Contents

List of Illustrations    vii
Acknowledgments    ix

Introduction: Destined to Succeed?    1

1 Crossing Oceans    15
2 Jumping the Gun    41
3 Taking Root    62

4 Exploring All Avenues    86
5 Answering the Call    118

6 Pushing the Boundaries    146
7 Thriving in the Shade    177
8 Rising into View    200
9 Cresting the Peak    228

Epilogue: Here to Stay?    256

Notes    273
Select Bibliography    333
Index    339
Illustrations

FIGURES

0.1 Soybean acreage in America, 1909–2000, with three graphs highlighting key moments of growth 8
0.2 Glidden's fractionation of the soybean 11
2.1 The uses of the soybean, ca. 1918, representing aspirational possibilities more than actual commercial products at the time 42
6.1 By 1958, more than a billion pounds of soybean oil went into margarine versus 145 million pounds of cottonseed oil 162
6.2 The spread of soybean cultivars named after Confederate generals 164
7.1 The shift to capital-intensive solvent extraction encouraged economies of scale 190
7.2 Illustration of meat fabrication from 1975 brochure for schoolchildren 195
9.1 Diagram of a variant of the “gene gun” 249

PHOTOS

1 Frank N. Meyer in Chinese Turkestan, ca. 1910 30
2 Soybean varieties 37
3 Yamei Kin, 1912 57
4 Combine harvesting Manchu soybeans in Illinois, ca. 1928 78
5 William Morse in Dairen, Manchuria, 1930 84
6 The Ford Industrialized Barn exhibit at the 1934 Century of Progress World’s Fair in Chicago 87

7 Interior of the Industrialized Barn 88

8 Advertisement for Adventist food products from Madison Foods, 1940 111

9 Technique for sprouting soybeans 120

10 “It was funny because it was unlikely” 133

11 Making tofu at the Tule Lake Camp, 1945 144

12 Plenty agricultural technician Darryl Jordan talks to Mayan farmers 209

13 William Shurtleff and Akiko Aoyagi embarking on the Tofu and Miso Tour, 1976 217

14 Tote board at Chicago Board of Trade 227

15 Northern Soy Deli, 1979 234

16 Jofu ad in the *New York Times*, 1987 238
Acknowledgments

This project began many years ago with a conversation on a New York subway car with my friend and fellow Rutgers graduate student Eric Barry about when—historically speaking—tofu became a thing in the United States. As a vegetarian of twenty years at that point, and as somebody who had actually assisted in making tofu at an honest-to-god commune, I had only the vaguest of ideas. Neither did I know how the trajectory of tofu related to fake-meat products like textured vegetable protein, or TVP, which I had seen advertised years earlier in Vegetarian Times; or how these vegetarian incarnations of the soybean related to its other role in American life as a farm commodity that sustained our system of factory farming. How exactly had the soybean jumped the Pacific to lead such a strange double life?

Beginning in profound ignorance, I imagined that soybean history itself was not a thing, and that I was heading into terra incognita. This could not have been farther from the truth. I learned soon enough that many who worked with soybeans as a crop, or as an object of scientific investigation, developed a profound interest in their history. This includes William Morse, the USDA agronomist who shepherded the crop during its early years and whose 1923 The Soybean (with his boss, Charles Piper) remains an indispensable starting point. It includes genetic scientist Theodore Hymowitz, who has also carried out amazing archival research on the soybean’s pre-twentieth-century presence in America. And it certainly includes William Shurtleff and Akiko Aoyagi, whose The Book of Tofu was a seminal hit in the 1970s. Since then, they have amassed an unparalleled archive on the soybean’s history at the Soyinfo Center in Lafayette, California, much of which is freely available online at www.soyinfocenter.com. I owe an enormous debt to all of these historical investigations and am personally grateful for Shurtleff’s generosity and support.
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Research would of course be impossible without archives and academic libraries, and I would like to express my gratitude to the many dedicated staff members of the Rutgers University Library system, the National Agricultural Library in Beltsville, Maryland, and at a number of key archives: the Archives of the Chicago Board of Trade, Daley Library Special Collections, University of Illinois at Chicago; the National Agricultural Library Special Collections Department, which holds the records of the Dorsett-Morse Expedition; the Cornell University, Division of Rare and Manuscript Collections, where the Clive McCay Papers reside; the Department of Archives and Special Collections, Del E. Webb Memorial Library, Loma Linda University, which provided the manuscript autobiography of Harry Miller; the Bancroft Library, the University of California at Berkeley; the University of Illinois Archives; the New York Public Library Research Collections, which holds the papers of Dwayne Andreas’s biographer; and the National Archives I and II, which hold records of Japanese American internment and the USDA Office of Forage-Crop Investigations, respectively. In addition, I would feel remiss not to acknowledge the people, whoever they are, who have scanned thousands of documents and newspapers into numerous online databases.

