INTRODUCTION

Why Grow Cotton, Anyway?
Culture and Economy

It was a cheerful occasion, a celebration even. Cotton grower Moss Perrow and his fellow board directors were getting their first look at Cotton Incorporated’s new headquarters and laboratory in Cary, North Carolina. The new building was, without doubt, the world’s premier facility for cotton research. It had been “brought in,” board chairman Hugh Summerville reported happily, “on time and on budget.” Preston Sasser, head of research and development, was in charge of the building project, and he purred over the $20 million edifice – the Bell Labs, so to speak, of cotton. As the morning moved on, shouts of greeting and backslapping among sons of the soil punctuated upbeat presentations about what the various laboratories were working on. The weather was chilly, and the first of several ribbon cuttings was scheduled outdoors under the white-columned front portico, reminiscent (belying the high-tech gear inside) of an old southern veranda. It felt good – a big day for cotton. Perrow was impressed, but his mind was on work. “Well,” he was overheard to say as he prepared to go home to South Carolina, “all we’ve got to do now is make a crop.”

No easy business, making a crop. Selling it was even harder. Two months later, in April 2000, Keith Collins (chief economist for the U.S. Department of Agriculture) came to the same place to explain just how hard it would be. Addressing the thirteenth annual Engineered Fiber Selection (EFS) Conference of Cotton Incorporated, he delivered a sobering message. The textile industry representatives and cotton growers in attendance already knew that U.S. farm prices across the board had been falling steadily since posting record highs in 1996. High yields worldwide had met with severe recessions, first in East Asia starting in 1998 and then in Latin America in 1999. Demand was shrinking in relation to supply. The only thing that had prevented a full-fledged “farm crisis” in the United States were federal
Footprint of Cotton Incorporated’s research facility in Cary, North Carolina, opened 2000. The building brought all aspects of cotton fiber research under one roof, a concept first perfected by the manufacturers of synthetic textile fibers, who remain cotton’s fierce competitors.
INTRODUCTION

emergency support programs, some $27 billion in aid, aimed at preserving a survivable minimum of farm incomes. Farmers had protected themselves, to some degree, by avoiding debt and finding ways to generate off-farm income. Land values were also rising in a strong economy, but unless one sold off, it was only paper. One might have thought there was nothing unusual about any of this, from a historical perspective. This, too, would pass.

But longer-term threats were looming that might have dire consequences for cotton producers. The largest exporter of cotton in the world, the United States had produced its smallest crop in four years. (On the financial side, cotton growers’ gross receipts came in at $4.1 billion, the lowest in ten years, although $2.6 billion of federal payments kept farm incomes up.) To make matters worse, U.S. textile mills took up only 10.1 million of the 17 million bales produced.

It was not that there was anything drastically wrong with consumer demand for cotton. The U.S. consumer preference for cotton had risen dramatically over the past generation and remained at least steady.¹ And world cotton consumption was rebounding to a high of over 90 million bales in 2000, a spike in demand driven by recovering world economies and the lowest cotton prices in fifteen years. But “cut-throat competition” from abroad was driving the U.S. textile business to distraction. Still, farmers could always export, and did so increasingly.² Yet the world market was not waiting expectantly on shipments of American fiber. Countries in Central and South Asia were already well established as major producers, and now China was on track to become a strong net exporter of cotton. Collins described China’s transformation (beginning in the spring of 1998) from net importer to net exporter of cotton as “probably the single most important factor” explaining the continuing decline in prices.³

Surveying the 2000 crop season, Collins — typical two-armed economist that he was — painted a curious and contradictory scenario. On the

¹ Keith Collins to Cotton Incorporated EFS meeting, April 2000. In 1980, per-capita retail use of cotton was 15 pounds; in 1990, 24 pounds; in 2000, a record 34.5 pounds. This generated a total U.S. retail consumption of 20.5 million bale-equivalents. Domestic mill use of cotton was falling, and domestic cotton textile production was being supplanted by rising cotton textile imports. Imports in 2000 totaled 15 million bale-equivalents, double the level of ten years earlier; this versus U.S. textile exports of 4.5 million bale-equivalents.
² Ibid. U.S. raw cotton exports rebounded after a thirteen-year low of 4.3 million bales in 1998 to 6.5 million bales.
³ Ibid. Adding exports and domestic mill use produced a total demand for U.S. cotton of 16.6 million bales. But that was still less than the size of the 1999 crop and resulted in a substantial carryover, which also helped explain continuing low prices.
COTTON’S RENAISSANCE

