Soybean Sustainability Script for Closed-Captioning

**Segment 1**

(Acoustic Music)

Gianna - Mmm, what a snack! But we all know that food like this doesn’t just pop out of the ground.

Jacob - Instead, all of these foods go through a number of stages before they ever reache your grocery store. But the first stage for all of this food is the same, and it starts right here.

Gianna - This is a soybean field and fields like this one are the sources of so many of the foods we eat, and the foods that much of our livestock that we rely on eats.

Jacob - So how do farmers and other industries step up to the plate to make sure we have the soy we need while positively impacting the environment…

Gianna - …the economy,

Jacob - …and their communities, at the same time? Any ideas?

Gianna - We’re about to find out as we head…

Both Hosts - Into the Outdoors!

(Song)

(Blues Music)

Gianna – I don’t get it. It would take all year just to plant this field, much less harvest soybeans from it. We’re clearly out of our element, Jacob.

Jacob - Yeaaaaah, we better check back in with mission control to figure out how farmers make it happen here.

Cedric - Don’t worry, my friends. I have everything I need here to help you two make some discoveries. Or…I thought I did. Where’d…he…go?

Coolbean - Whoa, whoa. I’m coming, I’m coming. (yawn) Let me guess, you have a question that only a really smart and good-looking bean can answer?

Cedric - Uhh…anyway Coolbean, my investigative team is having trouble figuring out how farmers turn that field of dirt into a field of soybeans all while maintaining the environment. Could you help them out?

Coolbean - Yeah, yeah. All they need to know is one word: sustainability.

Cedric - That’s kind of a big word, Coolbean. Let’s break it up for our team. Ability means something that you can do. Sustain means to keep or last. So if you put those two words together, you get the word “Sustainability” which means doing something to make it last.

Coolbean - And I know someone doing just that. Let me give them a call.

Keith Ripp - A friend of mine told me you had some questions.

Gianna – Yeah. Wewant to know how you turn this field of dirt into soybeans. And we were told to ask you about…um…

Jacob – Sustainability!

Keith Ripp – Our farm is a multi-generation family farm and sustainability, to me, means passing the land and the farm on to the next generation.

Jacob – So, how do you do that?

Keith Ripp – We treat each field kind of as an individual. Some fields receive a cover crop, some fields we do no-till, and other fields we do a little bit of tillage work.

Jacob – Time out, time out. I have no idea what this means.

Keith Ripp – No till is not disturbing the soil. The residue that we see here helps hold moisture and it also prevents erosion.

Gianna – Uhh, erosion?

Keith Ripp – If we work the ground, at times, and if we get heavy rains, it’ll wash or move the soil on us and we want to keep the soil in place.

Jacob – You didn’t tell me you had a grass farm? What is this?

Keith Ripp – This is winter rye grass. We plant this in the fall as a cover crop and then it holds the soil in place for us and also ties up our nutrients.

Jacob – So, what is this eventually used for?

Keith Ripp – We have livestock on our farm, so we will harvest this in about a week and use it as a forage. And it benefits wildlife.

Jacob – That brings up a huge point. How does this farm impact the environment overall?

Keith Ripp – My goal is to leave it in better shape than when I took over.

Gianna – So, what’s changed over time?

Keith Ripp – We’ve been able to harvest more beans and we know our soil’s healthier than its ever been.

Jacob – How do you know?

Keith Ripp – We soil test on a regular basis?

Jacob - I can’t tell what you’re doing but it looks like you’re playing with dirt. Looks fun. Mind if we join?

Haily Henderson – Well sure. So I’m taking a soil sample and this will help the farmer appropriately apply nutrients for this cropping year.

Gianna – What are you testing for?

Haily Henderson – Abiotic and biotic factors.

Gianna – What’s that?

Haily Henderson – Abiotic would be non-living whereas biotic would be living factors. So, for example, biotic would be worms and microorganisms.

Gianna – Like what?

Haily Henderson – Bacteria will fix nitrogen for the soybean plant and, in turn, the plant offers the bacteria a place to live…for free!

Jacob – What’s broken about nitrogen?