They say that a journey of a thousand miles begins with a single step, in this case that subway conversation so long ago. Sadly, it can feel that some journeys of a thousand miles do not truly count until the last step is taken over the finish line. A doctoral dissertation in history and the writing and completion of a book manuscript are two such journeys. I would not have gotten to the end of either without institutional support and the boundless patience of advisers, friends, and family. I am grateful to the Andrew W. Mellon Foundation for a Summer Small Grant and the honor of a Dissertation Completion Fellowship; the Rutgers Center for Historical Analysis and the Rutgers Center for Cultural Analysis for graduate fellowships; and the American Society for Environmental History, the Agricultural History Society, and the University of California at Berkeley for the opportunity to present chapters in progress to critical audiences. I am deeply grateful to my dissertation adviser, Jackson Lears, and my committee, which included Ann Fabian, Keith Wailoo, and Steven Stoll. My minor at Rutgers, in the History of Science, Technology, Environment, and Health, where I was ably advised.
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INTRODUCTION:
DESTINED TO SUCCEED?

Nobody actually knows how much American land in total was planted in soybeans in 1900, because nobody at the time was keeping track, but it was likely near zero. The earliest year for which there is any guess is 1907, when the area may have been around 50,000 acres, grown mostly for hay, scattered among the 300 million acres of American farmland, as compared to 45 million acres of wheat and 35 million acres of oats.\(^1\) The US Census of Agriculture of 1909 was the first to list soybeans harvested for beans, documenting a total of 1,629 acres on 339 farms, most of them in North Carolina, which by then was supplying seeds for soybean hay to more northerly states where the cold winters forestalled the production of mature seeds.\(^2\) In 2000, by contrast, soybeans were planted on upwards of 70 million acres, an area second only to that devoted to corn and which, in aggregate, was slightly larger than the state of New Mexico.\(^3\) These acres produced 3 billion bushels of beans worth $12 billion to the farmers who grew them. Exports of soybeans and their two major derived products—oil and meal—brought in $7 billion, making them by far the nation’s largest agricultural export. In a rare bit of good news for the US trade balance, much of this went to China, which in 1900 was the leading producer of soybeans, but which now came in fourth place. The United States, meanwhile, was now the world’s leading producer of the crop, producing almost double that of the runner-up, Brazil.\(^4\)

All told, the rise of the soybean was one of the most remarkable success stories of twentieth-century American agriculture, and, as with all success
stories, the question arises: Was it destined to be or simply the result of some lucky breaks?

