess.

MODERATOR: So you're saying . . .

JUDY: But you know what you're eating. It's not something that's hidden or just called milk. You . . .

KRISTIN: Well, it is called milk even though it's not. So I don't know.

MODERATOR: What are you saying? Because of that then you . . .

KRISTIN: I wouldn't be as bothered, just because I already do drink like not real milk or almond milk or whatever.

MODERATOR: But everyone else is saying . . .

JUDY: I'd want to know.

MODERATOR: You sort of don't make a distinction between whether it's meat or whether it's milk or whether it's eggs.

JUDY: I'd want to know.

MODERATOR: Okay. So go to Handout C. This lists applications for cellular agriculture, some of which already are in existence, some of which are being developed. They're all at different stages, let me put it that way. Just read it. And beneath each one, write down just, you know, your reaction to what you think of these different applications. And it doesn't have to be, you know, it's like a couple words or sentence after each one. It doesn't need to be a long statement.

MAN: Which was it?

MODERATOR: So these are four different applications or ways that cellular agriculture is being used to develop things. Just read each one, and then kind of write down your reactions to that one. Just in a, you know, sentence or two. It doesn't have to be a long, couple words.

KARA: These are all true statements?

MODERATOR: They're all true.

JUDY: You're worrying me.

MODERATOR: So I just want to get your reactions. We can talk about them individually, but overall you got more information about what this is and how it's being used, cellular agriculture. What are people's reactions?

DAVE: So my reaction to the first one, this reminds me no different than how they derive several vaccines in history where they've actually taken the disease or whatever and formulating it into a vaccine. The second one I seem to be okay with because to me cheese is a processed thing. It's not something that was a living thing that you eat. So this to me is you know you're intaking something that's already been processed. So this is just a different way of doing the process.

The last two, and maybe it's all in the naming, and this kind of gets to me where you say you have soy milk and almond milk, you have almond juice and you have soy juice. It's not really milk, they just call it milk today. And maybe that's the problem we're having here is they're making something new and they're calling it the same thing as something else. And maybe if it was introduced under a different name or different product, it would be more acceptable to people, because we already have a fixed notion of what milk is, what an egg is, and what meat is.

JUDY: That's so strange. That's exactly the way I felt. The first two seem to be okay to me. The second two were more complex, and suddenly is on the market as milk, as meat.

DAVE: Right. And we already have a preconceived notion of what milk and meat is.

KRISTIN: See, I found, I thought they were all pretty like cool, scientific like advancements. Especially like as far as number three goes with the milk, it's like, you know, keeping a cow, mother cows in a lactating state. To me, like, and again, like I'm not a vegetarian, but anything we can do to like not put that pressure on animals, personally like and know, just knowing that it comes from a place that's not as harmful to animals makes me feel better about consuming it. So, I don't know.

TYLER: I wondered about two, three, and four. You know, like why, there should be like, well, I kind of agree like, or if it's under milk, you know, it should say something.

MODERATOR: Okay. And let's say, you know, we don't have to get . . . or not.

TYLER: Oh, no, no. I mean, that's just thing, like if I was a consumer.

MODERATOR: If it is labeled, What, how do you feel about . . .

TYLER: I don't know really how I feel. I wouldn't think that, I would think that I'm not really drinking the real deal.

MODERATOR: Okay.

KARA: Three sounds weird.

MODERATOR: Which one?

KARA: Three sounds weird to me, but I hope that yeast is used in bread. I love bread. Then I kind of felt a little bit better about it. But the last one made me like, and I don't buy organic meat all the time, you know, I occasionally eat at McDonald's, which is like the worst thing ever. But this made me like not want to eat any kind of hamburgers.

MODERATOR: Why?

KARA: Just because it just, one, it says it's 2013, which means I've probably already eaten it but didn't know, and that completely freaked me out. So now with this knowledge I literally, I want to eat organic meat.

TUN: Overall, I'm very excited about learning to . . . with the . . . and they are optimistic about the market, and they foresee the potential manufacturers are spending money to do the research on the consumers' opinions on this. I hope they succeed, and I hope this is, they find a way to mass produce this safe and sound, because it's going to benefit a lot of people. We can't, if we're just looking at the developed countries, and I don't want to sound like repetitive, but either, it's needed. The market needs this kind of, there's market for this, huge.

KRISTIN: Yeah. I think, personally I think the world needs it. The way that, you know, they, and whether you do or don't believe in global warming and climate change, you know, our meat production in the United States definitely, you know, contributes to so much emissions of gases and things that are not helpful for our ozone, so.

TUN: Even right now, when I go back to Burma right now in Myanmar, in big cities, yes, you can buy milk. But if you go out of a big city, maybe 10 minutes or 15 minutes away from the city, there is no, for one, there is no regular electricity. So to keep it refrigerated is a challenge. And for the most part of the country and there's very few mass production facilities. And because of lack of technologies and infrastructures to keep it going is, you'll be surprised to hear this.

Let's say you buy a pint of milk, and half of it is diluted with water already. So by the time you get to your house, it's like, that milk is watered down so many times. Because they can only carry so much, and then they can, they have to make money to distribute. So they, by adding water they make . . .

JUDY: So they dilute it and . . .

TUN: Yes.

MODERATOR: Fernando, what's your reaction?

FERNANDO: I mean, I think they're all like positive technological advances and like biological, I guess, breakthroughs. I guess I had similar reactions to what it sounds like

everybody else did. Like for me, for three and four, you know, my main concern are the health risks, are there any like, you know, are they going to be just as safe or safer than products which came like from the traditionally manufacture, you know, methods? But then, I don't know, just like thinking about it, like in number three it said, we can make the exact same milk.