On one hand, a market was taking shape in which foreign stocks would fall and world prices would increase modestly. On the other hand, U.S. stocks would rise and prices would likely fall. He expected American cotton growers to plant 15.6 million acres of cotton of all kinds, their second-highest acreage in forty years, yet with the lowest prices in twenty-five years. With normal weather, that would amount to some 19 million bales; although with more production one hoped for more demand, the demand picture remained “somewhat mixed.” Domestically, a robust economy was expected to keep retail cotton textile consumption high. But when one factored in the effect of textile imports on domestic mill demand and then calculated likely raw cotton exports, U.S. growers would still not find enough markets for all their cotton. Cotton growers in the audience could therefore look forward to another decline in their net incomes, unless government programs picked up the slack. To make matters worse, higher interest rates and notably higher oil prices were predicted, which would raise the cost of producing cotton by about 2 cents per pound.

Almost out of breath, or so it seemed to his audience, Collins summed up “extraordinary developments” in the markets facing the cotton industry today: 25-year-low prices, high acreage, strong exports, high farm program spending and support, and the prospect of the world’s largest and most populous country (China) coming under the discipline of the World Trade Organization. “Enormous challenges” lay ahead, he said; “I can only wish you the best of luck.”

In the awkward moment between the chief economist’s “thank you” and a smattering of polite applause, one could hear a pin drop. Those still addicted to the comforting old vice hurried outside for a smoke. Moss Perrow had already fled to South Carolina to make his crop. But why, one might well ask, would he even bother to grow cotton, anyway?

VALLEY

Few people outside the business know that there are several ways, and many places, to grow cotton in the United States. Ted Sheely farms 6,600 acres in the central San Joaquin Valley of California near the town of Lemoore, between Fresno and Bakersfield. It is a medium-sized operation, irrigated, diversified, and employing 25 people year-round, which spikes up to 200 during vegetable harvest. Virtually all hands are Hispanic. Sheely runs it with minimal management structure; besides himself, there are one general
INTRODUCTION

foreman and two sub-foremen. He oversees his operations from a farm office converted from the same double-wide mobile home where he first brought his bride to live in 1974. During his 49 years, he has done every physical job there is to do on the farm, save for crop dusting (though he is a qualified pilot). On occasion, he still drives a tractor.4

Sheely drives the pick-up five miles from the office to his cotton field, signals the driver to come down from the big John Deere to take a break, and mounts the cab himself. He is dressed casually for the office, not the field, but in this particular cab he could wear his Sunday best without trepidation. He shuts the sealed door on the pressurized, air-conditioned interior and prepares to set off, back down the field. Enjoying a cigarette, the hired man lounges contentedly against the pick-up, one eye alert to see just how good the boss really is. It is a “listing” operation, which prepares the ground for next year’s crop. The tractor driver who can guide a big rig across the half-mile-long field in the straightest line is typically in high demand and difficult to keep. The best drivers have a steady touch and rely on the power of sight. Sheely has lost such men to contract outfits that can pay higher wages for specialized skills. It is a weak point in the system, a problem that long begged for a technical solution.

This is the vast central valley of California, the flattest of agricultural landscapes, where it does not rain in the summer and where the commonest sight is of big tractors working immense fields, often shrouded in dust clouds of their own making. Responding to a comment that the air-conditioning must make a huge difference in driver comfort in this dusty, dirty operation, Sheely responds: “Of course, but this is what it’s really for.” He points to a purple and orange plastic box in the corner of the cab, labeled “Beeline Navigator,” taps “Automatic” on the touch screen in front of him, engages the transmission, and commences his journey down the row. He does not touch the steering wheel.

As the rig rumbles down the field at precisely 6.5 miles per hour, Sheely peers out the back window (not the front) and explains that, under the relentless cost pressures of today’s farming, it is essential to use human talent wisely and let technology do the rest. Beeline is a global positioning satellite (GPS) guidance control system, developed in Australia, that mechanizes machinery guidance in ground tillage and application operations. It eliminates conventional implement markers and permits the tractor to know its

John Deere caterpillar-tread tractor equipped with global positioning guidance system, San Joaquin Valley, California. The driver looks backward to monitor the listing (land preparation) operation; the satellite/computer watch ahead, through dust clouds and darkness.

position to an accuracy of ±2 centimeters, “so even a hack tractor driver like myself,” Sheely jokes, “can make it look pretty good.”

