

Organic Food: Is It Worth It?

ALEX MURPHY: Hi everyone, and welcome to our Organic Food webinar. My name is Alex Murphy. I'm the W2 Global Connections. Program Coordinator. And I'm excited to bring you this webinar tonight on organic food and making choices at the markets and help you navigate your next grocery trip and understand the differences between all of the terms that are used when talking about organic, natural, sustainable, all of those things.

So we've got Dr. Lynne Carpenter-Boggs. She's an Associate Professor here at WSU. And we are very excited to hear from her.

So first, I just want to take a moment and make sure that everyone can hear me. So if you can, can you go up to the top left corner, where there's a little hand-raising tool, and just hit that button, so that I know you can hear me? All right. Great. It looks like the answers are coming in. So I'm just going to assume that everyone can.

So now, I'm going to turn it over to Lynne. And make sure that you feel free to use the Chat box, if you've got questions or need clarification on anything. And enjoy.

**LYNNE
CARPENTER-
BOGGS:** Hi. Good evening, everybody. Thanks so much for joining us. And as Alex said, please feel free to go ahead and enter any questions that you have down in the Chat box, as we go along. We should have some time at the end for additional questions. But we can just make this a discussion as we go through this. OK.

So as Alex said, there are many different terms that we'll see on food. And we won't go through all of the possible terms that you can see on food, that may be confusing to you. We'll just touch on a few of those.

And some of those include Local, Natural, GMO-free, Sustainable, or Organic. And some of these terms are legally defined, and some of them are just casually, or culturally, defined. So Local, for instance, everybody has some idea of what we believe local means. But there's no legal definition that, for instance, that's a number of miles that something can be from near you, to define that that's local.

Natural is another term you'll see quite a bit. And it's not legally defined, but there are organizations that have pretty thoroughly defined what a natural food is, or how it was produced. And there are independent certifiers, nonprofit organizations, that will actually go to

farms and/or processors and look at what's happening on those farms to say whether or not they can be defined as being natural.

GMO-free, I think we are all familiar with the legal arguments around labeling and not labeling, defining, not defining GMO and GMO-free. Right now, you can get an independent certification of this. But there's nothing legally binding about it either.

The term, Sustainable, or at least Sustainable Agriculture, and definitely the term, Organic, these are legally defined terms. So sustainable Agriculture was defined in the 1990 Farm Bill. And again, there are some excellent independent certifications to describe whether or not a food was produced sustainably.

Organic is the only one of these. And really, it's quite unusual, the term Organic, because it is legally defined. If you use the term Organic on a food, it not only can be independently certified, but if you use that term, it must be certified. And using that term then becomes legally binding.

So clearly, we're not going to go through the full definition of Organic because you may be surprised to learn that the regulations that define organic food actually take up about 100 pages, if you were to print all of that out in a font that we would normally read in. So there are many, many rules and sub rules that go into defining what an organic food is and how it can be produced and treated.

So as stated in the regulations, anything that is sold, labelled, or represented as 100% Organic, Organic, or Made with organic ingredients, must be certified according to the provisions of subpart E on this part and the rest of the legalese. So with this, I want to ask our first question, to get some discussion going in the chat room. And this is not a test, no grades involved, but just to get you thinking about it.

We see, here, that things labeled as 100% Organic have to be certified. And then there's this term just Organic. So this can be used on multi-ingredient foods, or packaged foods, often, that don't necessarily have 100% organic ingredients in them.

So the question is, what percent of organic ingredients do you think have to be in the food in order for it to be called Organic and to use the USDA symbol? And we'll give you the answer in a couple of slides. Does anybody have guesses?

So while you are putting in your ideas here-- some great guesses coming in, some very

knowledgeable people-- let's go through some of the basics of the definition of Organic. These are the three big rules. Organic products will have no GMOs, meaning no genetically modified organisms. That refers to any crops that are used, any organisms that are used, any animals that are used, cannot be genetically modified. And there's actually a specific legal definition of what it meant by the disallowed genetic modification types.

Organic products also will not be irradiated. Irradiation is something that's used after products are grown and as they're being packaged and put into stores. And usually people are not even aware that foods are being irradiated. Mostly, this is used for things like makeup or Q-tips. These kind of things need to be put into packages and then sterilized once they're in the package. That's actually being done for some food products also, but not for organic foods. So irradiation is not allowed.

Another thing that's absolutely disallowed is the use of sewage sludge. So this would be material that's otherwise called biosolids. So human waste that come through sewage systems cannot be used, even if they go through composting.

