

The California Sunday Magazine



**After two decades of research
and development, WA 38 lands
this fall. It could disrupt an
entire industry.**



It's an apple.



JULY 18, 2019

THE LAUNCH

By Brooke Jarvis

Photographs by Aysia Stieb

On a hot morning in Bloom, a time period that those who don't work with tree fruit might call early May, the subject of this profile was in the midst of a busy couple of weeks, bursting into fuzzy green being somewhere on the order of tens of millions of times over.

The leap from flower to fruit is a subtle one: By the time the bees have stopped by and the corolla of petals and pollen has dropped away, the ovary beneath the flower begins to swell into appledom. Bloom wore on, and the long rows of trees that march endlessly across the hillsides and river valleys of central Washington slowly lost their blanket of blossoms. The great hope of the state's apple industry was born, and born, and born.

In this particular orchard, high above a bend in the Columbia River, the baby apples owed their place in the sun to Scott McDougall, the fourth generation of his family to grow the fruit for market near Wenatchee, a town built right where the buck and roll of the Cascade Range give way to the arid central Washington steppe that, thanks to heavy irrigation, has become the nation's most productive apple-growing region. When he started his own company in 1976, Scott was the Son part of McDougall & Sons; nowadays, he is the McDougall, and the company is a large, vertically integrated grower-packer-shipper. In those early days, the company, just like almost everybody else in Washington, primarily produced Red Delicious apples, plus a few Golden and Grannies — familiar workhorse varieties that anybody was allowed to grow. Back then, the state apple commission advertised its wares

with a poster of a stoplight: one apple each in red, green, and yellow. Today, across more than 4,000 acres of McDougall apple trees, you won't find a single Red; every year, you'll also find fewer acres of the apples that McDougall calls "core varieties," the more modern open-access standards such as Gala and Fuji. Instead, McDougall is betting on what he calls "value-added apples": Ambrosias, whose rights he licensed from a Canadian company; Envy, Jazz, and Pacific Rose, whose intellectual properties are owned by the New Zealand giant Enzafruit; and a brand-new variety, commercially available for the first time this year and available only to Washington-state growers: the Cosmic Crisp.

Like Clark Kent or the Scarlet Pimpernel, the apple has two identities. One is its biological self, which currently exists in the form of a mother tree on the edge of a weedy orchard by the Columbia River — you wouldn't give it a second glance as an ornamental in front of a newish McMansion — and millions and millions of that tree's perfect clones, lined up acre after acre like spindly little factories. These trees are protected under a patent as WA 38, and that is what people on the breeding and growing side of things tend to call both them and their fruit. But the rest of us will know the apple by its other, more public identity, a name that I am supposed to write with a TM after it. You might, like I did, think this distinction to be basically academic, but you would begin to learn otherwise when the first person told you that she is able to answer only WA 38 questions, and not Cosmic Crisp ones.

The Cosmic Crisp is debuting on grocery stores after this fall's harvest, and in the nervous lead-up to the launch, everyone from nursery operators to marketers wanted me to understand the crazy scope of the thing: the scale of the plantings, the speed with which mountains of commercially untested fruit would be arriving on the market, the size of the capital risk. People kept saying things like "unprecedented," "on steroids," "off the friggin' charts," and "the largest launch of a single produce item in American history."

McDougall took me to the highest part of his orchard, where we could look down at all its hundreds of very expensively trellised and irrigated acres (he estimated the costs to plant each individual acre at \$60,000 to \$65,000, plus

another \$12,000 in operating costs each year), their neat, thin lines of trees like the stitching over so many quilt squares. “If you’re a farmer, you’re a riverboat gambler anyway,” McDougall said. “But Cosmic Crisp — woo!” I thought of the warning of one former fruit-industry journalist that, with so much on the line, the enormous launch would have to go flawlessly: “It’s gotta be like the new iPhone.”



The Cosmic Crisp (*right*) is the result of crossbreeding two varieties: the Honeycrisp (*left*), which grows fine but which gives the Cosmic Crisp its texture and juiciness, and Enterprise, a late-ripening, long-storing apple.