How it looks relates to what it costs. Operating directly off satellites, the system is impervious to darkness, dust, and fog. Critical operations can be performed at night. This can potentially halve the time of those operations or double the acres covered in the same time. It also enables one to reduce capital investment in machinery. Sheely’s John Deere cost $200,000 and the Beeline computer attachment $50,000, making for a quarter-million-dollar piece of equipment. “But the thing was, after you analyze it, and it didn’t take much analysis,” says Sheely, “that this tractor without the GPS technology worked only about 40 percent of the time because of fog and darkness. So I bought a ‘second’ tractor for $50,000. Good deal.” The John Deere is back at the pick-up, and the hired hand again takes over. The man had felt threatened at first by the new gadgetry, Sheely admits. But he still has his job, although the skills once focused merely on steering can now be transferred to monitoring the actual tasks being performed. Sheely figures the hand has become more valuable, not less.
INTRODUCTION

Ted Sheely believes in technology and is an optimist. He is also careful and diversifies. In addition to top-quality Acala upland cotton, he raises lond staple American Pima cotton and a variety of vegetables. Thirty percent of his acreage is in tomatoes, and then there is garlic, garbanzo beans, and pistachio trees. Growing just vegetables, he admits, probably would be more rewarding than staying in cotton, but he cannot afford the risk – an untimely freeze could put him out of business. In business on his own, he evaluates risk carefully to make sure he is still in business next year. In the San Joaquin, the risk and reward of farming relate inevitably to water.

Because it rains little, water is Sheely’s most critical resource. It shapes choices about what to plant and ultimately will decide the future of agriculture in the Valley. It was arrival of water from the north via the California aqueduct in the late 1960s that changed the face of this land and greatly increased its value. The price of water, too, has gone only up. When he started farming in the mid-1970s, he could count on the aqueduct meeting 100 percent of his needs, except in time of natural drought. His contract with the government today provides just 50 percent reliability, although he still grows 100 percent of the crops and must rely on pumping ground water to make up the difference, which is not a good long-term option. “These days, we suffer more of the regulatory droughts, created by environmentalism, than the natural droughts.” This makes garbanzos attractive because they are a winter crop that needs no water during the summer, when it is essential to conserve a limited supply of groundwater for tomatoes and cotton. Laying out crop maps for the year ahead, Sheely weighs his plans against anticipated water and financial resources. “I need to make sure of having enough water and schedule our activities so we don’t end up overloading our lines of credit.”

Sheely grew up near Phoenix, Arizona, on a cotton farm still in the family after three generations. His father, Joe, was active in national cotton affairs before his death in a plane crash in 1979. An aerial photograph of the original Arizona holding hangs on the wall of Ted’s office in Lemoore, and he uses it to illustrate his anxiety about the future – wherever cotton, water, and growth collide. “We have this little highway, you see,” he says wryly. “It’s called Interstate 10, and it goes along one side of our property. And they’re building a new loop. Look.” He points to row after row of new residential developments: “The city has encroached right to where we are. And so you can see: it will go out of cotton farming in my generation.”

California has a population of some 30 million, over 90 percent of it classed as “urban.” It is the second largest producer of cotton (after Texas)
COTTON’S RENAISSANCE

in the United States and the largest producer of many fruits and vegetables. Yet most Californians, as Sheely puts it, think “their clothes come from K-Mart and Wal-Mart, Macy’s or Saks, and their groceries from Safeway.” Farmers have a big educational job ahead of them. Sheely spends a lot of time with teachers, promoting the state’s “Agriculture in the Classroom” program. His farm is pretty much an open book. “I have nothing to hide. I’ll speak to the pesticides issues or whatever they want to know.” He tries to explain how they, the consumer and the voter, dictate what he, the producer, does. Right now they are telling him they want, above all, high quality and low price, and this – “precision ag” (GPS-guided tractors), judicious use of insecticides, and aqueduct water, for example – is how they get it. Most visitors arrive laden with a lot of clichés about the wonders of “family farms” and the malevolence of “agribusiness” but without a clue about what a real cotton farm is like. They leave, Sheely hopes, somewhat better informed.