So I'm just, you know, I guess if it tastes the same and it's got the same, you know, I guess like genetic structure to it so it will, you know, taste the same and interact with your body the same, I wouldn't really have a problem with it. But I think they, I mean, in a lot of ways they're really like similar kinds of processes, but I think people might not have a problem with one and two because of, you know, first of all, like they were done such a long time ago. But I think there's different, I think you have to look at them differently because in number three you're talking about a live cow that's lactating.

So I think, you know, on one hand you'll have like animal rights activists that want to consider, hey, like what, you know, what's the, their comfort, the well-being of the cow? Like will this be better for animals? And then in number four you're talking about slaughtering a cow to get meat, and this process potentially could save, you know, the lives of cows, whatever, if you can start producing hamburgers from the cells of tissue or whatever.

So, yeah. I mean, I think, you know, when you break down, like when you break it down, I mean, there's really not that much of a difference because in the first two you're taking, you know, enzymes or bacteria from animal parts. And it's sort of the same kind of, you know, in the end, three and four aren't really all that much different because you're sort of isolating genetic tissue, and then using biological or chemical process to create an enzyme or, you know, that eventually leads to a food product.

KRISTIN: And you're still consuming it too. So if you consume cheese, you're already consuming something that's been grown in a lab like that.

FERNANDO: Yeah. In all four of these instances, you're consuming something, although I guess like the insulin, that might not be like in and of itself like a . . .

KRISTIN: It's not your choice.

FERNANDO: . . . piece on a tray, yeah.

JIM: Are these dead animal parts? Are they, when they say animal parts, are they coming from deceased animals or . . .

FERNANDO: That's your . . .

JIM: . . . are they killing the animals to get these tissues?

FERNANDO: Well, in the first two I think they're killing the animals.

JIM: Okay. So . . .

MODERATOR: The first two. The last one, I think it could be either way. I'm not sure.

JIM: So anything that's going to save a life. So the first example, I'm okay with. It doesn't matter what the process is. If it's going to save a human life, whatever technology is and whatever has to be done or to make life a better place for somebody I'm okay with. I think the last with the cow, I'm a big animal lover, but I'm also a realistic. I live in this world and I eat of this world. So I understand that animals have to, for me anyway for what my taste is, chickens, beef, fish, whatever that is, that life has to be taken to satisfy how I grew up anyway.

You know, cheese comes from, you know, milk. I'm okay with it. I mean, I don't want the cows to, I'm okay with the way the cheese is processed. The hamburger, are these hamburgers already in, are they out there? Are they just developed as of 2013 and it's ready for production as soon as it gets?

MODERATOR: They're not in your grocery store now.

JIM: Okay. I'm not . . .

MODERATOR: . . . you're not already eating them.

KARA: And I . . .

[Simultaneous discussion]

DAVE 2: The milk for me, it's already processed from the minute it leaves, you know, the cow. So changing that process a little bit, it really doesn't, I don't know what the benefits were, but I don't think besides just the effects on the cow. I don't know if that's a huge, like if it really bothers that many people. And will people buy that additional cost just to say that a cow feels better? And then the other one, I can't, I still can't see how it would be cheaper to produce meat like that. I just think the storage space, I mean, you'd have to have a fairly large facility to double what you have now, because it has to grow inside the facility instead of coming into the facility at full size, you know what I mean.

JUDY: But you wouldn't have all those extra parts.

DAVE 2: Like you wouldn't have, yeah, maybe you wouldn't have . . .

JUDY: Well, I'm serious.

[Simultaneous discussion]

DAVE 2: If it takes you six weeks to grow a hamburger, that means a cow when it comes in, or when the beef would come in to get processed, it's in and out.

KRISTIN: But you have all that space and time.

JUDY: You still have to grow it.

KRISTIN: Yeah. You have to eat . . .

DAVE 2: But it's going to be growing outside, it's growing on a farm. I'm talking about like this, you need to have so much . . .

JIM: You have the power and the humans and . . .

DAVE 2: You're not going to be able to . . .

JIM: . . . see that . . .

DAVE 2: . . . if they don't have electricity, you still have the same problems. They can buy meat right now if they had places to bring it in, store it.

TUN: Cost of raising those farm animals may be offset by . . .

DAVE 2: I can't . . .

TUN: It depends on the mass production.

DAVE 2: I just don't think it costs that much because . . . just land.

KRISTIN: And corn that's been genetically engineered, and they eat.

[Simultaneous discussion]

KARA: I felt like all of this like is great, and science and technology is great, but I feel like soon it's going to be like you don't have to put the meat in the refrigerator or you don't have to have the milk. Like it's going to keep changing and keep changing, and then it'll be like just get it off the shelf.

MODERATOR: Can I get you to just write at the bottom? I'm sorry, I'm . . . sorry. Can you just write at the bottom the same thing? Benefits outweigh the costs, risks outweigh the benefits, or equal. And you may have changed. Just based on this.

MAN: . . .

KARA: Based on these four?

MODERATOR: Based on this in totality. So now you've got more information about cellular agriculture. Based on what you know now, at the bottom of your sheet do you think the benefits outweigh the risks, the risks outweigh the benefits, or do you think they're about equal? Did anyone change from their initial feeling? So, Tyler, you . . .

TYLER: I wrote benefits outweigh the risk.

MODERATOR: Okay. And how about you, Jim?

JIM: Benefits outweigh the risk.

MODERATOR: Okay.

KARA: I said they're equal.

MODERATOR: And you were risks outweigh the, no, you were . . .

KARA: Yes. I was risks outweigh, and now I feel like they're equal.

JUDY: Well, they've already modified a lot of these. There's the shelf-stable milk that comes in a carton that can sit in your pantry for two years.

KRISTIN: And also too if you think about culturally, like if we were to just change the mindset culturally like in other countries people don't refrigerate eggs because they're not need to and they don't have to refrigerate them. But, you know, in America we all refrigerate our eggs, right? I mean, that's just something that culturally like has been changed over time. And so you could change.

