


Table S1. Semi-structured grower interview protocol

Question ID No.	Question Text (w/ <i>directions</i>)
1. Farm Characteristics	
1.1	What is the size of your farm in acres?
1.2	How many individuals do you employ on your farm?
1.3	How many different types of fruit and vegetables do you grow? Could you identify them?
1.4	What is your farm's average annual revenue?
2. Grower Characteristics	
2.1	How long have you been a farmer?
2.2	Is your farm organic?
2.2.1	What year did you go organic?
2.2.2	Is your farm certified?
2.3	Could you talk a little bit about your long-term goals as a grower?
2.4	Why did you become a farmer and what do you hope to achieve?
2.5	Could you talk a little bit about how you make decisions about what to spend money on?
2.5.1	How do you prioritize different purchases or investments on the farm? For example, how do you decide between investing in irrigation, or a tractor, a wash-pack, hoophouse infrastructure and repair, implements, coolers, etc.?
2.6	To what extent do you rely on other farmers to make decisions about your own farm?
2.7	Do you tend to plan for the future or are you just putting out fires?
2.8	Have you financed anything for your farm? Could you tell me a little bit about that? How'd you make that decision?
3. On-farm Solar Energy	
3.1	Do you have any solar energy systems on your farm currently? (<i>if not, go to 3.2</i>)
3.1.1	Could you describe it/them?
3.1.2	When did you install it/them?
3.1.3	How many watts/acres is your system?
3.1.4	How much did it cost?
3.1.5	Did you finance it?
3.2	Would you like to install a solar energy system on your farm?
3.2.1	What kind?
3.2.2	Why/Why not?
3.2.3	What's preventing you from purchasing a solar energy system for your farm?
3.2.3.1	Is it other priorities?
4. Tractor Use	
4.1	Do you own a tractor? (<i>if more than one, ask about each tractor</i>)
4.1.1	Could you describe each one?
4.1.2	When did you purchase it? (Approximately how old is it?)
4.1.3	How much horsepower does it have?
4.1.4	How much did it cost? (How long has it been in your family?)
4.1.5	Where did you purchase it?
4.2	How do you use your tractor(s)? (<i>if more than one, ask about each tractor</i>)
4.2.1	What is your primary use for each tractor?
4.2.2	What time of day do you use it?

4.2.3	How long do you typically use it each time? Each day?
4.2.4	How many days out of the year would you say you use it?
4.2.5	What implements do you use with it?
4.2.6	What is your maintenance like on it? (How much money or time do you spend in an average year fixing it?)
4.2.7	Do you know what your average fuel costs are? (Approximately how much do you spend on fuel per season?)
4.2.8	How happy are you with your tractor? (Say on a scale of 1-10, 1 being not at all happy and 10 being you couldn't be happier).
4.3	Have you considered getting a new tractor?
4.3.1	Why/why not?
4.4	If you were in the market for a new tractor today, what would be your approximate budget range?
5. Electric Tractors	
5.1	So, I want to move on to electric tractor technology. Are you at all familiar with electric tractor technology? And I'm going to use a scale of 1 to 10, 1 being you've never heard of or investigated electric tractors and 10 being you own an electric tractor, where would you sit?
5.2.	Before I ask you the next question, I want to assure you that we are not in the business of selling tractors, we are merely trying to develop a tractor that best meets growers' needs. Now, that being said, are you at all interested in purchasing an electric tractor? Again, let's say 1 to 10, 1 being not at all interested, and 10 being extremely interested.
5.2.1	Why/why not?
5.2.2	An electric tractor has some known advantages over a gasoline powered tractor. I'm going to name a few. Could you tell me if any of these interest you. (Follow up: Why?)
5.2.2.1	Reduced noise
5.2.2.2	Reduced dust,
5.2.2.3	Reduced greenhouse gas emissions
5.2.2.4	Increased weight and compaction
5.2.2.5	I'm now going to describe an electric tractor and its specifications. I'd like to you think about how much you might be willing to spend on it compared to a conventional tractor. This tractor has a motor in the rear, which allows for belly mounting cultivation and light tillage implements. The tractor has a 30kw motor, which is equivalent to a 45hp engine. It could do 4 to 6 hours of regular work or 2 to 3 hours of heavy work on a single charge of its 12 batteries, and it would take 6 hours to charge those batteries fully. The tractor would weigh 750 pounds more than a conventional tractor of similar horsepower (2200 pounds total) and could be used for secondary tillage, cultivation, etc. and primary tillage up to 6 inches deep. When not in use, the tractor could serve as a secondary power source for additional farm operations. Here are two photos:

Photos shown to participants	
5.2.4	Compared to a conventional tractor (which currently cost between \$18,000 and 29,00 new), how much more or less would you be willing to pay for an electric version? (the same, 10% more, \$10K more, 20% more, twice as much? Etc.?)
5.2.5	Now I'm going to change the tractor slightly. Relative to the original model and the relative estimate you just identified, could you identify how much more or less you'd be willing to pay for this tractor?
5.2.5.1	A tractor with:
5.2.5.1.1	A larger motor, so more peak power and the ability to do heavier work)
5.2.5.1.2	A longer-lasting battery, so more operating capacity, or the ability to use your tractor longer)
5.2.5.1.3	A quicker recharging time (let's say 4 hours)
5.2.5.1.4	A swappable battery pack, which would allow you to use your tractor longer and do heavier work
5.2.5.1.5	On-board solar panels for in-use charging
5.2.5.1.6	What if the tractor could be used as a power source when not in use to reduce your peak electricity use?
5.2.5.1.7	What if the tractor was autonomous, meaning you don't need to steer it manually, it relies on GPS?
5.2.5.1.8	How much would it be worth to you to be able to let go of the steering wheel (if it drove perfectly straight lines)?
5.2.6	How important is it to you to be able to do the maintenance on this kind of tractor?
5.2.6.1	Could you describe the maintenance that you would you want to be able to do on it?
5.2.7	Would you be interested in converting your current tractor to be electric?
5.2.8	Having thought about electric tractors for a bit, what are your primary concerns?
5.2.9	What interests you about the idea?