BRUCE BARRITT, the human father of the Cosmic Crisp, doesn’t remember the moment he first tried one. The apple came from one of perhaps a hundred trees that he had selected for further study from an annual cohort of some 10,000 crossbreeds, each and every one of them genetically unique. The lucky hundred distinguished themselves by their appearance and taste, and then were winnowed down based on how well their apples survived storage, how prone they were to bitter pit or browning, how well they produced when planted in a range of Washington microclimates. Picking a winning apple,

Barritt told me, is less about inspiration and more about the slow accumulation of data. “It’s from all that variability that we look for the needle in the haystack,” he said. “There’s no eureka moment.”

Barritt, then the head of the apple-breeding program at Washington State University, made the cross that led to Cosmic Crisp in 1997. (Because of how long it takes test trees to mature and produce fruit, 22 years from cross to launch is fairly quick when it comes to bringing a new product to market. “Biology is just a real problem here,” said Barritt.) Its parents were Enterprise, a robust, late-ripening, long-storing apple, and a relatively new player called Honeycrisp — much despised by growers, who found it finicky and frustrating, with at least a quarter of its fruit never making it into grocery stores. Still, the latter’s large cells gave it a texture, juicy and explosive, unlike any other apple on the market; before long, consumers’ demand, and the prices they were willing to pay, was so high that growers were planting the damn thing all over the place in spite of themselves — and also starting to think differently about apples in general. (McDougall called Honeycrisp “the 8-billion-pound gorilla in our industry.”) The experience of an apple is really five things, Barritt explained. Only two of them, sugar and acidity, are actually about flavor, and there’s a natural divide between people who like sweet and those who prefer tang. It’s the three measures of texture that unite us all: “Everyone likes crisp, everyone likes juicy, and nobody likes soft.”

Over years of testing, the new cross reliably produced round fruit with dark red skin, the color of wine. The Cosmic Crisp has flesh that’s creamy white, is so dense that the apple feels heavy in your hand, and has a flavor that is pleasant, a

bit more sweet than zing. Most important, it cleaves cleanly in your mouth — a crunch that lasts a long time in controlled-atmosphere storage, all the way around the calendar and into the next harvest season. From people in the industry, I heard the phrase “excellent eating experience” so often I began to

People kept saying things like “unprecedented,” “on steroids,” “off the friggin’ charts,” and “the largest launch of a single produce item in American history.”

imagine it in capital letters, with its own TM. When I enlisted some regular-world people to taste the apple, one crunched into an approximately seven-month-old specimen and said, with appreciation, “I can feel the structure of its insides.”

Like all apples, this one breathes oxygen through what the consumer might think of as spots or freckles, but which are really tiny pores in its skin, called lenticels. A similarly porous membrane exists between the natural and the branded product: WA 38’s lenticels look exceptionally bright against its inky skin, and this reminded someone in a focus group of the stars in the night sky, an observation that became trademarked as Cosmic Crisp. “It’s the first apple that’s ever been named by consumers,” said Kathryn Grandy, the marketing director for Proprietary Variety Management, the company overseeing the national launch of the Cosmic Crisp. The apple’s taglines, to be paired with images of starry skies, are Imagine the Possibilities and The Apple of Big Dreams. Launch activities include branding partnerships with a nationally touring children’s theater production of Johnny Appleseed and with a group of what Grandy assured me were important social media influencers, including someone called “The Produce Mom.” Actually shooting an apple into space has already been done as a marketing stunt for an apple called Autumn Glory, which is marketed, accurately, as tasting like cinnamon and caramel.

Though Washington State University owns the WA 38 patent, the breeding program has received funding from the apple industry, so it was agreed, over some objections by people who worried that quality would be diluted, that the variety should be universally and exclusively available to Washington growers. (Growers of Cosmic Crisp pay royalties both on every tree they buy and on every box they sell, money that will fund future breeding projects as well as the shared marketing campaign.) The apple tested so well that WSU, in collaboration with commercial nurseries, began producing apple saplings as fast as possible; the plan was to start with 300,000 trees, but growers requested 4 million, leading to a lottery for divvying up the first available trees. Within three years, the industry had sunk 13 million of them, plus more than half a billion dollars, into the ground. Proprietary Variety Management expects that

the number of Cosmic Crisp apples on the market will grow by millions of boxes every year, outpacing Pink Lady and Honeycrisp within about five years of its launch.