MODERATOR: I'm going to show you a quick video. Are you ready? There's no voiceover here, so you got to read it. So beware.

(Video played)

MODERATOR: Okay . . . that just for your reactions.

TUN: Why did they show the hot dog?

[Simultaneous discussion]

KRISTIN: I don't know if hot dogs are even real meat, to begin with.

MODERATOR: Okay. But did that give you any more sense of comfort or discomfort, or did it not really do anything for you?

MAN: You had . . .

JUDY: Well, again, basically is the way it comes off to me, and I don't do well with that. But what will we do with the herds and herds and herds of cows and millions and billions of chickens and sheep and all that we are now growing? I mean, what happens to all of those animals? We're going to worry about killing them anyways.

MAN: Just . . .

JUDY: Just get rid of them.

MODERATOR: What did you say?

DAVE: They're in less danger . . .

JEN: Well, just stop breeding.

KRISTIN: Yeah. Go stop them from . . .

JEN: Breeding.

JUDY: Birth control.

TUN: I know the . . . just what we talked about earlier, I don't think, I think people would still be buying real meat.

DAVE: Well, there's that, and all of these still are grown from initial cell with . . .

TUN: Yes.

DAVE: . . . certain amount of those cells are going to come from somewhere.

JEN: I still don't like the world cultured.

KRISTIN: Yeah.

JEN: I thought about the way they describe it growing in a culture is just.

MAN: Petri disk.

JEN: Maybe a different way to word it like homegrown meat or like, you know, hand-grown meat, or.

DAVE: Engineered or something, but . . .

JEN: Engineered meat.

JUDY: Engineered is better than . . .

JEN: Engineered is a little better one.

TUN: Like they call it clean cold(?) technology, pretty much what's the difference of this idea? So it's called clean meat . . .

MODERATOR: So . . .

TUN: . . . counting on people to . . .

MODERATOR: I'm curious. It says same meat, different process. But I heard you, Judy, and a few other people were looking at Handout C saying three and four, it's not the same.

JUDY: It's not logical. I'm sorry. It's a contradiction, to me. If I saw the milk and the meat on the shelves labeled, I would pass it by. And yet in my mind, I know that's not what I believe.

JIM: Well, the . . . for parents.

MODERATOR: Sorry, what do you mean?

JUDY: I mean that I like the idea of, you could even call it organically grown meat and milk. And yet if I saw it on the shelf, I wouldn't want it. It's completely illogical, I know, but that's, it's something . . .

MODERATOR: And you wouldn't want it because?

JUDY: It's something that's foreign to me.

MODERATOR: Jim, what were you saying about being a parent?

JIM: Well, when you, the food we need, when you see an animal being born and then it grows and you slaughter it and then you get the meat, that's where you get your meat. You've seen it grow. You've seen it die. You've seen it get cut, or you know that's the process, because that's what your mind has been trained to think. It's like when you all, for those, or parents, you see your baby born. You see them grown up. You're never going to be able to have somebody tell you that this is now the new process by which you can have a child. So . . .

KRISTIN: But it is though sometimes when people have IVF. That's just, that would be similar. You're making your baby in a lab and then . . .

JIM: Well, you're putting the cells together . . . sperm cells and the egg together. It's the same process, just . . .

KRISTIN: I would say similar, very similar. Right? I don't know.

JIM: I don't know.

KRISTIN: I mean, I'm not . . .

MODERATOR: When you say you see your, you see the meat is, the animal born . . .

JIM: It's coming from a living thing.

KRISTIN: But you're not seeing, but . . .

JIM: It's coming from a living thing. It's coming from a living creature is what I'm saying. It's coming from a living creature, and I know that that was a living creature. Now it's coming from a Petri dish, it's coming from a culture, it's coming from tissues that were merged together and then grown inside an incubator or whatever it's going to be grown into, and now you're going to ask me to eat it. It just doesn't, you're going to have to explain that process to a lot of people, and they're going to want to know what that process is. And I think when you start explaining all that, it's going to take a long time for people to look and that and say, hmm.

DAVE: It's a medical barrier.

MODERATOR: Turn to Handout D. These are, so first of all these two pages, but I'm going to ask you to ignore number nine because it was supposed to be on a different page. So just ignore it. So there's eight statements here, eight statements which are reasons why it is good, a good idea to encourage further development of cellular agriculture. Why is this a good thing? These are eight reasons why this is a good thing. I want you to read them all, and then circle the two that you think are the most compelling, convincing reasons why cellular agriculture is a good thing. We will go to the other side of the coin then.

But if everyone could do that, ignore number nine for now, we'll come to it later. I'm going to step out for one minute, and we'll talk about it when I come back.

JIM: So don't look at number nine.

MODERATOR: Right. So out of one through eight, what the two strongest, most compelling reasons.

JIM: . . .

MODERATOR: What?

JIM: I was just messing with you.

MODERATOR: It's been a long night. No, I confused myself with number nine. So I will be back shortly. So did everyone circle two that they thought were the strongest, most compelling reasons to, oh, that this is a good idea? Jim, you circled number nine?

JIM: I did.

MODERATOR: Okay. Twice. All right. Let's just go around and quickly tell me the two you circled, and we'll talk about them after. Just tell me the two.

KRISTIN: Two and four.

TYLER: Four and five.

MODERATOR: Tun?

TUN: Oh, I'm sorry. One and eight.

DAVE: One and four.

KARA: Three and four.

JUDY: One and three.

JEN: One and seven.

JIM: One and seven.

FERNANDO: One and two. This is . . .

MODERATOR: All right. So one seemed to be, of all of them, the most, seven of you selected that as one of the most important reasons to continue and encourage this development. Why is that?

MAN: Just how they, I think the key word meet the global demand.

JUDY: Yeah. I think we've talked about famine and places that really need sustainable food.

TUN: Mine is two words. One is market and the, this efficient way to serve the market. So one is, statement one, meets the market. Number eight, talk about efficiency.