If destiny, it was a case of destiny much delayed. With the advent of regular ocean travel among all of the world’s continents in the sixteenth century, explorers and those who followed them succeeded in “knitting together the seams of Pangaea,” to use the environmental historian Alfred Crosby’s evocative phrase. It would be centuries more before steam shipping, and then efficient diesel engines, would enable a truly global marketplace for even the bulkiest of goods, but the Age of Sail was quite effective at dispersing living things around the globe. Crop plants traveled inconspicuously as seeds or cuttings and then took root in foreign lands. Sugar and coffee made their way to the Americas and, as commodities shipped back across the ocean, bolstered empires and provided fuel for the Enlightenment and Industrial Revolution. Corn and potatoes appeared quietly in private gardens in Europe, then gradually spread as highly productive food sources for peasant farmers. Hot peppers traveled to India, soon becoming an indispensable element of the native cuisine. Rice traveled to South Carolina from Africa, and the expertise to cultivate it arrived with African slaves. Meanwhile, European wheat colonized the middle colonies of British America. Amid all of this global interchange, however, the soybean remained largely sequestered in Asia, despite the fact that soybeans could provide a bounty comparable to that of sugar or potatoes.

Its nearest wild ancestor, *Glycine ussuriensis*, native to the wet lowlands of northern and northeastern China, is a twining annual that grows among reeds at the edges of rivers and lakes. It is unprepossessing—with small trifoliate leaves, purple flowers, and seeds that are small and hard—and said to have no commercial use. Its chief virtue, from the standpoint of agricultural potential, is that it is a legume, with nodules on its roots providing a nursery for symbiotic bacteria, which in return serve to “fix” nitrogen from the air in a chemical form readily assimilated by plants. Simply having legumes live and die on a farm field improves its fertility. Probably first domesticated successfully around the eleventh century B.C., with a logograph that honored its root nodules, the soybean provided a service to Chinese agriculture beyond soil fertility. Legumes, having fixed nitrogen, are able to channel it into an abundance of protein, filling a gap in diets lacking in milk or meat. As researchers from the US Department of Agriculture (USDA) noted in
1917, soybeans could produce 294 pounds of usable protein per acre, more than twice the yield of peanuts (at 126 pounds). Roughly fifty years later, the estimate would be revised upward to 376 kilograms per hectare (or 331 pounds per acre). As William Shurtleff and Akiko Aoyagi would emphasize in their popular 1975 publication *Book of Tofu*, this was “twenty times as much usable protein as could be raised on an acre given over to grazing beef cattle.” And this is in addition to the substantial amount of vegetable oil soybeans also provide.

Part of the explanation for the delay in adoption is geographical. The latitudes of the soybean’s heartlands in northern China and Manchuria, roughly 35 to 45 degrees north, are dominated in Europe by arid regions and the waters of the Mediterranean Sea. When the Hungarian botanist Friedrich Haberlandt encountered soybeans in the Asian exhibits of the 1873 Vienna Exposition, he began planting them experimentally throughout Central Europe, recognizing their value as a food for humans and livestock. His work inspired enthusiasm for the soybean in Europe, notably in Germany, which became a leader well into the twentieth century of technology to process the beans and make use of a wide array of derivatives. Yet, being too far north, Germany never succeeded in growing the crop to any great extent. It is not until, traveling west, one reaches North America that there are flat, well-watered plains at the right latitudes, stretching across half a continent. In retrospect, it is clear that this is where soybeans were destined to thrive—but not until the 1840s at the very earliest, when farmers were finally able to break the sod of the Midwest with John Deere’s steel plow. Even then, however, the delay persisted.

This was in part a problem of infrastructure. There were in fact soybeans trickling into America, even before it was the United States. The earliest case was in 1765, when a former East India Company sailor, Samuel Bowen, planted what he called “pease or vetch” in Savannah, Georgia, and for a time successfully exported soy sauce to London. In 1770, Benjamin Franklin sent “Chinese caravances” from London to his botanical contact in Philadelphia, John Bartram, noting “the universal use” in China “of a cheese made from them.” In 1851, the Illinois physician Benjamin Franklin Edwards (no relation to the founding father) improbably obtained “Japan peas” in San Francisco from Japanese castaways and passed them on to a member of the Illinois Horticultural Society who planted them in his garden. The resulting
INTRODUCTION

harvest in turn reached horticultural societies in Ohio, Massachusetts, and New York, as well as the US Commissioner of Patents, who was responsible for distributing new and promising seeds to farmers. By 1854, Japan peas had been sent to dozens of farmers throughout the United States and Canada, with the rural press acknowledging their potential value as chicken or hog feed. In 1854, Commodore Matthew Perry’s expedition sent further samples of Japan peas to the Patents office.