Haily Henderson – Nitrogen fixation is where the plant produces its own nitrogen. And it’s not actually the plant that produces the nitrogen. It’s actually a symbiotic relationship between microorganisms like bacteria and the host plant.

Gianna – But why is nitrogen fixation important?

Haily Henderson – Well, it works really great for crop rotations. So soybeans are a legume which means they fix their own nitrogen. So adding a legume into the rotation can eliminate some of the nitrogen that is applied to these fields.

Gianna – I’m still confused about why farmers go through the extra effort to practice sustainability on their farm.

Jacob - Yeah, why not just let soybeans do their thing? Mission control, there’s got to be more on this story…

Cedric - ….there is, Jacob. You see, farmers these days realize that by helping the environment they are not only maintaining clean water, air, and soil, but they are also helping themselves …financially.

Coolbean - Stay tuned to discover how as we learn more about soybean…sustainability (voice trails off).

**Segment 2**

Cedric - We already learned about how farmers are taking care of their land, but how does that affect their income? You know, the bottom line?

Coolbean - The bottom line?! I’m a lot more concerned with the top line!

Cedric – (laughs) *You* might be, but farmers are happy about the direction soybean yields are heading. Jacob, Gianna come in! Find out what is changing with soybean yields!

Gianna – I don’t understand how farmers go through the extra effort to protect their environment and make enough money to survive?

Dan Roe – Well, it is a little extra work, and it does cost us a little money, but the cool thing is this is teeming with life so this is really healthy soil, I’m going to pass this on and, hopefully, generation after generation is going to be able to keep farming this way and that’s where the economics of this all is.

Jacob – So how does that connect to making money on your farm?

Dan Roe – Healthy soil, healthy plants, healthy production, healthy farmer. (laughs). So sustainable practices like I’ve been just talking about really improve our yields.

Gianna – Wait, uh, yields? What kind of plant is that?

Dan Roe – Yields is the amount of production that a soybean plant makes and we measure it in bushels per acre.

Jacob – So how many acres are you going to harvest this year?

Dan Roe – I’m going to plant 1600 acres of soybeans. I hope they average 50 bushels an acre. That makes 80,000 bushels of soybeans at eight dollars and seventy-five cents a bushel and then we’re going to…

Jacob – Time out, time out, time out. You’re throwing a lot of math at me and I’m not a math person. I think I’m going to need to refer to my, ahem, assistant.

Coolbean - Coolbean here, at your service. I *am* the smartest bean since ole Albert Beanstein, after all. So let’s get started. Before farmers do anything with their soybean fields, they have to buy seed. But how do they know how much to buy?

Coolbean - Every math problem needs to start with a foundation. What do we know? Well, each bag holds 140,000 seeds. That’s heavy, but not too heavy for me, of course Every acre in a soybean field needs 160,000 seeds. How many bags per acre does a farmer need?

Coolbean - Whoa, that’s a lot of zeros. But I’m not scared and you shouldn’t be either. An easy way to solve this problem is by using place values. Our dividend has a 16 in the ten thousands place. And our divisor has a 14 in the ten thousands place. There are just zeros after those numbers so we can divide all the way up in the ten thousands place. 16 divided by 14 doesn’t come out even, but, ya know, 14 is close enough to 16. It goes into 16 just over 1 time. So that means that a farmer needs just over 1 bag of soybean seeds per acre.

Coolbean - Oh, right. Soybean fields tend to be much bigger than just an acre. I knew that…ya know, come on. Well, wait. This is simple. If a farmer has a 1,000 acre field, he or she will need just over 1,000 bags of soybean seed. Any number multiplied by one stays the same!

Gianna – But how is sustainability involved with getting the soybeans from point A to point B. And who’s buying all these beans?

Gianna - The soy saga doesn’t end here. This highway runs all the way to the Mississippi River and that’s where we’re headed. Why don’t the farmers just do all the transportation themselves?

Josh Grunnet – That’s because soybeans go a really long ways. Soybeans can go as far as China and some of them will be loaded out on truck and go to some local destinations throughout the year.

Jacob – Why would you do that?