Not long ago, that would have been unthinkable. Barritt described the orchards of Washington when he first came to WSU in 1981: There were huge trees, planted far apart, growing almost exclusively Red and Golden Delicious — apples that, following 20th-century trends of mass marketing and standardization, became globally ubiquitous, the Platonic image of what an apple is. (Central Washington, with its hot, dry summers, doesn't have to worry about many forms of fungi and diseases that plague East Coast orchards, so the arrival of irrigation turned the region into the closest thing the country has to an apple factory, reliable at huge scales.) The highest-grade, most expensive apples were those that were the reddest and most uniform in size and shape. But as the industry increasingly bred for the appearance of perfection, the flesh of the apple beneath became more mushy and mealy.

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To Barritt, the growing methods were inefficient and the marketing plans short-sighted. He began suggesting that growers intensify their orchard systems, tearing out the big, old trees and replacing them with many smaller trees grafted onto the roots of dwarf varieties, a system that would be easier to pick and prune and more

productive per acre but would require expensive trellising. This change also helped speed the consolidation of the industry, as small-scale growers without deep pockets struggled to compete. Soon, the old orchards were transformed: Instead of a few hundred branching trees, a single acre held as many as 1,800 thin, elaborately pruned sticks and no longer looked very much like an orchard at all.

But Barritt's other suggestion — that the industry was depending too much on a single flagship apple, particularly one that was subpar in both texture and taste, and needed to start developing new varieties — was harder for most growers to hear. “They were still making money with Red Delicious,” explained Barritt. “They always said, ‘We grow Red Delicious because we grow Red Delicious better than anyone else’” — a deference to horticultural realities instead of marketing ones. (A few growers I spoke to told me about putting in small, experimental plots of Gala or Fuji in the 1980s and being treated like heretics — “Frankly, people thought I was crazy!”) “They were not thinking 20 years ahead,” said Barritt.

For years, the industry resisted Barritt's efforts to even start a breeding program. When he stood up at the annual meeting of the state horticultural association and announced that Red Delicious was an obsolete apple, the crowd booed.



1. According to one focus-group participant, the bright pores, called lenticels, resembled the night sky. 2. The skin is dark red, the color of wine. 3. The dense flesh cleaves cleanly in the mouth.

THREE DECADES LATER, as snow fell on their orchards in December 2018, the tree-fruit growers of Washington state assembled for another annual meeting. It was still a gathering full of work boots and baseball caps, but in

other ways, it was a different world. Other than jokes related to intra-Washington football rivalries, the quickest and most common way to get a laugh was at the expense of the industry's fallen king. ("And then there's Red Delicious. Need I say more?") Its 50-year reign as America's most-grown apple had officially come to an end that very harvest season. But though the industry was adapting, with fields of newer, market-tested apples going in every year, much of the old confidence was gone. Everything was different now, more uncertain. When a panel of growers took questions from the audience, I asked how they make decisions about which varieties they will grow. A man named Tye Fleming leaned into the microphone, deadpanned, "Dartboard," and leaned back again. Pressed by the rest of the panel, he added, "You have to go to the marketer. If they don't want it, you shouldn't put it in the ground."

There were a lot of items on the agenda, from an export-blocking trade war (the head of the U.S. Apple Association announced that the group was putting a pro-free trade apple ad "on the TV shows that the president says he watches") to the latest rootstocks and pruning methods and efforts to mechanize apples' intensive labor requirements, since immigration restrictions mean workers are in short supply. But the speakers at the opening plenary introduced a theme that ran through the next few days, especially whenever variety selection came up: a fear that apples, the nation's bestselling fruit, the most essential, most natural, most American food out there, were playing defense in the grocery store.

"I'm sure you've all seen the Halos that are everywhere," sighed Brian Focht, the manager of the Washington Apple Growers Marketing Association. And all those table grapes, from a bumper crop that brought retail prices down to 98 cents a pound? "Tough competition," said Focht, shaking his head. Mandarins and avocados, he added, are even "targeting apples negatively in their ads!" Meanwhile, Honeycrisp, whose premium cost has buoyed the industry, is now so widely grown that it's experiencing price deflation. "Retailers are looking for that new \$2.49, \$2.99, \$3.49 apple," said Focht. But when an audience member asked which varieties growers ought to be

investing in, Focht said, “I’d rather not get into that. We could be here for hours.”