So each of those can be long discussions in themselves, but just to lay those out, those are not allowed in organic production. And so a lot of the definition of Organic is what can and cannot be used in the production and processing of organic foods. So as a general rule, materials that are synthetic, that are not natural materials, things that are created by synthetic human processes, are prohibited. So those would include things like glyphosate, which is Roundup.

Most of the common pesticides and herbicides that you'll think of are not allowed. But there are few allowed synthetics. And they have to go through a registration process in order to be investigated and deemed safe enough to be allowed in organic production. So some things like soaps from oil, that are used for pest control, but are safer for the environment than some of the other pesticides, those can be allowed.

On the flip side, most natural materials are allowed. And that includes the majority of mined minerals. So many of those are used as fertilizers. Plant and animal products and byproducts can generally be used.

But there are a few natural materials that are specifically prohibited. And those would include nicotine, strychnine, arsenic. Arsenic is a great example. It actually was used as a pesticide,

and in some cases, still is used as a pesticide. And it's very effective. It's a natural material. But it is very toxic material. And so it's not allowed to be used in organic production.

I want you to note, though, that very small farms don't have to go through certification. So even if a farm is using all the organic rules, following all the organic rules, those small farms are the only ones that don't have to go through certification and can say that they're selling organic foods, as long as they truly are. So small farms can still be investigated and have to show that they're following the rules, but they don't have to go through the annual certification process, like larger farms do.

So now we will answer our first question. So is it organic? And how do you know by looking at a food? Well, I did mention there are certain cases where foods are grown organically that aren't necessarily labeled. So farms will sometimes do that, but in almost all cases, the producer or the packager will want you to know that something has been produced organically. And so if something is represented as organic, it has to be labeled properly.

So materials or foods, even if they're combined foods or multi-ingredient foods, can only state that they're 100% organic if they truly have 100% Certified Organic ingredients. And if they state that, they also have to state what is the independent certifying agency that has gone through all of their records, looked at what they're doing, and can verify that everything is organic. So the next one is the answer to our first question.

You can also use the USDA symbol for organic and say the word Organic on the front if you have at least 95% or more organic ingredients. You don't have to use the Organic seal, but you may. Anything less than 95%, and you can't use the USDA symbol.

Now, you can still say things like, Made with organic ingredients, up to if it's at least 70% organic ingredients. If it's anything less than 70%, then you're not allowed to say on the front label that it's organic. You can state in the ingredient list that there are certain organic ingredients, and you can identify those ingredients. So I think that's an indication that this really is very strict, that when you see the Organic symbol, the producers and processors are following a lot of rules, a lot of dos and do-nots. And they go through a certification process in order to be able to say that.

So my next question for you-- and you can answer through the chat box-- my next question is I think that we all make choices at the grocery store when we're eating out, of what kinds of foods we are willing to pay more for. And that really is one of the central questions of this

webinar. So I'd like you to tell me, though, in the chat room, what kinds of foods, or what reasons, are you willing to pay more for some foods?

So we'll move on with our slides. And that's an important question because organic foods do often cost more. Not always, and certainly, if you're buying directly from producers or if you're part of a CSA, often you can get a great deal on organic foods by directly supporting producers. But often in the marketplace, you are going to pay more.

So in some studies, organic fruits and vegetables have been found to average 30% more expensive for organic. And milk tends to be quite a bit more expensive. And dairy products are about 60% more, on average. Let's go to the next one.

So the question is, is it worth it? And sorry to disappoint you, but I'm not going to answer that question for you, because the point is that what anybody is willing to pay more for depends on what is important to you. As an economist I know has said, value added, or your willingness to pay more for a product, is about values.

So what is different about that product? And how much does it matter to you? Let's go on to the next one.

So some of the reasons that people pay more for food would be these-- Is it better tasting? Is it healthier, better for the environment, or better for animals? And let's see if people have indicated some other reasons.

So taste quality, definitely. Yeah, and that can be a question of whether it's organic or not, or just varieties. I really like Cara Cara oranges and I will pay more for that. Lauren says, No chemicals. You're willing to pay more for that. And that is definitely part of what you get in organic production.

David says, Taste, fewer residues, ecological footprint. OK. So that's a whole new thing, what's the effect on the environment? Vegetable seeds to be found in home gardening, Annie says. So you're willing to pay more for things that you're going to be using in your own garden. That makes sense. And Mary says, Things like lack of herbicides and pesticides and the environmental health. So things that both affect yourself as you eat them and the environment.

