

Planting and Performing: Anxiety, Aspiration, and “Scripts” in Telangana Cotton Farming

Andrew Flachs

ABSTRACT On cotton farms in Telangana, India, performance draws attention to farmers’ work not merely as an economic activity but as directed toward different kinds of audiences and in conversation with different roles, stages, and scripts. Importantly, this performance is contextualized by a neoliberal seed market where a seasonal deluge of accelerated and consumerist seed marketing diminishes the value of experiential knowledge in favor of the expansion of private genetically modified (GM) seed sales. This article draws on mixed methods and qualitative fieldwork conducted between 2012 and 2016 on cotton farms in Telangana to explore the use of “scripts” in rural life: the learned and socially mediated mental maps that reflect sets of rules, values, patterns, or expectations in smallholder commercial agriculture. The script of *manci digubadi* (good yield) helps order and justify GM cottonseed decision making in rural Telangana, where seed knowledge is uncertain, environmental feedback is ambiguous, and social emulation dominates farmer choices. While being cautious not to present performance in such a way that questions authenticity or presupposes either fatalism or economic rationalism, I argue that scripts help farmers navigate cotton agriculture amid uncertain GM cottonseed markets and the anxieties and aspirations of neoliberal rural India. [*performance, agriculture, development, biotechnology, South Asia*]

RESUMEN En fincas algodonereras en Telangana, India, representación llama la atención al trabajo de agricultores no sólo como una actividad económica sino como dirigida hacia diferentes tipos de audiencias y en conversación con roles, escenarios y guiones diferentes. De manera importante, esta representación está contextualizada por un mercado de semillas neoliberal donde un diluvio estacional de un mercadeo de semillas acelerado y consumista disminuye el valor del conocimiento experiencial en favor de la expansión de ventas de semillas privadas modificadas genéticamente (GM). Este artículo se basa en métodos mixtos y trabajo de campo cualitativo conducidos entre 2012 y el 2016 en fincas algodonereras en Telangana para explorar el uso de “guiones” en la vida rural: los mapas mentales aprendidos y socialmente mediados que reflejan los conjuntos de reglas, valores, patrones, o expectativas en agricultura comercial de pequeños agricultores. El guión de *manci digubadi* (productividad buena) ayuda a ordenar y justificar la toma de decisiones sobre semillas GM de algodón en Telanaga rural, donde el conocimiento sobre semillas es incierto, la retroalimentación ambiental es ambigua, y la emulación social domina las opciones del agricultor. Mientras siendo precavido de no mostrar una representación de tal manera que cuestiona la autenticidad o presupone ya sea fatalismo o racionalismo económico, argumento que los guiones ayudan a los agricultores a navegar la agricultura del algodón en medio de mercados de semillas de algodón GM inciertos y las ansiedades y aspiraciones de la India rural neoliberal. [*representación, agricultura, desarrollo, biotecnología, Asia del Sur*]

Theories of performance in quotidian life describe how individuals navigate audiences of experts, peers, markets, and ecologies, but these theories also illuminate how different actors construct identities that articulate with historical and material contexts. Focusing on performance on cotton farms in Telangana, India, draws attention to farmers' work not merely as an economic activity but as an activity directed toward different kinds of audiences and in conversation with different roles, stages, and scripts. Importantly, this performance is contextualized by a neoliberal seed market where a seasonal deluge of accelerated and consumerist seed marketing diminishes the value of experiential knowledge in favor of the expansion of private genetically modified (GM) seed sales. Telangana has become infamous as a site of agrarian crisis characterized by farmer suicide, pest attacks, and low yields (Deshpande and Arora 2010; Galab, Revathi, and Reddy 2009). The introduction of GM seeds aimed to assuage that crisis, although farmers' ecological knowledge underlying seed choices and cotton-plant management has suffered since more than 1,200 GM seed brands have been released to the Telangana market (Stone, Flachs, and Diepenbrock 2014).

From 2012 to 2016, I conducted ethnographic research in Telangana, surveying farming households about their experiences with GM hybrid cottonseeds. Initially, my research asked how Telangana cotton farmers made agricultural decisions and rationalized that decision-making process as the private GM seed market exploded, leading to widespread seed uncertainty that Stone (2007) has termed "agricultural deskilling." While conducting surveys of agricultural decisions among randomly sampled, wealth-stratified households from five cotton-growing villages in Telangana (Appendix A),¹ I asked farmers to reflect on their yields, seed choices, and pesticide applications. In practice, this was a complicated task because rural Telangana is not a region where farmers keep accurate records. Like all anthropologists, I contrasted the answers that I received with events that I had personally observed through long-term fieldwork, an ethnographic check against the reductive nature of a survey. In the course of collecting quantifiable data, I accumulated statistical noise, which was scrawled on the margins of household surveys when farmers forgot which seeds they had planted, over- or underreported their yields, or incorrectly named a seed brand that they had showed to me. I then asked the same cotton farmers to develop justifications for their seed choices, an ironic research goal because I was investigating how difficult it is to decide which seed to plant in the first place.