MODERATOR: Okay. Other reactions to number one and why people felt that was compelling?

FERNANDO: I mean, we just always hear like statistics about how our population is going to outgrow the resources that we have, you know, whether it's food or water. And, you know, it's going to eventually reach a crisis point. But I think at least in terms of food supply, you know, number one addresses it, it's extremely important, you know, a potential issue in the future, so.

MODERATOR: Okay. Let's talk about number four, that it will mean that we don't have to use antibiotics in foods anymore, in meat, in these food products. Who circled that?

DAVE: I think we talked about wanting to know what's in our body, that's why I think a lot of people weren't . . . to it at first. But antibiotics out of our food is a great thing, and that's, I think, you know, based on people getting sick and . . .

JUDY: I think that's kind of the flipside of number three, which is having a clean meat product, which to me means no antibiotics and other additives to the meat.

MODERATOR: And that's a compelling argument for you?

JUDY: Mm-hmm.

MODERATOR: Okay. Kristin, did you want to add?

KRISTIN: Yeah. I mean, the antibiotic-resistant bacteria that Dave, I mean, I'm not really familiar about it, but it just, it doesn't sound great.

DAVE: I'm one of the older people. I'm one of the older guys in the room, and it seems to me that children are much more sickly nowadays than when I was a kid. And we always joke at work because we used to eat dirt when we were kids, and it's healthy. But I think a lot of it is because of these types of things. And then what could be treated and used when I was a kid to solve a problem can't be anymore because you're basically immune to the effects of those antibiotics or the new bacteria now have grown to be, be able to outperform what the antibiotics can do.

MODERATOR: Other reactions to number four? Let's talk about number two. That talks about reducing the amount of land and water used and less greenhouses gas emissions and pollution.

KRISTIN: I feel like not so much the less land and water required, especially in the U.S., you know. I lived in the Midwest for a little bit, and there's land everywhere. But the less polluting greenhouse gas emissions, because personally I just feel like, you know, global climate change is a thing that is very important to combat for future generations. So that's personally.

DAVE: I'm not sure this solves our problem.

KRISTIN: I mean, it's one piece of the problem.

DAVE: Because now you need factories and everything else to produce this, which is going to consume energy in its own, they all could have different drawbacks when it comes to pollution and use of energy and things like that. So I think you're, that's going to end up being something that's real.

MODERATOR: Okay. Any other reactions to number two? Let's talk about number three. I think you sort of touched on it, Judy, but this idea that it's a cleaner, safer, purer product.

JUDY: I think that's important. I mean, you hear about these breakouts of E. coli and all of these various illnesses. People die from them. Of course, it could also be the handling of the meat, which wouldn't be any different, perhaps, than what kind of meat it is, cultured, created, or what.

MODERATOR: Okay. Other thoughts on number three?

KARA: You know, I mean, I circled number three, but the more I read it, I just, like it just sounds too good to be true. It's like just saying everything you google or want to hear about like, oh, safer, pure products, free of dangerous bacteria. It's like . . .

KRISTIN: And these proofed facts? I mean, you said they were true facts, but are they . . .

MODERATOR: Well, I said, so this is more to the persuasion. It's not that these, I mean, but this isn't done yet at this level. So these are reasons why this might be a good thing. The previous page were factually . . .

KRISTIN: Oh, okay.

MODERATOR: I'm not saying these aren't true, but because it is not at a place where this is actually happening . . .

KRISTIN: It's real, yeah.

MODERATOR: . . . on a grand scale. Okay, let's talk about five, a more consistent supply that's not affected, agriculture that's not affected by drought, flooding, and other weather conditions.

MAN: Stable market. It's always going to be there.

MODERATOR: What did you select, Jim?

JIM: Seven.

MODERATOR: What about number seven? Why did you, why does that work for you?

JEN: I mean like I love animals, but I still eat meat. So, you know, that just kind of struck me as anything that you can do to kind of, you know, not harm the animals, that's kind of important to me.

MODERATOR: And, Jim, you selected that too?

JIM: I did. I thought it was a test, so I was cheating.

MODERATOR: Well, I am sort of surprised, you know, what you said about, you know.

JIM: Well, no, but I'm an animal lover. And, I mean, anything, I don't like animals being tortured at all. It breaks my heart, but I am, but, I mean, it did . . . like a two-edged sword.

MODERATOR: Being a meat lover.

JIM: I am a meat lover. But, yeah, if there was a way for that not to have to take place, especially not a torturing situation. If they could be done, just done without any kind of pain longer than a second, I'm semi-okay with that, at least at the dinner table.

MODERATOR: And then eight, this idea that they're not always parts that are normally discarded would not mean more, you're just going to have. So for instance, you know, with the . . . you can just essentially grow the chicken breasts and maybe dark meat, but you're not going to have the feet and the, you know, all the parts of the chicken that people don't really use. Now except you can still grow chickens. They'll still be available. But most of what is consumed from the chicken is the breast meat or the, you know, dark meat.

JUDY: But there are other markets for the rest of that stuff.

KRISTIN: Right, but a lot of it is waste in it.

MODERATOR: Well, and I'm not saying all. I'm not saying that chickens would disappear.

KRISTIN: I almost circled this one, because when you do think about chickens, I know in Maryland, at least, you know, chickens outnumber people like ten-to-one. And the reason that the Chesapeake Bay is so polluted is from chicken waste runoff. And like, you know, poop runoff. And that's why the Chesapeake Bay is green and has so much nitrogen craziness. And so like for me, you know, and, again, this is another environmental in addition to just not having these extra parts, you know, you also don't have the poop . . .

MODERATOR: What, was there anything on here that you thought just wasn't very compelling or persuasive?

MAN: Number eight.

JUDY: I didn't find number eight . . .

TUN: I consider that much worse.