The next speaker was Hailey Peyron, of Nielsen, the consumer-behavior tracking company. In a talk peppered with food puns (“‘Fresh’ as an industry buzzword is feeling a bit stale”; “Make your market potential the apple of your eye”), she described a perilous environment in which “center store” — the processed foods in boxes and bags and cans that line grocery shelves and which are increasingly labeled as natural and healthy and convenient, everything that an apple is and more — “is encroaching on our produce department!” At most risk were the fruits and vegetables that were sold loose from bins instead of in fixed-weight containers, that were not branded, that consumers could see as commodities: just a banana; or a boring, standard potato, not even wrapped in microwavable plastic; anything that felt more agriculture than product. The only way for apples to avoid this fate was to “reinvigorate the category” with new varieties, which could be branded and marketed and thereby redeemed in relevance. “In closing,” Peyron said, “I hope you’ve ingested these details.”

Everybody knew that the usurper of the Red Delicious throne, Gala, wouldn’t be on top forever. Gala spread widely because the New Zealanders who developed the apple had, following longstanding industry practice, released it to anyone who wanted to grow it. But when, suddenly, everyone did grow it, undercutting the price the original growers had once received, “the New Zealanders said, well, this is ridiculous,” Desmond O’Rourke, a marketing economist, explained to me later. Since then, he said, as breeders jockey for premium positions, apples have tended to follow what he calls the “Jazz model,” after one of the next big New Zealand apples to come on the market.

As breeders jockey for premium positions, apples have names that tend to sound less like the farmer down the street: Rave and SnapDragon, Ludacrisp and Frostbite, KIKU and Pazazz, Juici and Envy.

Like Jazz, the latest apples have names that tend to sound less like the farmer down the street: Rave and SnapDragon, Ludacrisp and Frostbite, KIKU and Pazazz, Juici and Envy. They occupy a world of trademarks and proprietary varieties, heavily branded products whose market scarcity and intellectual property are carefully controlled by management companies and growers clubs and international consortiums, and which often have to be licensed at significant costs. (In fact, the first branded apple wasn't Jazz but Pink Lady, an Australian variety that has become, according to Grandy, "probably the most branded piece of produce in the world," as well as an exemplar of the grand confusion of it all. Pink Lady is a trademark name for the variety whose generic version is called Cripps Pink. The Cripps Pink patent has expired, which means that anybody can grow it, but "Pink Lady" is still trademarked, which means it's illegal for farmers without a license to sell their Cripps Pinks as Pink Ladies; they must use the generic name. However, if you go to the store and buy a Pink Lady, it may not actually be that variety at all, since the management company in charge of the trademark — which happens to be overseeing the launch of the Cosmic Crisp — has allowed it to be applied to newer varieties that color better or harvest sooner. Your legal Pink Lady may, biologically, be a Barnsby or a Ruby Pink.)