When asked to dredge up reasons for their seed decisions, most farmers sighed *manci digubadi annakunthunanu* (literally, "I'm hoping for a good yield"). This seemingly simple answer suggests a variety of meanings in everyday life. On Telangana cotton farms, as on all farms, farmers use yield as a way to measure a return on investment. Yet few cotton farmers carefully document, analyze, and improve

every aspect of their farm management as if these small farms were factories preparing quarterly reports. Farmers experience ambiguous costs (inputs and labor) and benefits (profits), and so lean heavily on emulating the decisions of their neighbors or seeking the advice of experts external to the farming household, including pesticide shop managers and university extension agents. Wanting good yields can be very far from knowing how to get them, let alone taking a series of clearly defined steps to achieve them.

Even if farmers could gather clear cost-benefit information for their seed selection, cotton farming and the search for a good yield is simultaneously a social question. A robust cotton field is a public stage visible to friends, rivals, family, and other passersby. The hope for a good yield encompasses the hope for good weather, pest resistance, fertilizer response, profits, and an impressive and healthy field that stands as public proof of one's good agricultural decisions. Household economics and aspirations influence how farmers rationalize those choices, which are in turn entangled with political, economic, and social desires on local, national, and international scales (Agrawal and Sivaramakrishnan 2000; Taylor 2014). In this essay, I argue that hoping for a good yield is a kind of script about seed choice that emerges from a growing neoliberal instability in rural India's agrarian political economy. Following Harvey (1991, 2007), I describe the GM cottonseed market and agrarian sector as neoliberal to call attention to a rollback of state extension services aimed at more marginal farmers, an increasing emphasis on expertise and resources produced off the farm, and the ways in which the privatization of the GM cotton sector has led to quickening cycles of seed adoption and disadoption, a deluge of new brands, and aggressive marketing.

Making sense of this complexity is important for at least two reasons. First, rural Telangana cotton farmers remain at a stubbornly public risk for suicide and indebtedness (Menon and Uzramma 2018; Taylor 2014). The agrarian distress at the root of these suicides is complex and multifaceted, but it is driven by a combination of unreliable credit (Mohanty 2005; Taylor 2013), agricultural management uncertainty (Flachs 2016), and rising pest attacks and pesticide use (Kranthi 2014). Further, the crisis hits hardest the poorest farmers lacking reliable irrigation (Gupta 2017; Gutierrez et al. 2015). As the first decision that cotton farmers make, and one that they cannot take back, seed choices and their rationalization are central to this distressed agrarian political economy.

Second, the ways in which Indian cotton farmers are said to choose seeds is part of a larger international conversation about the spread of GM crops. Policymakers (Mohan 2013) and prominent agricultural economists (Herring and Rao 2012; Qaim 2009) see seed decisions as a form of economic rationalism, citing GM cotton's near-universal adoption as a sign that "the farmer knows better than any scientist or activist . . . if he finds that a new variety yields more, he will expand his acreage regardless" (Aiyar 2013). This

argument assumes that the experience of GM agriculture in India is best explained as an amalgamation of well-informed choices. By working with commercial, state, and scientific experts who emphasize greater yields and profits, and then judging themselves and each other by these standards, farmers help to generate a discourse about yields and rational seed choices indistinguishable from Indian agribusiness' neoliberal discourse of choice, individual responsibility, and ever-increasing yields. Economic rationalist logic persists across publications citing high adoption and objective cost-benefit calculation to argue that farmer wisdom and corporate interests are aligned in the Indian cotton sector (Herring 2015; Monsanto 2012). Academic and popular writers then use Indian farmers' seed choices as evidence of GM crops' potential to save (Fedoroff 2011; Herring and Rao 2012; Qaim 2009) or ruin (Hakim 2016; Jha 2013; Shiva et al. 2002) farmers around the world. Farmers may or may not be wiser than activists and agricultural scientists, but I argue that this focus on economic rationalism is the wrong lens through which to explore rural life and land management. Instead, I show that agricultural decision making and the lived experience of GM crops can be better understood from an anthropological perspective that considers the relationships between external expertise, farmer knowledge, and daily farm work as they are contextualized within the broader expectations of the neoliberal political economy of rural India.