MODERATOR: Okay. No one selected number six, can be used to make meat with fewer saturated fats, more unsaturated fats, or to make milk without lactose, or eggs without cholesterol. Did you . . .

JUDY: I think we've been hearing all that for a long time, and I thought there were things that were more important than that.

KRISTIN: I mean, it's an added plus but it's not the top of the . . .

MODERATOR: Was anyone turned off by number six, think it was a bad thing? No? Anything here that you say, that's actually a reason not to favor this, so they really shouldn't be talking about that? No? Okay. At the bottom of the handout on the second page, can you describe again whether it's not . . . things, bottom of Handout D. Just do you think the benefits outweigh the risks, the risks outweigh the benefits, or are they about equal?

JIM: The two we selected or all of them . . .

MODERATOR: Just given everything that you've read so far at this point in the conversation. Who said the benefits outweigh the risks? Raise your hands. One, two, three, four, five, six, seven, eight. Who says the risks outweigh the benefits? Who says they're equal? Two. Okay.

So now we're going to go to Handout E. These are concerns and reasons why it's a bad idea to continue the development of cellular agriculture. So we look at the other side, argument from the other side. Same idea here. But remember that number nine that I told you to ignore? Well, it's now six, seven here. So there's seven arguments against. I want you to select the two that you think are the most compelling, convincing reasons to, you know, maybe discourage this and not move ahead.

JIM: There's no seven on mine.

MODERATOR: Okay. So seven is actually number nine. So I'm just trying to keep everybody on their toes, especially myself. Please go around and tell me which of these . . .

KRISTIN: Three and nine. Three and . . .

MODERATOR: The one that's on the other page? Okay.

TYLER: Two and seven.

MODERATOR: Seven and nine are the same thing. Tun?

TUN: I don't have the . . .

MODERATOR: Okay. Dave?

DAVE: Two and six.

KARA: One and two.

JUDY: Two and seven/nine.

JEN: Two and seven.

JIM: She cheated.

MODERATOR: Fernando.

FERNANDO: Three and seven.

MODERATOR: Dave.

DAVE 2: Two, five.

MODERATOR: And, Tun?

TUN: One, five.

MODERATOR: So number two, I know the product has been in a Petri dish, it might have a . . . anything people want to say? I know we've talked some about that before, but what do you, any particular concerns you have about . . .

KRISTIN: It's just the unknown. It's like . . .

KARA: Like she said, maybe ten years from now I'd eat it, but you don't know if you can eat this, the unknown.

JIM: It's like these people who are taking these medications and two years into it, they had all these adverse reactions and they'd go out and, you know, kill people, and she's not an example. But just not knowing what the ramifications are could be extremely dangerous and take lives rather than the objection is to, the objective is to save lives and make it better.

KRISTIN: I felt like number nine/seven was like a concrete example of number two. So that's why I chose number nine because, instead of number two because number two seemed a little like vague on what could happen or how these things could behave.

MODERATOR: But number nine from the previous page was specific . . .

KRISTIN: It was like a specific instance and not, you know. I thought they were similar, you know. Just nine was specific about it.

MAN: That's thinking deep.

KRISTIN: What?

MAN: That's thinking deep.

KRISTIN: Well, I mean, it's just like a, it's something that validates it. It's not something I could argue with. It's something I'd be like, okay, you know.

JIM: You're right.

MODERATOR: Other thoughts about number two? Anything else people want to say? I mean, it's more the kind of fear of potential unknown, not sure, rather than a specific harm that you have in mind that you're . . .

DAVE: Well, we don't know what it is and it could be. So who knows?

MODERATOR: And then number seven, which is number nine. Kristin articulated why she selected that one. It was sort of specific potential harm that, you know, because these products are, you know, grown in a lab, that therefore maybe we run the risk of it being antiseptic, too clean, whatever. And then some of the, like those consequences you've seen with increased allergies that people have related to that. Anything else people want to add about new seven? How many of you selected that? Six of you. So anyone want to add to what Kristin said?

JEN: I, what David was saying, kids now are sicker than they used to be, than we were as kids. I mean, kids are sick all the time. My kids are sick all the time. I have a 25-year-old son, and then I have the 10-year-old and the 9-year-old, and my 25-year-old was never sick, never. My little kids now are sick all the time. And I feel like it's what they eat, like the environment around them. Everything is just so manufactured and produced and packaged and everything that this, I just feel like kids are sicker. So . . .

JUDY: . . . with kids.

JEN: No, there was none. There weren't any up until 20 years. And now you can't, it's, I mean, it's out of control.

JIM: They're looking for ways to make it easier for people to eat food. Now with nine, now you're looking for different foods you're going to have to eat because they can't eat these foods. And then you're looking at allergies, now you're looking at different medications, and you're just, you're adding in a whole other, you know, bag of tricks that you're going to have to deal with on top of this issue.

MODERATOR: Okay. Number one, sort of moral, ethical, and religious concerns. Two of you selected that. I'm not sure who that was.

KARA: It was me. A lot of these, which is why I am a little bit just now just moved to the middle, because I got a whole sense of playing God from all of this. Like, oh, we need more, so let's just take this. And we create it, and try to make it the same. But to me, I don't know, it just seems really, really risky.

MODERATOR: Okay. Tun.

TUN: From the morality point of view, I think it's going to be an . . . from the religious communities. Because when you look at it, there's a good number of Catholics around the world, good number of Lutherans around the world. I don't know how they're going to react as a community . . .

MODERATOR: But for you personally, is that a concern?

TUN: Well, yeah, okay. No, I don't. I mean, I, my, well, the benefits that I believe in outweighs my concern on this one.

MODERATOR: Okay. And anyone else want to say anything about moral, ethical, religious concerns?

JIM: Well, it almost, I stopped when I saw that, just for a brief second, because there is a slice of it that you can, one could say you're kind of playing God. But then the other side of that is you're enabled to create ways to make life better. So there's a dilemma there on how you look at that and how you view that. And I think that's been the dilemma with stem cell research is the same issue, the same topic, which is in that same vein.