So what I want to do, in the next few slides, is to talk about some of these reasons that organic does often cost more, or is perceived to be worth more, and look at what literature and what

studies have been done to prove or disprove some of those ideas. So one thing that people will often say, or hope to be true, is that organic foods are going to be better tasting. Well, taste is very subjective.

Like I said, there's one variety of orange that I just go nuts over. And I'm very happy if I can find it organically, but it's not organic, I'm probably still going to buy that variety. So if you really enjoy the taste of something, you're going to be willing to pay more.

And so it can be quite difficult to do studies on what tastes better to people. There certainly are professional tasters, but it is difficult to do these kind of studies, we see huge differences in taste of, across, among, varieties. So when these studies were first being done, people were very careful about which varieties were used. And we know that a Fuji apple is going to taste very different than the Pink Lady, whether or not they were farmed organically or conventionally.

And another big factor to keep in mind is that freshness matters in taste. And I think we all know that from experience. But it also holds up in studies, that if things are fresh out of the garden, or out of the field, or off a tree, they're going to tend to be more flavorful.

David adds in case can be very segmented for specific products like apples. Exactly. Some people like sweet apple, some like tart, some like sweet tart. Some like to have a nice bouquet in their apple. Right. Good point, David.

So there have been some studies on the flavor of the exact same variety and freshness of foods grown organically, versus conventionally, and then tested out. So in one study that I was a part of, headed by John Reganold, organic Diamante strawberries were sweeter. When grown organically, they were sweeter than when they were grown conventionally. But there were two other varieties in the same study that essentially tasted the same when they were grown organically or conventionally.

So it looks like in some varieties, growing organically can make a difference in taste. But in many, many cases, it's things like the variety and freshness that are overriding factors in the taste. So next slide.

Let's look at milk. There have been quite a few studies on milk, just in the past couple of years. And they are very consistently showing, as the study from Chuck Benbrook, shown in 2013, they are consistently showing that organically produced milk has more Omega-3 fatty

acids.

And those are often considered to be the healthier fatty acids. And this is because organic livestock have to be on pasture at least 120 days per year. That's actually part of the organic regulations for organic livestock. And during those 120 days, they have to be actually eating at least 30% pasture. OK. Next slide, thanks.

On produce, there have been hundreds, literally hundreds of studies about produce. And the study by Baranski, et al. That came out last year, actually summarized the findings of 343 other peer reviewed studies that compared organic and conventional produce. And there were a few very consistent findings-- that the organically produced produce has more antioxidants. So often this is vitamin C. And most Americans, in particular, we need more antioxidants.

The range tends to be about 20% to 60% more antioxidants in the organic food. There tends to be less nitrates and less cadmium, which are two things that we don't really need. So those are less common, or lower in concentration than the organic foods. And less pesticide residue also tends to be found on the organic goods.

So David adds in, We may be able to achieve-- this is very true-- We may be able to achieve the same fatty acid profile on non-organic milk, but on pasture rated dairies. That's very true. So the benefit of the organic milk, when-- primarily because those cows are required to be on pasture.

All right. There are fewer studies on meats and grains, and somewhat less convincing. So organic grain studies often find that they are similar to conventional. I have to say, again, there are hundreds of studies out there. And some will find benefits of organic, some will find that they're the same, and a few even find that there's lower quality in organic goods.

So what I'm trying to present here is what is the most common finding for when there's a meta analysis of many studies. What have they summarized? So the organic grains tend to be nutritionally similar to the conventional or, in some cases, have less protein, or at least crude protein. In meats, what is consistently found is that organically grown meats have a lower risk of antibiotic-resistant bacteria. And again, that's potentially a very, very positive thing for public health.

And what about the overall effect? Well, there have been several studies looking at people who eat more organic food or eat entirely organic foods for a certain period of time. And like it

or not, the materials that we ingest, some of those chemicals actually go right through us. And some of them are metabolized. But many pesticides will go right through us.

And in studies, you can actually see that people who are eating organic food have much less pesticide or pesticide breakdown products in their urine. And there have been few, but pretty exciting animal studies. So feeding animals organic foods. And they tend to have higher reproduction rates and better immune response.

And in some cases, you can see that they also prefer organic products. That finding, though, I will say, is definitely not consistent. It depends on if you're dealing with rabbits and alfalfa, or if you're dealing with monkeys and bananas. Different foods and animals, they will have different preferences for a given product, whether or not it's organic or conventional. But there are some studies showing a preference for the organic products.