Eventually, the establishment of land grant colleges and agricultural experiment stations following the Civil War would put importing soybean varieties—or “cultivars”—on a more systematic basis than the uncoordinated efforts of missionaries, sea captains, and diplomats. In 1879, two researchers at Rutgers College in New Jersey obtained Haberlandt beans while visiting Munich and Vienna. In 1882, the North Carolina state chemist C. W. Dabney reported that soybeans had been planted by “a number of persons in different sections of the State,” although the origins of the beans are unclear; local legend would later credit sea captains returning from Asia. By the 1890s, experiment stations in both Massachusetts and Kansas were importing beans directly from Japan. But to gather cultivars in sufficient quantity and diversity to establish the soybean as a viable American crop ended up requiring a program at the federal level, described in chapters 1 and 3 as the “soybean pipeline.” This began with expeditions to Asia sponsored by the USDA’s Office of Seed and Plant Introduction (SPI), created in 1898; extended through the agency’s Office of Forage-Crop Investigations, which sorted and distributed the varieties; and reached American farmers through the networks of extension agents and farm groups that burgeoned in the 1910s. This pipeline, carrying plant species from foreign lands to American farms, was not created with the soybean in mind specifically, of course, but it turned out to be one of its more consequential achievements. The fact that the soybean should take advantage of the apparatus so quickly, gaining traction in the Corn Belt by the end of the 1910s, strengthens the case that its success was a matter of destiny.

The case for contingency, in contrast, begins with the recognition of what was perhaps a deeper impediment to the soybean’s spread than uncongenial geography or inadequate infrastructure. After all, other crops had flowed through informal channels and adapted to new climates. The problem, rather, was cultural: the soybean was not easily adapted to Western tastes. Its chief
virtue—its bounty of protein—was accessed in Asia through a variety of traditional soy foods: tofu, tempeh, natto, and miso. Of such foods, only shoyu, or soy sauce, was a truly global commodity. It is not a coincidence that the first attempt to grow soybeans in America revolved around soy sauce or that, in the West, the sauce lent its name to the bean, not the other way around. Inroads by other traditional soy foods began before the turn of the twentieth century, carried by Asian immigrants, as described in chapter 1. With the Chinese Exclusion Act and other restrictions placed on Asian settlement, however, this remained a limited incursion. The other chief vector for soy foods was the work of Seventh-day Adventists, as well as other vegetarian, health, and "hygiene" groups. Throughout the early decades of the twentieth century, these groups not only offered and promoted traditional soy foods but also endlessly tinkered and innovated to create alternatives to meat and milk geared to a broader American audience. All told, however, this long remained a niche market sustained by religious conviction and its near relative, the enthusiasm of dietary converts.

Government promotion of soybean consumption also predated the beginning of the twentieth century. Charles Langworthy, the author of "Soy Beans as Food for Man," an appendix to an 1899 USDA bulletin, pointed that the "deficiency of protein" in rice-heavy Asian diets "is made up by the consumption of large quantities of . . . soy-bean products." Although his article was reprinted in health-movement periodicals such as The Hygienic Gazette, Langworthy was not a vegetarian. He and his boss, Wilbur Atwater, in fact frequently sparred with vegetarians over minimum protein requirements, which they estimated to be 125 grams per day for a moderately active man. (Rival researchers ultimately argued them down to a slightly more reasonable 70–100 grams per day.) Langworthy, a member of the founding generation of academic home economists, felt that the source of that protein allotment should be the most cost-effective possible, especially for the working classes. That meant cheaper cuts of meat and more beans. Ultimately, Langworthy did not attempt to adapt traditional soy foods. Rather, as chief of the USDA Office of Home Economics during World War I, he helped discover varieties that could be incorporated more easily into American-style bean dishes and casseroles. He also promoted soybean flour, at that time produced on a small scale for diabetics on low-carbohydrate diets, as an ingredient in mock meatloaves. Home economics departments became
a redoubt for this sort of soy recipe, which wartime emergencies brought to the fore. With soybeans a more widespread crop during World War II, it saw an even greater enthusiasm for soy as a substitute for meat.