I begin by presenting survey data on farmer seed choices, seed knowledge, and yields that show how farmers do not and cannot rely on experiential learning when choosing the seeds they sow in their fields. I then contextualize these data within the broader political context of neoliberal rural India and the expansion of private GM seeds. I argue that performance, particularly the iterative and contingent ways that farmer-actors search for acceptable responses from a host of audiences, can better inform this study of agricultural knowledge. Building on the scholarship on agricultural performance (Batterbury 1996; Bell 2010; Gupta 1998; Peter et al. 2009; Richards 1989, 1993; Vasavi 1999, 2012), I argue that anthropology is ideally suited to explain how farmers make decisions within the uncertainty and anxiety of neoliberal rural India. Specifically, I argue that *manci digubadi*, Telangana farmers' preferred rationalization, is a kind of script (Vanclay and Enticott 2011) that makes sense of agricultural development and justifies cottonseed choices in the absence of reliable experiential knowledge.

FLAWS WITH RATIONAL CHOICE

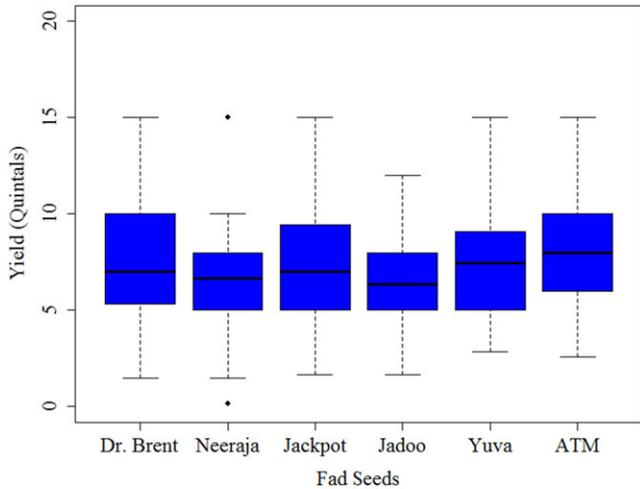
Over four consecutive years of cotton-season research, almost all of the nearly four hundred farmers I spoke with claimed to be switching seeds in the hopes that their new seed would bring a good yield. This is the obvious answer for a high-investment commodity crop. Of course, farmers hope for a good yield with a new seed. Farmers define this goodness in terms of plant health, boll size, boll number, pickability, and insect resistance, but all of these are

subservient to a seed's potential to yield a large amount of undamaged, heavy cotton that will fetch a good price in the market. As a researcher studying how Telangana cotton farmers navigated this private seed market, I found *manci digubadi* to be a frustratingly vague and self-evident claim. Yet it underscores how some farmers are so willing to chase the hope of success that they forgo elements of the agricultural skilling process (Stone 2007), learning little about the seeds that they plant in their field before switching to new brands that they hope will bring *manci digubadi*.

Telangana cotton farmers in the Warangal district have increasingly planted particular seed brands en masse only to abandon them the following year (Stone, Flachs, and Diepenbrock 2014), justifying their choices to myself, to research assistants, to each other, and to themselves with *manci digubadi*. In one extreme case, a Dalit² farmer who planted the Mahyco company's *Neeraja* seed for nine years abandoned that seed in favor of Kaveri's *Jaadoo* seed, which he had never planted but heard was successful in a neighboring village. Moreover, he worked for a Reddy³ farmer who owned ten acres, a large plot in rural Telangana, and saw that this *pedda raytu*⁴ was sowing *Jaadoo*. "Last year those who planted this seed reaped a good yield. Everyone is planting this seed this year," he explained, despite having no firsthand knowledge of the yields or relative inputs and labor that any of these other farmers invested in their cotton crop. Still, it would be foolish of him to miss this potential windfall. The hope for high yields takes precedence over firsthand knowledge and is matched by the fear of missing a trend.

As one clear and locally important measure of "good" is the yield response, these unusual swings in seed popularity might follow a kind of economic rationalism. Yield and profit are the benchmarks by which economists and policymakers (Herring 2013; Kathage and Qaim 2012; Qaim and Zilberman 2003) measure GM cotton's success, so I collected agronomic data on farmers' inputs and outputs. Surprisingly, even though farmers justify their seed choices with the hope for *manci digubadi*, the most popular seeds that "everyone is planting" all bring forth similar yields. The yields for the six most popular seeds during my study period are all within the range of variation for cotton as a whole (Figure 1), even as farmers aggressively adopted one after another. Despite farmers' explicit rationalizations, these data suggest that farmers have no reliable measure for what constitutes good yields. At the very least, these data show that farmers cannot realize their desired yield potentials because of the vagaries of weather, inputs, water, and pests. The statistical equality of yields across different popular brands contradicts a simplistic economic rationalism that would explain group popularity in particular seed brands as a product of farmers' careful observation of possible seed choices.

