

This Tech Makes Sure One Apple Doesn't Spoil the Bunch

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A few weeks ago, Gimlet Media's renowned podcast "The Pitch" — dubbed the best business podcast on startup life by Fortune — hosted its first-ever [live show on the road](#) on the Wharton School's campus. Three Philadelphia startups led by young entrepreneurs pitched their businesses in front of two well-known venture capitalists, and audience members got to see what goes into VC funding. You can listen to the latest episode of "The Pitch" featuring the "Philadelphia Pitch-off" event [here](#).

The winner of the Wharton "Pitch-off" was Strella Biotechnology, a startup founded by Katherine Sizov, a senior studying biology and engineering entrepreneurship at Penn. Strella biotech is tackling the problem of fruit spoilage (particularly apples) during storage, which is a big challenge for fruit packers. A typical packing facility contains hundreds of storage rooms, and inside each storage room are millions of apples. The packer doesn't have any data about where his ripest produce is. Strella designs and produces biosensors that are installed in these storage rooms that monitor apples as they ripen. This is coupled with a user interface that allows the packer to always know where their under-ripe, maturing and ready produce is.

KWHS interviewer Emmie Stratakis recently sat down with Sizov to find out more about her business and her life as an entrepreneurial biologist.

An edited transcript appears below.

Knowledge@Wharton High School: Hi, everyone. We're back today with Katherine Sizov, who recently competed in the Wharton School among two other entrepreneurs on November 27th for a live episode of "The Pitch." And her company, Strella Biotech, actually won. Congratulations on winning "The Pitch," Katherine! How was that experience for you?

Katherine Sizov: Thank you so much. It was extremely exciting. I've never pitched in front of so many different people before. Typically when I pitch, it's just a couple of judges and me in a room together, so that was extremely exciting. I'm also really grateful for the opportunity that it provided me, because now I'm in talks with some of the judges in regards to a future investment opportunity. And I also got a ton of exposure, because "The Pitch" is so well-known.

KWHS: Could you help us understand a little bit more about Strella Biotech and your business model?

Sizov: Sure. So, we work to optimize the food supply chain, via technology. More specifically, we make biosensing platforms that can predict the ripeness of fruits. And we use this to allow packers and distributors to know which fruit to send down the supply chain first.

So briefly, the way the technology works is, if you've ever put an unripe banana next to a ripe one, you've probably

noticed that the unripe banana ripens a lot faster than if it was by itself. And that's because fruits communicate with each other, and specifically, their ripeness, to other fruits, using this particular gas called ethylene. And so we measure this gas in our sensor. And we actually use the exact mechanism in fruits to sense this gas. And so as a result, what we're doing is, we're kind of hacking a fruit for our technology.

“An apple is typically stored for eight months to a year and a half before it ever hits the grocery store.” —
Katherine Sizov

KWHS: That's super-cool. How did you get inspired to get into the area of food waste? And why apples?

Sizov: Actually, I didn't have much knowledge prior to starting this company, in terms of ag [agriculture]. I've always worked in biomedical labs. But in the summer, I read a paper about how 40% of all fresh produce is wasted before it's consumed. And I thought, “That's a ridiculous number,” and we can definitely work to optimize it. And so I decided, “Why not use my knowledge to develop a technology and solve that problem?”

And the reason that I chose apples is because everyone eats apples. It's such a big market in the United States. And apples actually are stored for a really, really long time. So an apple is typically stored for eight months to a year and a half before it ever hits the grocery store. So, there's obviously a lot of food waste that goes into storing a fruit for that long.

KWHS: Could you speak to the combination of bio and business? How did you choose to major in bio, and do engineering entrepreneurship as well? Was it challenging for you?

Sizov: I think those two are a great combination, because typically when you're a biology major or a science major, you have two options. The first one is to go into the academic field, the academic realm, work at a university or a publicly funded lab. Or the alternative is to work in industry, developing drugs or pharmaceuticals for a really large company.

So as a result, I thought, “Well, I don't really want to do either of those. So I'm going to start my own thing, and go from there. And definitely engineering entrepreneurship has really helped with that aspect.”

KWHS: What would you like others, particularly students in high school, to know about this path?

Sizov: It's a little scary, but you get total freedom. So if there's something that you're really passionate about, you can go out, do it yourself, and not necessarily follow anybody else's rules.

KWHS: Katherine, what's in the future for Stella Biotech?

Sizov: In the future, I hope to bring more exposure to the field of agriculture. I think it's a huge field, and as the population grows, there's a lot of issues that are popping up that need to be solved. And it's something that people don't typically think of, even though we eat food every day. I definitely want to continue working in this field and continue to develop new technologies and solutions for the future.

KWHS: Thank you so, so much, for joining us today.

Sizov: Thank you.