MODERATOR: Okay. Number three talking about the economy and job loss, I think that came up on the easel. How big a concern is that? I don't remember who were the two people that said that.

KRISTIN: I said it. I just feel like if we're talking about right now in our, you know, American culture and day and age, you know, that's a big deal, I mean, personally, I mean. So and it's a lot of farmers. Like you don't, I think in Maryland it's hard to see the impact of that. But when you, you know, go to the Midwest and the middle of the country, it's a big deal. So I think here it's a little, you know, easier to say, oh, well, you really won't see that much.

But, you know, if you're less, if you're living in less educated centers and you're living where, you know, the job placement, like you were saying, oh, it can make jobs in chemistry and engineering and whatever, well, the amount of people that study that and things like that, you know, maybe don't outweigh the amount of farmers that there are and people who work on farms, so.

JUDY: I think giant agribusiness is taking over the agriculture business as a whole. You may still see some small farms here and there, but mostly it's huge agribusinesses, and they could easily switch over to whatever the next thing is . . .

MODERATOR: So you're less concerned about it?

JUDY: Yeah.

FERNANDO: I just think it would be a minimal market. It wouldn't have that much effect on . . .

MODERATOR: You . . . buy it anyway, so, okay. Anyone else say that, they don't think a lot of people are going to buy it as an . . .

JUDY: Well, I think that gets back to Tun's point. Maybe they won't buy it here, but there's a worldwide need.

DAVE: I think because of the way we were raised, we are going to have a different view of it. And all of a sudden we get 10, 15, 20 years down the road with, when your children are raised and their children's children are raised, and this is going to be the standard of what's available to them, then it's going to be more acceptable. It kind of gets into the study that comes out every year about what the children that are going to college today never knew about, you know. They never knew anything but cell phones and things like that. They don't know what a dial phone is. And I think it's, this will eventually get to that point where this is all they ever knew. So it's going to be totally acceptable.

KRISTIN: I agree.

MODERATOR: So do you think this is inevitable?

DAVE: It's inevitable.

WOMAN: Yeah.

WOMAN: I do.

JIM: Yeah. You know, technology like, you know, people used to call and somebody picked up the phone and said, hello, how may I help you? Now there's no more operators. It's automated attendants. But there are other positions within the technology world, there are not people that that didn't exist 15 years ago. I think it's just a rollover . . .

MODERATOR: So jobs may switch around.

JIM: Yeah, I believe. And I think that's created more jobs, just different type of jobs.

MODERATOR: But I'm curious. Does anyone think that this will not happen? That there will never be cultured meat or clean meat?

JIM: Not after tonight.

MAN: I think it will be . . .

MODERATOR: You're skeptical of how big the market will be, how much demand there will be for it. But everyone thinks it's going to be there. Okay. And nutritional value and taste, anyone want to say anything about either of those?

DAVE 2: I talked about the taste earlier. I'm curious how they create that, the taste that they want . . .

MODERATOR: Okay. And of the . . .

JIM: . . . taste, texture.

MODERATOR: . . .

JEN: I think as time goes on though it's not going to be issue because they won't know any better.

TUN: . . .

WOMAN: . . . now.

TUN: How you make sure muscle . . .

JEN: Like a banana.

TUN: . . .

KRISTIN: You won't know.

JIM: And your Five Guys burger will taste better than a Wendy's burger, but I'll eat a Wendy's burger. I have one in the morning.

JEN: I can't tell the difference, really . . .

MODERATOR: I'm not . . . you're going to do this, but. Can you write down at the bottom of Handout E, it's the last time I'm going to ask you to do this, but benefits outweigh the risks, the risks outweigh the benefits, or do you think they're about equal? And given everything that, you know, I've given you more information, I've given you arguments for it, I've given you arguments against it, now how are you feeling? And just

raise your hand if you say benefits outweigh the risks when it comes to cellular agriculture. One, two, three, four, five, six. Who says risks outweigh the benefits?

JUDY: I have to think about it this time.

MODERATOR: But you were benefits.

JUDY: Yeah.

MODERATOR: Okay, but just one second. Who says risks outweigh the benefits? No one. Okay. And who says they're equal? One, two, three, four. Okay. All right. So, Judy, you said you had to think about it for a minute.

JUDY: It made me think that I still think the benefits outweigh the risks, but the risks are concrete here, and I think it could be a problem. The allergies, the, whether or not the food has the same benefit to us as we ingest it as the original did.

JIM: Can I change mine? Because the one risk that isn't acceptable at all is the unknown. But I think that one risk . . .

MODERATOR: So you . . .

JIM: That one risk alone for me is not acceptable at all.

MODERATOR: It takes you from benefits to what?

JIM: The risk outweighs the benefit.

MODERATOR: But you were a benefits.

JIM: I was equal.

MODERATOR: Oh, you were equal. Sorry. So you want to be a risk now.

JIM: Yeah. I think the unknown.

JUDY: And I'm going to step down to an equal.

MODERATOR: Oh, gosh.

[Simultaneous discussion]

MODERATOR: So we're now at five, and we're now at four, and we're now at one. Okay. Trying to test my skills. What I'm interested in is based on the conversation you were having at the beginning, you were more on the benefits side than I thought you would be. And what I'm trying to understand is why that is. Because a lot of the

conversation has been about this from the beginning, risks or concerns or taste or, you know. But, I mean, some of you have been a little bit more pro.

But I'm just interested that even though there are these concerns about risks, more people are either equal or actually, you know, benefits outweigh risks. There's only Jim, sorry, who's now left on the risks outweigh the benefits side. But I'm just curious and, you know, help me understand kind of . . .

JIM: . . . then the risks get . . .