Even in the midst of national emergencies, however, such attempts provoked resistance, often in the form of mockery. Surveying the Patriotic Food Show in Chicago during World War I, no less a humorist than Ring Lardner singled out soy for ridicule, with the wits at New Yorker magazine penning similar pieces during World War II. In both cases, the attacks on soy were mingled with disdain for the society women that the authors associated with soybean promotion—and dietary reform more generally. Indeed, in her 1945 book The Useful Soybean, Mildred Lager highlighted the “rebelling male” as an impediment to greater adoption of soy foods. And in fact, enthusiasm for soy foods faded rapidly after the war’s conclusion. Even as a later generation began to embrace vegetarianism, films such as Soylent Green (1975) signaled the subconscious association of soy with a degraded standard of living. Later still, as soy foods spread in the 1990s, The Simpsons carried on the tradition of mockery, with vegan writers no less, as it imagined a near-future when family scold Lisa could buy Soy Pops (“Now with gag suppressant!”) from a vending machine. Americans did not knowingly accommodate their food habits to soy products until late in the century, in any case. The most obvious route for soybeans onto American farmland, as a direct source of protein for human consumption, was largely foreclosed.

This is where the soybean’s versatility proved to be a great advantage. Asian peoples had developed a wide array of products from soy over the centuries. Manchuria was long a center of an industry that pressed the oil out, mainly for nonfood uses such as lighting or producing paints and varnishes. The Chinese milled soy flour for bread. Europeans, as they gained interest in soy, found further uses—as a coffee substitute, for instance. These are nicely summarized by the USDA soybean expert William Morse in a diagram he included in a 1918 bulletin. With so many potential uses, there were many possible paths for the soybean to take until, through trial and error, it found its way to success. But far from being a matter of destiny, this process was shot through with contingencies, both long-term and short-term.

The long-term contingencies involve the centuries-long evolution of capitalist agriculture, beginning with the enclosure movement in England, which culminated in the Inclosure Acts of Parliament in the eighteenth and
nineteenth centuries that ended the open field system of the Middle Ages and inaugurated a more intensive system of agriculture. In the open field system, livestock grazed on common pastureland, while encouraged to leave their manure on fallowed fields, in essence restoring the fertility of crop-land by concentrating the nutrients of a much wider area. When fields were consolidated and enclosed, the fallow period was eliminated in favor of a rotation of fodder crops, often legumes such as clover or vetch, which added fertility to the soil either by their own right or by way of animal manure. Americans were notoriously careless with their bounty of land, with a tendency to wear out the fertility of a parcel and then move farther west. In the American South, land was often treated more as a means to realize the value of investment in human slaves than the other way around.

By the early nineteenth century, however, there were movements of agricultural improvement afoot, built as before around the twin pillars of legumes and livestock manure, with added attention to liming and other methods of soil enhancement. Agricultural societies and journals proliferated, and the period around 1820 saw the beginnings of a veritable revolution in farm equipment. Farms in the Northeast, increasingly oriented toward providing nearby cities with produce and milk, and in the large wheat-producing regions in the American West, supplying the world market through commercial channels greased by a canal-building spree, alike adopted a more commercial orientation. It was the subsequent search for highly productive fodder legumes that led agricultural experiment stations to test soybeans in the late nineteenth century and the USDA's Office of Forage-Crop Investigations to work with soybeans at the beginning of the twentieth. There is abundant protein in the leaves and stems of soybean plants, as well as in the seeds, and it is as hay that it initially spread in many areas of the country. More generally, however, it was the desire for more profitable crops, and for government assistance in finding them, that helped create the soybean pipeline in the first place.