Josh Grunnet – The key is to get the soybeans into the market when the market wants our soybeans. We try to get the soybeans all the way to the Gulf and to New Orleans where it gets loaded onto vessels heading to overseas markets.

Gianna – This highway runs all the way down to the Mississippi River and that’s where we’re headed.

Gianna - I gave Jacob a walkie talkie and told him to not lose sight of those soybeans. Jacob come in! Where are you?

Jacob - I found out that the soybeans are in these big barges just up ahead. There’s no way they can get past that dam. Looks like it’s the end of the line for those soybeans.

Gianna - I don’t know. I think something that big is going to have a destination much further away.

Jacob – We need some answers.

Jacob – So how is this necessary and how does it relate to soybeans?

Sam Mathiowetz – Each one of those barges hold fifteen to sixteen hundred tons, ya know, the equivalent of about fifty-five to sixty semi’s.

Gianna – This seems way more complicated than transporting by trucks?

Sam Mathiowetz – Actually, it’s not. Ya know, a truck can only go wherever the road is, right?

Gianna – True.

Sam Mathiowetz – I mean, makes sense? They go wherever the river is, it’s just, once again, we go fifty-eight, roughly, fifty-eight semi’s fit in each barge.

Gianna – So that’s why it’s more efficient?

Sam Mathiowetz – That is how it’s more efficient.

Sam Mathiowetz – Watch as the barge does come in right now. Remember how I said the boat pushes it in? And this is actually how it works. They’re going to come right in and they’re going to be parallel up against this wall and then we’re going to bring ‘em in.

Gianna – That seems really big. How does it fit through here?

Sam Mathiowetz – Actually that’s a great question. So, as you noticed, it’s three barges wide. Right? Ok, our chamber is one hundred and ten feet wide and there’s actually a little bit of space, about two to two and a half feet of extra and width, and they’re configured that way.

Gianna – So what does this do exactly?

Sam Mathiowetz – Boats aren’t like fish. They can’t jump. So we use it as, like, an elevator. We fill the chamber up, we can bring a boat coming from downstream, lift it a certain number of feet, and it’ll allow it to actually keep going on. And it’s the reverse process as we head down.

Gianna - Mission control, is this the end of the story?

Cedric - Not even close! What other forms of sustainability can you think of?

Coolbean - It might be the most important kind yet…so don’t go away!

**Segment 3**

Jacob - Sustainability on the soybean farm, well, means taking care of the environment and taking care of business. So what about families and communities?

Nancy Kavazanjian – This is a family farm. We run it as a business but it’s also a lifestyle. This farm has actually been in my husband’s family for four generations or one hundred fifty years.

Jacob – Tell us a little bit more about your family.

Nancy Kavazanjian – I raised a son and a daughter, my husband and I, and my daughter now has a family of her own so we have a grandson and he’s actually the sixth generation to come to this farm.

Gianna – What’s it like on your farm everyday?

Nancy Kavazanjian – Well, you know, there’s no typical day on the farm, really. But things are seasonal. So right now is planting season and everybody’s really busy in the field and I’m usually the extra errand runner or, when I have to be, a tractor driver. So we usually plant about an acre of sweet corn on our farm where we can donate it and share it with our neighbors and we donate a lot of our produce to our food pantries.

Gianna – Social sustainability.

Nancy Kavazanjian – So this is our personal wind energy system and this is one of the legacies I hope to leave to my next generation. Not every farm has a wind turbine like we do, but every farmer is thinking about how to make their farms more sustainable and economical so that they can pass it on to the next generation, just like I want to. And speaking of generations, I have something else to show you.

(music)

Nancy Kavazanjian – This is an old farmhouse that was on this property when we bought the farm. This farmhouse has been here for well over one hundred years and it’s a great metaphor for what we’re up against in farming. It’s stood here a long time and weathered and seen a lot of things, just like sustainability is going to help us weather the next few decades.

Jacob - Ok, so I get how soybean farms benefit the people that have them, but what about the communities that they’re a part of?

Jacob - Excuse me, excuse me. We’re on the trail of soybean sustainability. We’re a bit fuzzy on how soybeans could benefit a town.