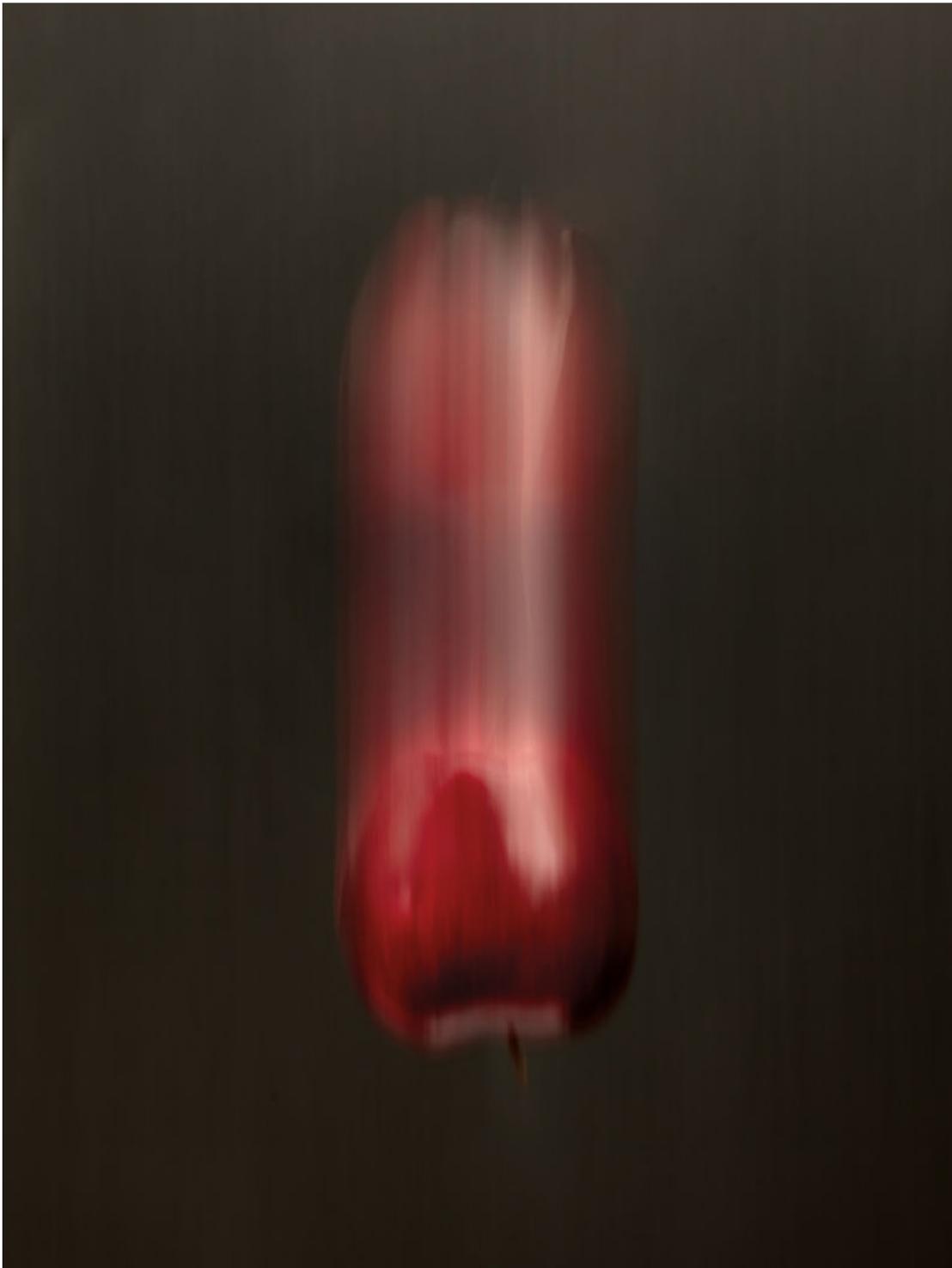
About an hour outside Wenatchee, a man named Dale Goldy, who was once in charge of scouting new varieties for the apple giant Stemilt, gave me a tour of his nursery: thousands of young trees growing in long, straight lines; stacks of new saplings waiting in the dark, frigid warehouse where he keeps three-quarters of a million mostly custom-ordered young trees of various kinds. Some were labeled with their variety and rootstock, but others were identified only in code. "So when people like you walk through the tree storage, you don't know what you're looking at!" laughed Goldy. It was a scary, competitive world out there, he explained: "We can't relax for a second. If we don't have something new to offer and create customer excitement, we'll be run over by the other stuff."

That was the simple explanation for why growers were going so nuts for Cosmic Crisp, which, because of the WSU partnership, is the rare big-brand

apple that's available to any Washington grower, even the remaining small-scale ones trying to stay relevant and make a profit despite not having their own marketing departments or packing houses or the ability to mechanize their orchards (these days, I heard frequently, the industry's watchword is "replacing labor with capital"). "There was high demand for new varieties, and this was one everybody could participate in," said Goldy.

