

# TECHONOMY NYC

## Startups Stirring Up the Future of Food

### Presentation:

Charles Baron, Co-Founder, Farmers Business Network

(Transcription by [RA Fisher Ink](#))

**Baron:** Hi, My name is Charles Baron. I'm one of the co-founders of Farmers Business Network. A little different from the other companies, in that we're focused on large-scale production agriculture with thousands of American farm families and Canadian farm families all across North America. I can't wait to actually start farming in my kitchen. I was very excited by the appliance in the picture. But, this is what farming looks like for the people behind your food production. Very easy to take for granted, the work that they all do.

This is a quote that describes the life of a farmer from a very witty farmer on Twitter. He said, "I once explained my job as this: I borrow \$800K every spring and bury it. And then I pray I get \$850K back. Repeat." So that's the life of a farmer. They're exposed to enormous risk throughout the system. Weather risk, price risk, commodity risk, trade risk, regulatory, all kinds of challenges. And they're just trying to run a family business, and this is the story of what's happened in the last five years.

So net farm income is at its generational low right now. Kansas City Fed has said that farming comes at the lowest level since the 1980s, the farm crisis of the 1980s. And it has a real cost. This is not just an economic indicator. This is something that has a real impact on rural America. You can see it in the form of consolidation on the farm. You can see it right now in the crisis the dairy industry and dairy farmers are going through. Megamergers among major agrichemical companies is causing, of course, large amounts of layoffs among those companies, which is further hurting the economies of rural America.

And this is one of the other stories that's important to keep sight of. GMO and the massive increases in yield that technology has brought to productivity has not, necessarily, returned more rewards to farmers. This is an analysis of ours that looks at corn yield over the last decade or so and then corresponding farm income. So the gains that the economy has realized from increasing production have not come back to the farmer; they've gone back to the technology companies, the originators of that technology. Some of the names on this list. This is market caps of those companies over the same period of time as farm income. So farmers have gotten hammered, the farm industry has done just fine.

And so it's our basic view that farmers are fundamentally wedged in the middle of an oligopolous system, a system that fundamentally puts them at a market in information

asymmetry. And that by connecting farmers together, thousands and thousands of farmers, you can help farmers get a much better playing field and actually enable an entire new farm economy, enable entire new crops to be grown, a lot of the things Zoe was talking about, and fundamentally improve the rural economy and the livelihoods of thousands of American farmers, millions of American and Canadian farmers.

This is our system. We have about 6,500 farms across the U.S. and Canada. Put it together, it's the size of West Virginia plus a Delaware every month. We grow by the state of Delaware every single month. You don't know how big Delaware is? It's 1.2 million acres. But we're now about the size of the state of Indiana, all told.

And what we do is, we organize this incredible amount and richness of information on hundreds of thousands of fields. And it's everything from the soil types and soil chemistries to the genetic information, the chemical and fertilizer applications, the weather, everything you can possibly know about that field, and then we network it. We do correlative analysis within the field, and then do network analysis. We've got 170,000 fields that feed in data live from cloud systems or from what are called precision ag monitors. And that information is enormously powerful for farms.

So we've developed this system that allows farmers to crowdsource this genetic performance of seed. There could be hundreds of types of seed on the market in a major crop like corn or soybeans. Farmer has to precisely match those seeds to their soil types. Our system learns from—allows farmers to teach each other, share information, it crowdsources it, and uses machine learning to identify the highest performing genetics for each unique field combination of soil types, weather, and terrain. And, actually, that farmer's performance. And we found that can lead to yield gains of up to 10 percent when you build a dense data network.

It also helps you uncover very fundamental things that are not possible to study without a very large trial system. Basically, we're turning the entire world into an experiment. So this is GMOs. Do GMO pay? Do traits actually pay off or the farm? Traits cost about 30 percent more or 50 percent more per bag for a farmer to buy those traited seeds. On average, they yield only three bushels more. So just a little over 1 percent more on an average basis, 1 to 2 percent. So very questionable, and for most farmers, as to their actual payoff.

It also lets you unlock industry practices. Things that have been hidden from farmers that they haven't been able to uncover. This is the practice of what's called seed relabeling. You've experienced this in the form of buying Tylenol or Walenol at Walgreens. It's both acetaminophen, but it's assumed in seed that's not the case. Seed is a \$12 billion industry in North America. We found that 40 percent of the seeds on the market are actually similar products. They're matching products being sold by up to 12 companies, including by most of the major multinational agrichemical companies. Farmers were completely in the dark about this. It could be costing a farmer \$30 to \$40 an acre, the difference between two brands, which is \$30,000 to \$40,000 for an average corn or soybean farmer. That's a lot of money when you're not making any money.

You also uncover very basic price transparency gaps. It's not a well-functioning market. We find farmers paying huge differences in fundamental products that they need to actually raise the crop. These are farm chemicals and seed. You can find farms paying two, three times as much as each other because they're not open, competitive markets with transparent pricing in ecommerce.

So what we did is, we created an ecommerce platform that allows one price around the country. Any farm can get it. We've saved a farm \$120,000 last year. This year, we saved a farm \$185,000. That's enough to put many kids through college or buy a home in a lot of parts of rural America.

But you can do much more than that. You can do much more than just supply the farm and give information. Now we can build an actual supply chain. So food companies we're starting to work with, some of the names on Zoe's slides about milk substitutes and alternative crops like yellow pea. Those companies can now source directly to the farm. So everyone's probably familiar with some of the jokes from the TV show *Portlandia*. If you remember, there is a local episode where they're arguing over the chicken and the chicken's pedigree. Okay, you can now do that with corn and yellow pea. These were previously commodities. It's not a commodity until it gets merged at the grain elevator.

And so what we do is, we allow farmers to take advantage of what's unique about their fields and then get paid for their attributes, where those are environmental attributes, practice attributes, and work directly with a food company so a food company can show you where their food came from.

And that's what we call the digital farm economy. It's pulling all those pieces together. It's a system that's connected. It's a system that's enabled by data and information and allows new products to reach the market where they couldn't because of the channel control the industry has had. So we're actually commercializing the first gene-edited soybean crop. This is the first gene-edited crop being deployed at broad scales. Being deployed through the FBN network and with dozens of our growers with a company called Calyxt.

So with that, that's our vision of the future and it's very broad. So thank you.