Short-term contingencies that aided the soybean's rise include many of the major events of the twentieth century, as indicated by figure 0.1, which charts how acreage for soybeans grown for beans—rather than hay—increased over the course of the century. Before 1924, estimates are largely guesses, but the rise was substantial. The increase was due largely to the boll weevil infestation spreading through the South, which roiled the region's
INTRODUCTION

The real significance of World War I, soy-wise, was its aftermath: a rural crisis in the North to match that in the South, as wartime demand for wheat and corn collapsed, prompting several cycles of enthusiasm for the soybean, first as hay and then as an oilseed.

Figure 0.1. Soybean acreage in America, 1909–2000, with three graphs highlighting key moments of growth. Source: Historical Statistics of the United States: Millennial Edition Online.
The soy processing industry, which “crushed” out the oil and fed the residual high-protein meal to livestock, got under way in the Midwest: the big jump from 1929 to 1930 represents the shift from growing seed for hay to growing beans for oil (chapter 3). This was the Roaring Twenties, so there was capital for such things.

That is, there was enough capital until the rest of the country caught up with the farm economy during the onset of the Great Depression, the depths of which is indicated by the dip into 1932. Then came President Franklin Roosevelt and the New Deal, ushering in a renewed expansion of soybeans as government policies restricted the planting of crops in oversupply. Though partly weather-related, the small peak in 1935 neatly divides the first New Deal from the second, when the government lost some power to restrict the use of farm acreage but during which protectionist measures against foreign edible oils was a big boost to soybeans and their processing (chapter 4). A steady rise into the 1940s turns into a sudden jump that marks America’s entry into World War II and the mobilization of the soybean industry to provide protein for livestock to ramp up meat production for hungry troops (chapter 5). The technological advances and social transformations of the war would lead to a long postwar boom, reflected in an increase of soybean acreage dwarfing all previous advances (chapters 6 and 7).

This would hit the skids with the OPEC oil shock and subsequent stagflation of the 1970s, discernible on the graph. In the case of soybeans, however, globalization would create a strong export market to lift the crop through the rest of the decade until debt crises—both foreign and, particularly on family farms, domestic—would spell a difficult period in the 1980s for soybeans and for American agriculture more generally. Globalization would mean the rise of Brazil and Argentina as soybean exporters, squeezing the American crop even further. However, globalization also meant the rise of China as an industrial giant. China would more than make up for the increased competition with its strong hunger for soybeans, something reflected in the increasing acreage after 1992—and especially after 1996, when new farm legislation encouraged farmers to plant crops in high demand on world markets (chapter 9). The strength of China in the evolving world economy was a major factor in the American soybean’s fate at the end of the twentieth century, much as China’s weakness was a factor in the influx of new soybean varieties at the beginning of that century.
In the midst of these events, it is at first difficult to discern the crucial inflection point when the fate of the soybean shifted from being a matter of chance to something resembling destiny. Its initial forays largely stalled. It did not displace cotton in the South—although the notion that it might helped keep interest in the crop alive at the USDA during the crucial decade of the 1910s. In the Corn Belt, its initial boom as a hay to be “hogged down” in the field petered out by the early 1920s. The first attempts to start a processing industry—“crushing” soybeans into oil and protein-rich residual meal—likewise fizzled by the mid-1920s. What these developments held in common was a low-investment, easy-return strategy on the part of soybean adopters that squeezed a little more revenue out of existing assets, whether it was southern cottonseed mills hoping to make use of their equipment’s downtime or Corn Belt farmers hoping to add a few more pounds to their hogs. The key moment came when a number of large enterprises—corn-starch manufacturers and seed merchants, as it happened—committed instead to incubating a soybean industry despite years of early losses. This kickstarted a virtuous cycle of investment, which gained momentum in both the private and public realms, with the University of Illinois conducting rigorous tests to improve the performance of soybean oil in paint and the USDA sending its first and only “soybean expedition” to Asia to find new varieties.

