

Visions of a modern industrial cheeseburger

By: Laura Rance

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When Hannah Tucker is trying to put the transformations unfolding in the food sector into perspective for audiences, she boils it down to a tale of three cheeseburgers.

The U.K.-based consultant spoke at a recent City Age webinar on the Future of Food. Her company, Balance Point Ventures, explores how technological advancements are disrupting existing economic models, giving rise to a new food economy.

Spoiler alert: the food system she envisages emerging for tomorrow bears little resemblance to the one we know today.

Back to the cheeseburgers. The status quo or "industrial cheeseburger," produced from beef finished in feedlots, transported long distances to slaughter, processing and then distribution to retail and food-service customers, is the product of an economic model that emerged 150 years ago along with the development of the combustion engine.

"It's no surprise that the industrial cheeseburger is no longer sustainable and it is no longer competitive," Tucker said. "For the same reasons that the industrial economy as a whole is challenged."

The value chain is resource-heavy, commodified, and reliant on a narrow definition of profitability, sourcing raw ingredients from "a select number of domesticated organisms raised in monoculture fields and facilities," she notes.

Tucker said new technologies in computing, data management and storage, robotics, and genomics have become more mainstream and their cost has declined to where they are collectively destabilizing the industrial economy.

That brings us to our second cheeseburger: the "modern indoor cheeseburger."

Data analytics and computing power are creating the opportunity to precisely tap into cells and molecules to make new foods, she said.

That's the science behind the meatless burgers sold by companies such as Beyond Meat. The company used data analytics to identify all of the molecular components that made beef into beef.

"What it did next was scour the plant kingdom to find to find comparable molecules it could use to replicate this," she said. "It now runs this molecular mixture through precision extruders to replicate the textures desired."

Similar approaches are being used to create meat and dairy products from yeasts. Another manifestation of the manufactured burger is the meat produced from stem cells. Precision fermentation has lowered the previously prohibitive cost of the growth culture without compromising quality. "This is converging with other developments like 3-D printing to enable commercially competitive stem cell meats."

Tucker said vertical indoor farming such as the 'Plantopia' system pioneered by the Ohio-based 80-Acre Farms uses data analytics, robotics and computer software to produce pesticide-free greens indoors, using a fraction of the space and resources of traditional salad green producers.

"So far, compared to the industrial model it yields 300 times more, uses 90 per cent less land, 97 per cent less water, (and is) 100 per cent renewable. It gets to market in one, not 14, days and cuts out food miles," she said.

That leads to her third example the "modern outdoor cheeseburger," the one produced by farming systems that she described as "the previously imperceptible interconnectivity of the biosphere," otherwise known as regenerative agriculture.

"In this model each organism generates multiple sources of value, not just food," Tucker said, noting it scores highly on environmental and health benefits. "Take the cow, not only is this a source of nutrient-rich beef and dairy but the cow also stomps carbon back into the soil and provides fertilizer. It helps keep up the soil microbiome."

She stresses that it's not about picking one or the other; indoor and outdoor models are complementary. However, unless there are changes to farm policies and market structure, both of which are built around the industrial economic models, speakers at this webinar warned Canada could be left eating its competitors' dust.

Laura Rance is vice-president of Content for Glacier FarmMedia. She can be reached at lrance@farmmedia.com

Laura Rance

Columnist

Laura Rance is editorial director at Farm Business Communications.

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