DAVE: When risks are identified, people will take the appropriate steps to mitigate the risk. And I think as you go through this process, to your point earlier, this is something that's inevitable. So people, everybody, based on how we've been raised and how things exist today, is probably operating on the assumption that the appropriate regulatory agencies, what have you, will step in and make sure the appropriate steps are taken to mitigate the risks, the way they do with any new technology, any new processes introduced today. Things change all the time. Things evolve all the time.

MODERATOR: Yeah. Jen, how are you feeling?

JEN: I agree with David. I mean, there are the risks, but I think that in time, you know, it will be regulated and then we'll know what the . . . is.

JUDY: The deficits, the bad stuff will be worked out.

MODERATOR: And what gives you confidence that that's going to happen?

JUDY: Oh, my God. I would say my world view, but that's a little skewed right now. I don't know. I think because it's our only choice is to do the right thing and keep working on something until it's good.

MODERATOR: Okay. And, Tyler, what do you think?

TYLER: I mean, I think we're all thinking about, you know, we, stuff that's already processed, it's already in GMOs or everywhere. So I think part of us already know it's kind of inevitable it's going to go off of that. So I think everyone is kind of leaning toward we, it's going to have to happen eventually, or going to. It may not have to happen. So, I mean, I think it's going to happen. So we have to think about ways to do it better.

MODERATOR: And who said, you know, I think I'm going to be comfortable, you know, maybe it's in ten, I don't know, it's maybe something wrong, but, and I'm not saying it's going to be available tomorrow. You're not going to go to Giant or . . . or whatever is around here, find it on your shelves tomorrow. But who says, you know, I'm going to look at that and maybe might consider buying this? Kristin . . .

MAN: I'll try it.

MODERATOR: Jen, Fernando. Okay.

JUDY: We . . .

MODERATOR: And you said, I don't think I will ever, ever, ever do it . . .

MAN: . . .

MAN: Yeah, it's a juicy steak.

KRISTIN: I think at the end of the day it's like, you know, our world is ever evolving. And, you know, I'm only on this Earth for how long? And, you know, if I'm going to help eat and support something that is going to then, you know, could change the world, whether that be in like, you know, an environmental way or in a worldly hunger way, then, hey, I think that's cool.

JUDY: But there's always that possibility that we get down to the end of that road and it turns out that Soylent Green is people, and we're not going to want that. Nobody ever saw the movie?

KARA: No. But that's, but it's a movie, you're saying?

JUDY: Well, there's this whole thing, and people die at 30. And it turns out that they're then turned into food for everybody else. So you never know. As you go down this . . .

[Simultaneous discussion]

JUDY: Where will it lead us?

KARA: That's how I feel too, though.

JIM: Someone will be my lunch at 1:00 a.m.

MODERATOR: Can you guys turn to Handout F? Sorry. Before you look at that, sorry, do you think anyone is regulating this or overseeing it right now? Don't look.

JIM: I'm going to say yes.

KRISTIN: Should be.

[Simultaneous discussion]

MODERATOR: But do you think someone is or . . .

KRISTIN: I mean, there has to be that one person that came up with the crazy idea in the beginning, and then everybody is saying, no. And then they started to change their mind, so.

FERNANDO: Well, there's not some crazy dude in a lab that . . .

KRISTIN: He's just making it.

FERNANDO: And we wouldn't be here right now, I would assume, yeah, if there's some crazy cat in a lab doing all this. There's got to be . . .

JUDY: And if they already created the hamburger three years ago, then somebody somewhere has to be looking at it, or they can't market it.

DAVE: Yeah. I think if they got it and somebody's figured this out, they've patented this idea. And once this idea became patented, somebody is looking at it to regulate it.

JIM: And this probably started from stem cells as well, I would assume.

MODERATOR: Who do you think is overseeing or regulating?

TYLER: The FDA.

JUDY: USDA.

MODERATOR: FDA, USDA. What did you say?

KARA: I just said the government.

MODERATOR: Okay, government.

DAVE 2: NIH.

KARA: The government is in everything.

MODERATOR: NIH.

DAVE 2: Probably involved with it.

DAVE: That would be interesting.

MAN: They would research it.

DAVE 2: Be researching, but.

MODERATOR: And is there anyone else you think should be that you didn't mention? No. So turn to Handout F. There's a variety of organizations, entities that, and what I want to know is how much confidence you would have in them if they were given primary responsibility for determining and managing potential risks related to cellular agriculture. So you're giving a score from a zero to a ten. And ten means I have complete confidence in this entity, a zero means I have none at all. And you're going to give each one a rating from a zero to a ten. And then select the one you would have the most confidence in.

JUDY: So many variables.

MODERATOR: I like to keep it challenging.

JEN: You said the most?

MODERATOR: Circle the one you have the most confidence in.

JIM: And circle the one we have the least confidence in as well?

MODERATOR: You could X it. Put an X next to it. What do you have?

DAVE: I'm sorry. What are, we're supposed to circle?

MODERATOR: One of these that you have the most confidence in when it comes to managing potential risks.

KRISTIN: I said B.

MODERATOR: B you have the most confidence in.

TYLER: A.

MODERATOR: A. I will come back to Tun. Dave?

DAVE: B.

MODERATOR: B. Tun.

TUN: B.

KARA: A.

JUDY: B.

JEN: B.

JIM: B.

FERNANDO: I said B also.

DAVE 2: D.

MODERATOR: Okay. So the U.S., the FDA, why did some people choose that?

TUN: That's my only option. I . . .

MODERATOR: What do you mean?

TUN: Meaning that I hope that they do the job to do that. Otherwise, who's going to do it? So hopefully that's my optimistic view.

MODERATOR: Okay.

FERNANDO: I wasn't going to give like anybody a ten. If I did, it would probably be like university scientists or scientific bodies that don't have, you know, that are sort of free from political influence. But I think so many government agencies are either like have some certain levels of corruption and/or just inefficiency. And I think even the FDA is susceptible to that, but . . .