Marsha Dobbs – Wow, have you come to the right place. Look at this. Soybean capital of Wisconsin. You want to know about soybeans, come on in with us. Follow us, come on!

Jacob – Looks like you guys have way too much fun with soybeans.

Marsha Dobbs – Oh we do, especially me. I went to the state, I went to the city and asked if they would sign a proclamation indicating that we were the soybean capital of Wisconsin and they said they would. Because I think it’s an important product, not just in Evansville, but all over.

Jacob – So, what is this?

Chris Dickert – This is a case dedicated to my father-in-law and soybeans in Evansville. It all started when we grew forty acres of soybeans on our farm.

Gianna – Why soybeans?

Chris Dickert – One of the big reasons is, because the soybeans put nitrogen back into the ground.

Jacob – Whoa, it sounds like environmental sustainability. It’s all connected.

Gianna - What else the soybean industry is doing to be socially sustainable? Mission control?

Jacob - Hello?! Mission control? You there? Hmm, no answer. Must be on a lunch break. Perfect timing. You know how Coolbean gets when he’s hungry (sigh).

Jacob – Uhh, you look like a farmer, we’re on a farm, but it doesn’t look like you’re farming.

Bob Uphoff – We’re actually just taking a pause from our business here. We’re looking at this oak savanna that was originally part of our farming operation. Well, basically, what the oak trees do, they provide a lot of the wildlife habitat for us. And, again, as a farmer we’re trying to take a look at all the natural resources that are around us and how we can best utilize them.

Gianna – Well, we’ve talked to a lot of farmers about how they protect the environment but what makes you different?

Bob Uphoff – We have a unique program in our area here, in that we have farmers helping farmers to try to do more to improve the environment and improve water quality.

Bob Uphoff – We manage erosion and what we try to do is that we want to minimize the amount of soil that is moving off of these fields.

Jacob – So we get how this all helps the landscape, but what about communities?

Bob Uphoff – We want our nutrients to stay on our fields, we want our soil to stay on our fields, then the people can enjoy the lakes, the rivers. We had a non-profit organization in Madison here, the Clean Lakes Alliance, that helped us to get established here. And what it was, it was really, we wanted to get the farmers to be the leaders. We are now beginning to see several other of these farmer-led initiatives start up in the state

Jacob - I’m glad we have folks like you around.

Bob Uphoff – No problem.

Jacob - I wonder what mission control is up to? Hmm…

Cedric – Uhh, Coolbean, not to, uhh, burst your bubble or anything, but you do realize that you’re eating soysauce, right? As in…*soy*bean…?

Coolbean – (clears throat) Oh, of course. I just, uh, don’t eat sushi that often. Heh, heh, yeah, yeah, that’s it.

Cedric - Don’t worry, Coolbean. Soy is not used for just food. In fact, many exciting developments in the soy industry have nothing to do with food. What are these developments and what does the future hold for soy? Stay tuned…we’ll find out when we return.

**Segment 4**

(blues music)

Gianna - Jacob, I don’t see any sign of soybeans here. I think we’re in the wrong place.

Austin DeLong – Actually, you guys are in the perfect spot to learn about the soybean industry.

Austin DeLong – So, here at the DeLong Company, we’re working with farmers to receive grain that they have planted and harvested recently and this facility is mostly used as a storage facility. From there, we process the soybeans further and then we start the process of loading the container.

Jacob – Wait, wait, wait. We already know about all this. We’re good.

Austin DeLong – Well, here at DeLong, we do things a little bit differently. A lot of our grain does not stay within the U.S. We’re actually shipping this to Southeast Asia, Pacific Rim, to be used as a staple food product.

Jacob – But I thought these countries had shrimp, chicken, and all these different ways to get protein.

Gianna - Why soybeans?

Austin DeLong – Soybeans are unique because they provide a very high protein content and the animal production is not what it is in the U.S.

Austin DeLong – So, this day and age, we’re living in a global market.

Jacob – Wait, global?

Austin DeLong – Yeah. The U.S. produces products that are sent to other countries and, in return, they ship products to us. The process is very efficient.