One of the growers I met was a shy, fourth-generation Washington farmer named Conor Kilian, who grew up in a primarily juice-grape family. He was just 14 when he and his siblings pooled their money to plant some Honeycrisp and 19 when he was drawn in the Cosmic Crisp lottery. "Somebody told me you want to be on the cutting edge," he said — not too far ahead and not too far behind. "Cosmic was pretty hyped up fairly decently." He was putting in long days doing most of the manual labor himself and was extremely eager to finally sell some apples to the packing company he's contracting with so that he could start making some of his money back.

"I'm glad I got drawn," he said. There was a long pause. "I hope!" When I mentioned his 6-acre investment to an employee of one of the big vertically integrated companies, which keeps ten different packing warehouses busy year-round, she replied, "Aw!"



For decades, orchards in Washington were almost exclusively growing Red Delicious apples, which became nationally ubiquitous. Today, some apple growers have abandoned it altogether in favor of newer brands.

THE APPLE-BREEDING program at WSU is one of only three public programs in the U.S. It's also the youngest. Before Cosmic Crisp, it had commercially released only one other apple, known as WA 2. A cross between Gala and

Splendour, it doesn't have the extreme crunch of Cosmic Crisp, but it's a tasty apple. (Many of the apple people I interviewed would only tell me their personal favorite varieties if we went off the record, so I'll just say that WA 2 has fans.) But when it was released, it flopped for a simple reason: It had only one identity to work with.

Though some people pushed for WA 2 to be named and branded, others wanted to keep control of their own marketing and to release the apple the old way, letting it succeed on its own merits. "Growers like to sell the steak, not the sizzle," explained Jon DeVaney, president of the Washington State Tree Fruit Association. WA 2 was launched, if you could really call it a launch, as a nameless apple. But how do you sell something without a name? A company called Apple King grew WA 2 and sold it as Crimson Delight; later, when WA 2 was officially re-released and re-branded as Sunrise Magic, Apple King sued.

I asked Barritt what he saw as the lessons of the WA 2 debacle. "That the era of just making things and letting them go was over," he said. "That's not the way the world is anymore."

Cosmic Crisp is being launched not just with a name and a \$10.5 million marketing budget, but with a detailed database that will track apple production down to the orchard. Packers, for the first time, will leave their own logos off the boxes to further the primacy of the overall Cosmic Crisp brand. And as aware as Cosmic Crisp's promoters are about the risk that accompanies the massive scale of the launch — all that fruit that might not be sold — they also know that it could be an important advantage. One of the hardest parts of building a brand for a natural product, many people told me, is the natural part: things like seasonality of supply. Even though apples store well, premium, smaller-volume varieties struggle to achieve year-round availability, and how do you effectively market a product that isn't on the shelf every time a shopper returns to look for it? "We call it critical mass," said Grandy: The Cosmic Crisp goal is to grow enough fruit to create the impression that the apple is as reliable and consistent a product as a granola bar.

Produce not conforming to what the market requires is a long-standing problem. Amazing pear varieties — I'm looking at you, Comice, but Anjou also

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suffers — go unappreciated because people don’t know they’re supposed to wait until a pear is ripe, or they wait too long, expecting a green variety to turn yellow. (The pear industry is doing

active outreach, trying to teach consumers how to eat pears.) The need for year-round product placement creates a stumbling block for fruits that don’t store as well as apples. If you buy red cherries all summer long, for example, you might actually be purchasing a dozen or more different varieties that ripen at different times, but they’ll all be labeled as Dark Sweets — it’s not considered worthwhile to try to educate consumers about so many varieties that are available so briefly. Strawberries, too, cycle invisibly through a range of varieties. In an effort to achieve consistent, year-round availability, and the branding potential that results from transcending biological constraints, the U.S. strawberry industry has been diversifying into growing regions around the world.

At the Washington Apple Commission, which markets Washington apples internationally, I met Toni Lynn Adams, who told me about a recent marketing campaign meant to educate consumers in Mexico about Galas: People weren’t buying them because they thought the apples, less red than the familiar Red Delicious, were unripe. Red Delicious is still by far the bestseller in international markets, but Adams was excited to talk about Cosmic Crisp, which they will begin marketing in Canada next season. “Growers believe in this apple,” she said. “They know it’s going to be the next big thing.” Next Big Thing also happens to be the name of the cooperative of growers that markets a popular proprietary variety called SweeTango. In 2014, the group’s president told Minnesota Public Radio that the apple industry of the future “is going to be a world of managed brands, just like the soup aisle or the potato chip aisle or any other aisle.”