This is the moment that soybeans went from chancy—as likely as not to disappear from the scene in the face of competition from other legumes or oilseeds—to established. By the mid-1930s, the soybean was secure enough as a commodity to be traded on the futures market in Chicago. During World War II, it provided the quickest way to increase the protein available for animal feed, and additional investments in research and processing capacity put it on the path of its meteoric postwar rise. It went from established to entrenched, with the “soybean industry” emerging as an identifiable player both in the economy and in politics. The soybean gained momentum as a commodity not simply in terms of sunk costs, however, but as the result of a reinforcing loop of volume and value. This process is nicely illustrated by a midcentury graphic in *Fortune* magazine (figure 0.2) that accompanied a story on the Glidden Company, which at that time was active in processing soybeans (see chapter 6). The image is that of a delta, a river of soybeans dividing into smaller streams of by-products: crude oil and soy meal to begin
with, which in turn split into more specialized substances. These include, on the far right of the diagram, sterols used as precursors for synthetic human hormones. The greater the volume, the greater the ability to fractionate soybeans into specialized substances: to derive one pound of synthetic progesterone from those sterols required an estimated 15,000 pounds of beans.

Especially if one imagines the origin point, labeled “Soybean,” as having branched off from the soybean plant as a whole, one can scan the graphic from left to right—or at least its general form, if not all of the specific products—as the chronological tale of the soybean in twentieth-century America. At the outset, farmers mainly used the plants as a whole, plowing them under as fertilizer—taking advantage of one of the plant’s three main attractions, the fixed nitrogen—or using them as fodder for animals. If the animals foraged in the fields, they returned the nitrogen in the form of manure while enjoying the second attraction, protein. By the 1930s, with the advent of combine harvesters and the growth of the soybean processing industry, the beans were neatly separated from the rest of the plant, which was left on fields as nitrogen-rich residue. At first, the oil and protein derived from the beans was crude, with the former used mainly for soap, but as time went on
they were split into a greater number of specialized fractions, many of which began as waste products. By the century’s end, not all soybeans had synthetic hormones as an endpoint—although some did—but there were other small derivatives to recover: tocopherols for vitamin E, for instance, or omega-3 fatty acids. As the volume of soybeans rose, even tiny fractions became cheap enough to compete against similar products derived from other sources. The more value that was squeezed out of soybeans, the more worthwhile it was to plant and process them. It was a cycle that ratcheted up soybeans’ competitive advantage.

By the 1960s, the soybean was a fixture of American life, but in a way entirely distinct from its role in Asia. The bounty of its protein did not sustain people directly; it did so indirectly through the massive expansion of meat production. It was a key element—along with cheap grain, scientific breeding, and the use of antibiotics to spur growth and enable large concentrations of livestock—in systems of factory farming that emerged first with chickens, in broiler production, but that soon spread to hog farming and cattle raising. As Shurtleff and Aoyagi would lament, this entailed dumping possibly as much as 90 percent of the soy protein grown in the country into “the process of animal metabolism.” This explains in part how little noticed soybeans were as they went about their business. In past eras, when a large proportion of Americans were tied to farming, we might imagine that a newly adopted crop would appear simultaneously on the land, on people’s plates, and in their awareness. By the 1960s, with an elongating food chain between farm and fork, this was no longer true. The soybean had insinuated itself thoroughly into the American diet, but either indirectly in the form of a growing meat supply, generically in the form of salad oil, or unobtrusively in the form of ingredients in processed food such as soy lecithin. It is true that farmers, at least in the Midwest and increasingly in the South, were well aware of soybeans, but they were now a small and shrinking part of the population.