MODERATOR: But you chose the FDA.

FERNANDO: But, right, because they do have pretty strict policies. Like you always hear about them like denying, you know, new products because of small or, you know, it seems like they have a pretty strict code, and they try to enforce it, and it's backed up by science.

MODERATOR: Other reasons people chose FDA?

TUN: When you look at the track record, any other countries, I mean, let's say in Europe they have been using . . . technologies for a long time, and the FDA hasn't approved it here yet. So they are pretty conservative on the approval of things. So I'm hoping that they do the same thing here.

MODERATOR: Okay. And university scientists, David, you selected them. Why?

DAVE 2: The, pretty much, well, I work for the government, so I gave the government the low scores. And there's a lot of things that FDA or the USDA, some of their rules are really, to me, are kind of off the wall. The, you know, as far as like labeling fish and a lot of other things. A lot of the places aren't very sanitary right now, and they're the ones that are regulating a lot of the industry and a lot of the industries in poor working conditions right now.

MODERATOR: And so the reason you do have more confidence . . .

DAVE 2: And then the reasons why I went to the universities, because they're pretty much the, all the other ones get, are going to be influenced one way or the other, but I . . . the most, will be able to provide the most honest down the line oversight or research.

KRISTIN: See, I was skeptical of the university scientists and researchers just because, I mean, I went to college and I know some of my professors had funny ideas that seemed a little off the wall, so that was . . .

JUDY: Universities are funded, their research labs are generally funded by grants from particular industries. So I don't trust that as much as I would trust an independent scientific body that might not have an allegiance somewhere.

MODERATOR: Anything on here you say they have no business being involved in . . .

[Simultaneous discussion]

JUDY: Department of Agriculture.

KRISTIN: And chefs, yeah.

MODERATOR: Congress, chefs.

JIM: I said the companies that are developing the foods because they have the . . .

[Simultaneous discussion]

DAVE 2: So I . . . one of the hardest courses. I did work for DuPont for a little while, and they do, they're kind of, I forget the name of the company they bought out. It's really, they're kind of, they're putting billions of dollars into investments. And I knew the guys who worked on Nomex and Kevlar, making Nomex and Kevlar and those type of things. And they put, I would put those type of people in that company ahead of any government organization or anywhere else because . . .

JEN: Stricter standards, I would say, for companies like that . . .

DAVE 2: And just a better quality of work, I guess . . .

DAVE: They got to develop and protect their brands.

DAVE 2: What's that?

DAVE: They got to develop and protect their brand to be successful.

JUDY: But they would lie to do that.

DAVE 2: Yeah, some companies we're talking, like there's definitely instances of companies that are, that will overlook things that . . .

MODERATOR: Why not chefs? I mean, I watch Anthony Bourdain.

KARA: That's just going on taste . . .

MODERATOR: And he would try anything.

KARA: That's not any . . .

[Simultaneous discussion]

JUDY: I put a very low score for the U.S. Department of Agriculture because they are out there to protect the old culture that there's now. I wouldn't trust them to oversee something new.

MODERATOR: Okay. So would you pass your booklets up? The last thing I'd just like to do is go around the table and just, if you had the opportunity to speak to the people that are developing this cellular agriculture and furthering the research there, what is it that you'd want to tell them, you know? It's a request, it's advice, guidance, it's anything that you'd want to say to them if you had the opportunity to do so. Short, and we can start with whoever wants to go.

KRISTIN: I would just say, you know, good luck. I know, you know, I know maybe, you know, I'm open to it. I know a lot of maybe younger people would be open to it, but good luck with our current. Culturally, people are not, you know, as open to new things and possibilities like that. So I would just say good luck.

MODERATOR: Okay. Tyler.

TYLER: Make sure it's safe, and cross their T's and dot their I's before they release it.

MODERATOR: Okay. Tun.

TUN: Pretty much the same thing. Just to make it safe and now shoot for the mass production.

MODERATOR: Dave.

DAVE: I think they need to listen to the feedback and concerns that people are going to have to be able to demonstrate a certain level of transparency, and that they know that exists and what they have done to prevent things from happening.

KARA: I would say be careful and just try to get it right.

MODERATOR: Okay. Judy.

JUDY: I have to agree with both Tun and Kara. You know, make it safe, be careful, and head for mass production.

MODERATOR: Jen.

JEN: I feel like they need to take the word cultured out of it. That will make it sound better.

JIM: That's what I was going to say.

JEN: Honestly, I mean.

JIM: Take your time. I mean, just take your time and get it right.

MODERATOR: Okay.

DAVE 2: I think that they've just got, their message has to be that if they can prove that it's genetically the same as the natural like food products and that it's a safer, healthier alternative, then I think that people will start buying into it.

MODERATOR: And what if it's, okay.

MAN: I don't know. Just make it, make it taste the same.

JIM: Yeah, and I want to say the taste . . .

DAVE 2: I would say that's the biggest thing.

JIM: If it tastes the same, yeah.

DAVE 2: I would, between the cost, I would like to see how much it would cost. Because I think it's very high. I don't know why. I just think it would be very high to produce that. And the taste, I can't see people buying it.

MODERATOR: Okay.

DAVE 2: I'd be curious to see . . .

TUN: . . .

MODERATOR: Yeah.

TUN: Just like any other things, like the U.S. going to be the last, almost the last country to consume any new products. Let's just say any vaccines or whatever, they all go to the developing countries, which don't have choice. So, of course, this is going to be a process. I don't know there's going to be, they can come out with 100% tested product. Or it's going to be a process to do to treat along the way. So just like the vaccines, they go to other country, just do that, and then eventually come back to the U.S.

MODERATOR: Okay. You guys have been really generous and thoughtful with your time and your ideas. I appreciate it. When you head out, a thank-you note for you out there. So thanks very much.