And I wanted to note these because we can't do these kinds of studies on people. So that's a big outstanding question that is very difficult to answer. We can see that we're getting fewer pesticides on our food if we're eating organically. We can see that there's less pesticide in our urine.

But is it actually healthier for us? Well, we just can't easily study people over long periods of time. But animals, we can look at their whole life span. So again, we are often finding higher reproduction and better immune response.

And what about the environment? Several of you indicated that you're willing to pay more if there are smaller ecological footprints of your food. And there have been many studies about this. If it's better for the environment, that's a big question. And it can mean lots on different things.

So some things that have been found is that there tend to be more balanced insect communities in organic farms, versus conventional farms. And this is a benefit because it favors natural control of pest insects. So they tend to not get out of balance and very high in population. They just maintain a low population along with beneficial insects.

There have been many, many, many studies showing that organic farms will have more carbon stored in the soil. And this is the benefit, not only for the soil's health itself and growing more microorganisms, but as we try to balance out our use of carbon and reduce the amount of carbon dioxide in atmosphere, having more carbon sucked into the soil and held there is

definitely beneficial. So within the regulations, there is verbiage that organic farms have to maintain or improve the natural resources of the operation, including soil and water quality, which is wonderful, but it's a little bit vague.

And actually, right now, there is an open discussion period that the USDA is having on what more specifically does this mean, or what should it mean? What should certifying agents actually be looking for to show whether or not a farm is maintaining or improving the natural resources? For instance, currently, there's no restriction on the amount of water or energy used. But is that something that should be considered in the natural resource impact? Next slide.

And the last question is, Is organic production better for the animals that are being grown in organic conditions? Well, a few things are definitely different in their experience. Animals whose meat or eggs will be sold as organic, they have to be given 100% certified organic feed.

So just like people, their feed is going to have a lot less pesticide residue on it. They're going to be ingesting less of it. Their foods are going to be much lower in antibiotic residues and bacteria that are resistant to antibiotics.

Animals have to have access to pasture. And we've talked more specifically on that in the dairy portion. But with different animals, they all have to at least have access to pasture.

Organic animals can be given no antibiotics. And the kind of drugs you can use on them is quite restricted. But these animals must be cared for. And this is very strong verbiage that you don't see necessarily in conventional growing guides.

Even though you can't use all the available drugs on organic animals, they have to be cared for. And if caring for them properly means that the animal then becomes a non-organic animal, you still have to do that. So some operations end up having a primary organic herd and then a smaller non-organic herd. Or they may end up selling that animal who becomes non-organic. And there are actually enhanced animal welfare rules or guidances that are expected to be coming out soon.

So to conclude this, I want to again state that I'm not going to tell you what to eat. And these are still things that you will have to consider for yourself. And some things to always think about is that nutritionally and in terms of taste, you're better off eating fresh and eating more produce. I mean, wherever you're getting it, most Americans need more fruits and vegetables.

And that's going to make a big difference in our cultural health.

And the last point I want to make is to buy what you will really eat. Don't go out shopping and buying things to try to impress somebody else, or even to try to impress yourself, because if you're not eating what you're buying, you're not getting any benefit from it. And it's a terrible thing for the environment. Next slide. OK.

Because although organic production has benefits to the environment, a huge issue is the amount of food that we waste. So even if you're buying organic food, but then wasting it, we still are causing environmental impact. And food waste overall is not sustainable.

As example, the US disposes 133 billion pounds of food annually. That's approximately 31% of the US food supply, and I've seen even higher estimates than that. These numbers are from the USDA, just from December of last year.

So that's \$162 billion worth of food that's thrown away every year. It makes up about 20% of all the landfill material in the US. And so those are the US averages and it's similar or maybe even worse in Europe. So buy what you're going to actually eat.

So with that information, next slide, we've hopefully provided you with some information. And you hopefully will use this information to make your own choices. With that, I will turn it back over to Alex.

ALEX MURPHY: Hi. I There we go. So I just want to say thank you to Lynne for joining us tonight and sharing all her expertise with us. And if anyone has any further questions, I can show you her email address and her website there. Feel free to contact her directly. And thank you all for joining us tonight.

I am going to put a link into our chat box, here, for the Global Connections survey. So if you have a moment, please just take a minute and fill this out. It only is about 10 questions, and it really helps us evaluate our programming and decide what to do next year and what to repeat.

So thank you, everyone, for joining. And hope you enjoyed it. And have a great night.