By the end of the 1960s, however, the hippie counterculture took hold of soybeans and, in the process of trying to wrest them free from capitalist meat production, made them more visible (chapter 8). At the same time, their efforts would have been impossible without soybeans first having become so widespread as animal feed. The hippies who grew their own beans, often using organic methods at variance with the practices of their neighbors, had well-adapted, locally available varieties to choose from, a legacy of the crop
development efforts of the USDA and state programs. They also relied on other homegrown legacies: that of Asian American tofu makers and that of Seventh-day Adventist soy-food innovators. Both served niche populations, for whom soy foods came to represent the bonds of community or religious devotion, and thus did not need to rest on broad market appeal. Tofu was a highly resilient feature of the Japanese American diet, for instance, persisting even as restrictions on immigration worked to more thoroughly Americanize younger generations—and making its appearance even during the ordeal of internment. Adventists, for their part, pioneered soy analogs of meat and dairy products in America, stalwartly ignoring any deficiencies in taste or texture. These existing communities would be a resource for soybean utopians, much as they had been for generations of academic soy researchers who visited nearby Chinatowns or corresponded with Adventist institutions.

The 1970s were wild days again for the soybean. They were not a prelude to a postmarket society but rather to a renewed cycle of capital accumulation, product diversification, commercial promotion, and overall standardization. This time, however, the soybean did not hide behind the scenes but was front and center—or almost was. Through the 1980s, soy products did well to call themselves a variant of tofu rather than something soy. This was notably true of Tofutti, the soy ice cream that honed in on the yuppie appeal of Häagen-Dazs and that was taken to task at one point for no longer containing any actual tofu. By the 1990s, when soy gained a reputation in its own right for containing healthful properties, “soy” became more forthright on cartons of milk and wrappers of energy bars. By 2000, by which time it was common for people to order soy lattes at Starbucks, the soybean had completed its century-long transformation from an exotic import to a normal, verging on ubiquitous, presence.

For a narrative historian, there is still something important missing from this extended account of the soybean’s rise: the efforts of actual people who in the midst of their work did not consider themselves mere puppets of history or of capitalism. This is a crucial point. Societies, economies, innovation, the unfolding of history: these are not things that run themselves but are kept in motion and given guidance by millions of separate metabolically fueled imaginations. In fact, none of the transformations of the soybean came easily; it was an often recalcitrant object of improvement, requiring the independently motivated efforts of diverse actors. Their investment in the
soybean was other than financial, involving personal career goals or dreams of an improved world. The bulk of the pages to come, in fact, are devoted to the people who, often in idiosyncratic ways, imagined beyond what was realistically achievable and, for the most part, failed to achieve it. The realm of aspiration always exceeds the realm of what comes to pass; after all, if it didn't, it seems unlikely anything would ever come to pass at all.

This book is about the transformation of the soybean by America during the twentieth century, a case study in the ways twentieth-century America went about transforming many features of the natural world. It also charts how these transformational processes themselves changed over time. As much as this had to do with the evolution of economies and technologies, it was also a matter of how people in different decades, beset by different worries and embedded within different cultural moments, variously imagined what changing society could or should look like. Whether it was a vision of gathering useful plants from around the globe to fuel the nation's economic growth; or of modernizing agriculture to supplant the boll weevil–plagued cotton monoculture of the South; or of countering rural decline with creative chemistry to upgrade farm products into valuable industrial inputs; or of transcending the cruelties of capitalism through the artisanal production of high-protein plant foods—in all of these diverse visions, the soybean was able to gain a foothold and, for some of its more ardent advocates, become a lifelong obsession: a magic bean that provided the path to a different world. This was perhaps its best, and in some ways most mysterious, secret of success and the key to its destiny.