(Blues Music)

Austin DeLong – Our producers, for our soybean production at this facility, need to fill out a contract with us that helps us certify their soybeans sustainable. On this contract, there’s several things. Quality standards, the variety they’re growing, the amount of acres, and all of the necessities for us to know what they’re producing for us.

Jacob – Wait, so why do these consumers need this?

Austin DeLong – Well, it hasn’t always been this way. With a growing population in the world, consumers and shippers like ourselves are focusing more on sustainable practices; not only for the U.S., but the environment, the economy, and the global food supply altogether because we’re really focused towards the future.

Gianna - Speaking of the future, I’ve been thinking about my own future. Hmm, I wonder what kinds of opportunities exist for you and me related to soybeans?

Cedric - According to my soy-dar, there is a soy scientist roaming around you right now. Locate her and see if she can tell you two about her job and what the future holds for soy science!

(electronic music)

Gianna - Hey! Umm, we have some questions about the future and we need to talk to you!

Deana Knuteson - Well, I’m no psychic but I hope I can answer some of your questions. As a matter-of-fact, I can tell you about soybean sustainability and an NSSI project we’ve been working on.

Jacob – Time out, time out, time out. What’s the NSSI?

Deana Knuteson – It’s the National Soybean Sustainability Initiative, and it’s a program that the growers and industry and researchers have all worked together to document changes on farming and sustainability practices for soybeans over the years.

Gianna – How do you see what you need to work on?

Deana Knuteson – Well, that’s one of the processes of sustainability. Sustainability originally, it’s the three components: environmental, economic, and social. And you want to combine all those to figure out what you can do. So the industry and the producers came together to develop an assessment process to see what practices are going on, what has changed in the last five to ten years, and what can be done, research-wise, to benefit the environment and society in the future.

Gianna – How would a girl like me get involved with a job you have?

Deana Knuteson – Surprisingly, there’s a lot of job out there in agriculture in the future and as the future comes there’s actually going to be more opportunities. And by having these collaborative efforts such as the NSSI, the researchers are able to work with growers and they find out really, on farm situations, what some of the needs are and where the research focuses can be, and what kind of research dollars they should get to do that.

Jacob – It almost seems like a symbiotic relationship again. People working together?

Deana Knuteson – It’s very important to work together. Not only the growers and the researchers but researchers across various departments because that’s how we make the best research advances and are able to implement them on the farm in the most efficient manners.

Gianna – How many farmers are actually being sustainable?

Deana Knuteson – Growers have to be to be in business today, it’s what the markets are requiring. But a lot of them are being more innovative and actually looking at some of the non-ag landscapes and the ecological restoration efforts they do on those areas.

(electronic music)

Jacob – This isn’t a farm. What’s this?

Deana Knuteson – Part of being sustainable is to take your non –agriculture lands and work with those too. And this is an example of that on this farm, where they have actually put pines and oaks and pollinator species around to help manage the landscape as a whole and work with the insects and native species and nesting birds that would need these kinds of areas. And this is really important for farmland and for native bees and butterflies and insects that need these kinds of plants to survive.

Gianna – We’ve seen a lot of sustainable practices, but this takes the cake.

Deana Knuteson – This is getting to be more and more common in farmland and in sustainability and it’s something that I think is going to expand even more in the future. But growers want to do this type of work to merge agriculture and conservation together.

Jacob – It seems that the soybean industry gets more and more sustainable over time. Is that true?

Deana Knuteson – Absolutely. Remember, sustainability is a continual improvement process. It’s not a destination, it’s an effort that keeps going and it’ll be exciting when your generation gets up to the farming level how sustainable they are then and all the improvements the growers have made by then.

Gianna - So next time you eat meat, snack on edamame, or even drive past a soybean farm, think about what the soybean industry is doing in the present…

Jacob - …or what they plan to do in coming years…

Gianna - …to make sure that the future of soy looks bright.

Coolbean – Yeaaaaaaah.

Both Hosts – (laugh)

Jacob – See you next time on…

Both Hosts – Into the Outdoors!