Sheely tries to educate politicians, too. He began, as is typical of cotton growers, at the local Farm Bureau, and eventually got involved with the National Cotton Council. He started going to Washington and learned to work the halls of Congress. “You need to be able to go up and knock on their door. I’ve always found that anybody who relies just on lobbyists is not nearly as successful as people who actually will go and look them in the eye and say, ‘I am your constituent, and this is important.’” Typically, he encounters politicians who are “firemen,” guided by no larger policy. But as the number of farmers – and thus the number of farm votes – declines, the ability to shape policy grows more problematic.

There needs to be some national strategy for agriculture that individual growers can work within, Sheely believes. He feels beset by regulation, high costs mandated from outside: farming in environmentally correct ways, as American growers must do, is expensive. Yet he must compete unprotected in world markets against countries less fastidious than the United States about environmental safety and where production costs are much lower. (Eighty percent of California’s cotton crop is exported.) Just how much more efficient is he expected to become? How much more cost can be squeezed out at the margins? How many more Beeline silver bullets will he be able to lay his hands on? How many more will he be able to afford? He will do what the market tells him, season to season, but he would like to know what the larger game is. Does the United States have an interest in “protecting” its basic industries, including production of food and fiber? If
INTRODUCTION

so, then what is the regime that will permit its producers to stay profitable? Technology will help, but technology in a policy vacuum can’t do it all.

Here in the San Joaquin Valley of California, on U.S. cotton’s last and richest frontier, a year-to-year cocktail of relentlessly escalating costs, low prices, and competition from both foreign growth and synthetic fibers threatens to leave even cotton’s largest, most efficient, and most technologically sophisticated growers with a nasty hangover. It is not a pleasant feeling, and it makes one think of alternatives. What else can be done with the assets at one’s command — land, water, entrepreneurial know-how — than raise cotton?

“I still optimistically look to the future of farming,” reflects Sheely. “I hope to see some relief in my lifetime, but I realize it will be challenging. I enjoy doing what I do and that’s one of the things I try to encourage in my kids.” He hopes one of them will choose (and be able) to follow him and keep the operation going. If not, then, “like in the case of my grandfather’s farm in Arizona, we’ll sell it and let them build houses on it.” He hesitates. Growth is inevitable, and what he sees in Phoenix, with the city built right up to their property line, is at least reasonably well planned. But in the long run? “I kind of think once you get down the road, you can’t take the houses off and start farming again.”

PLAINS

A thousand miles to the east, on the High Plains of West Texas near Lubbock in what is known as “the world’s biggest cotton patch,” urban encroachment wouldn’t seem to be a problem. Forty-nine-year-old grower Eddie Smith cruises the 3,000+ acre cotton operation that he farms with his father and son, in a big pick-up, under an immense and cloudless Texas sky.5 It is July, and he is inspecting the pumps that bring up water from the Ogallala aquifer to irrigate the crop. The roar from the unmuffled 350-cubic-inch recycled automobile engines that power the pumps is deafening, but they have to be checked out visually twice a day. No water, no cotton.6

6 Neither will last forever. The Ogallala aquifer, a Lake Huron-sized underground river extending from South Dakota to the Texas High Plains, was first tapped extensively for agriculture in the 1930s, when improved well-drilling techniques and gasoline-powered pumps enabled farmers economically to bring up the water from far greater depths than permitted by windmills. In a naturally parched place, the aquifer became equivalent to “rain on demand.” Extraction
The High Plains surrounding Lubbock, Texas, have been called the “world’s biggest cotton patch.” Land and climate conspire to make the land good for little else besides cotton, unless it is the solitude afforded by Eddie Smith’s canyon.

Pass one along the highway at 70 mph, even with the windows shut, and the Doppler-effect sensation is of a P-51 Mustang – or some other heavy-duty pre–jet fighter plane – swooping in for the kill. Smith adds a couple quarts of oil to one of the thirsty machines and moves on. There is cotton everywhere, except where there is sky. Over a rise, the cotton stops and gives way to prairie grass. The transmission lurches down into low gear and the four-wheel drive takes hold. Suddenly the prairie stops too, and the truck plunges down a rock path into Eddie Smith’s canyon.

Not far from Smith’s farm in Floyd County, between Lubbock and Amarillo, lies the Palo Duro Canyon, which is something of a scenic attraction in this largely flat part of the world. Sliced through by a stream called the White River, Smith’s canyon is but an echo of its larger neighbor to the north, but the beauty intensifies as scale diminishes. In several ways, it is a private