People in the apple industry are worried, understandably, that the ballooning variety will create consumer confusion, not to mention overwhelm

the amount of shelf space that supermarkets are willing to devote to a single fruit, especially at a time when they're expected to stock kiwis and Ruby Red grapefruits and mangoes and Romanesco cauliflower and so many other once-novel items. But everyone's also worried about being left out, or left, as one grower put it, "stuck growing an Imperial Gala" — even within a variety, there are variations that come and go from fashion — "or a Red Delicious."

"People always ask me which apple is the new Red Delicious?" DeVaney told the crowd at the annual meeting. The question strikes him as a complete misunderstanding of where the produce department is headed. "I always say, 'Which car is the new Model T?'"



The Cosmic Crisp (*right*) among the old guard. From left: Honeycrisp, Gala, Cripps Pink, Red Delicious, and Granny Smith

IN THE 1904 EDITION of the U.S. Department of Agriculture's yearbook, in a section titled "Consumers' Fancies," a statistician named George K. Holmes lamented again and again the confused way that urban shoppers, increasingly alienated from the actual production of food, tended to evaluate their

purchases. Why did they pay so much less attention to taste and quality than they did, say, to butter's texture, or to how conveniently a nut's shell cracks, or to what a cut of meat is called? Apples merited a particularly long complaint. What a tragedy that "this 'king of fruits'" should be judged by the foolish whims of a consumer who mistakenly prefers a fruit both red and shiny, even if that simply means it's been overbred and recently spit-shined by the streetside apple seller: "One of the weaknesses of consumers is an admiration for foods that are polished or have a gloss, and this nickel-plate fancy plays some queer pranks with foods."

Holmes went on: "The common notion that, apart from the necessity of consuming food to sustain life, taste gratifications constitute the principal attractions that food offers, proves upon analysis and introspection to be poorly founded." Consumer choices "are becoming questions of art and psychology ... fancies which need not be and often are not either sensible or reasonable."

One wonders what he would think of today's grocery stores. "Food has become such a dream world, really," O'Rourke, the marketing economist, told me recently. He was ruminating on so-called superfoods and on the way food marketing tends to focus on "extrinsic qualities" — a brand, a logo, a story — more than the food itself. We want what we eat to save our lives; to reflect our worldliness, the uniqueness of our identities; to fulfill our desire for the new and interesting. One result is that some of the most staple of staples — things like bread or milk or apples — are having a hard time competing. Though DeVaney laughed that people will balk at a \$5 price on a 10-pound bag of potatoes, but not on a pint of specialty ice cream, he knew which side of the divide he wanted apples to be on. "We really don't want consumers buying their food the way they buy gasoline: assuming that everything is identical and they're just buying on price," he told me. "Apples need to offer the same kind of novelty within the apple category as consumers can get when they buy..." he trailed off, thinking. "Dragon fruit!"

Barritt's successor in the apple-breeding program is a woman named Kate Evans. Every fall, she makes weekly trips to the experimental orchard, walking

through the latest rows of ripening trees in hopes of finding the next star apple. One of her grad students told me that, by necessity, these visits are less a countryside amble than a power-walking mission to make it through 10,000 possible varieties. Only the apples that happen to catch the eye even get tasted. (Evans told me that it would be nice if whatever apple she brings out next looks substantially different from the Cosmic Crisp to keep from confusing the market.) Most of those, unimpressive or genuinely bad, are spit out and quickly forgotten. The select few get put through the paces, with tests of their starch, quality, and storability.

I asked Evans, as I would later ask Barritt and the grad student, whether it is at all melancholy to move on from all the biological potential that gets rejected every year — whether it feels sad to consign all those unique varieties to the compost heap of history. They all politely made clear that this was the sort of romantic but deeply dumb question that only an industry neophyte would ask. There are already so many apples, so much competition, so many varieties beloved by their growers that never managed to excite the consumer. “It’s a numbers game, right?” said the student. “No, you don’t get sad.” ☞

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