In one case, a farmer triumphantly compared his seed choices to those of his neighbor, whose cotton failed to produce high yields. "See how much stronger and taller my plants are," he bragged. The following year, he planted



	Dr. Brent	Neeraja	Jackpot	Jaadoo	Yuva	ATM
n	64	43	51	74	20	23
Mean	7.43	6.57	6.98	6.66	7.5	8.17
SD	2.75	2.65	2.84	2.4	2.94	3.09
Minimum	1.5	.17	1.7	1.7	2.86	2.6
Maximum	15	15	15	12	15	15

FIGURE 1. Boxplots and data for 2013 popular seed yields. Source: Author Farmer Survey (2012–2014). (Adapted from Flachs, Stone, and Shaffer 2017) [This figure appears in color in the online issue]

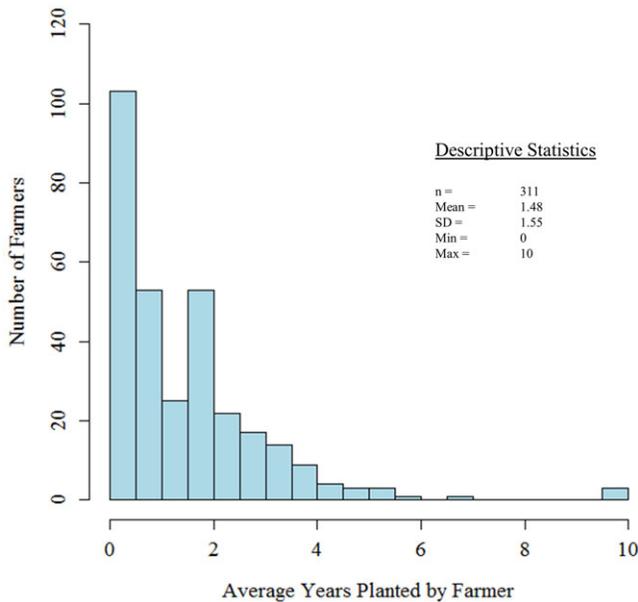


FIGURE 2. Average number of years farmers plant cottonseeds (2012–2014). Source: Author Farmer Survey (2012–2014). (Adapted from Flachs, Stone, and Shaffer 2017) [This figure appears in color in the online issue]

something new, explaining, “I heard it might have a better yield.” The allure of a new and potentially better seed is too much to resist. Farmers on average planted their cottonseeds for only a season and a half before switching to something new (Figure 2)—hardly enough time to

gain detailed knowledge about seasonal variation in seed quality. Even if cotton farmers track their neighbors’ seed choices, several factors—including pesticide sprays, labor inputs, and fertilizer applications—still vary widely between fields.

Farmer knowledge suffers in this context, as indicated by a consensus analysis of agricultural knowledge across the sample villages. While consensus around an observation would not necessarily mean that the farmers were “correct” in describing a particular seed’s attributes, it would indicate that farmers generally agreed on a brand’s qualities. I asked farmers to predict boll size and growth habit, crucial factors that reflect yield, fertilizer response, and susceptibility to pest damage, for each cottonseed they sowed in 2014. The spread of answers I received shows a consistent divergence of farmer opinions (Table 1). Farmers planting a given seed rarely agreed on boll size or growth habit (with the exception that *Ankur 3028* and *Jackpot* would produce large bolls), while “I do not know” (DNK) was as likely an answer about a seed choice as anything else. Linguistically, farmers often couched their descriptions by placing the suffix “-ta” at the end of their verbs, indicating that their descriptions were based on secondhand knowledge—hoped for but not confirmed.

NEOLIBERAL SPEEDUPS AND INDIAN COTTON

The introduction of private GM seeds has transformed farmer practices and discourses in seed selection by continually speeding up new seed options, intensifying branding and marketing, and centralizing expertise off the farm in biotechnology labs and vendor shops. Since the 1970s, farmers have had the option to buy publicly and privately distributed hybrid seeds. Hybrids, seeds bred to overproduce given an optimal combination of fertilizers and water but that cannot be saved and replanted, ask farmers to be consumers rather than producers of seed knowledge. As Stone (2007) argues, this process has accelerated with the introduction of GM technology in India, in which a privately controlled genetic trait is bred into a hybrid seed. In the first three decades that Indian farmers could buy hybrid cottonseeds, about one-third planted them (36 percent), and only half (55 percent) of those seeds came from private-sector distributors (Basu and Paroda 1995). GM seeds took only ten years to capture more than 90 percent of the Indian market and have been distributed entirely through the private sector. By 2015, GM cotton was so ubiquitous in India that the Cotton Corporation of India stopped bothering to report the percentage of GM cotton sown.

Because patented GM technology is bred exclusively into hybrid seeds controlled by private companies in India, agricultural extension scientists whom I met in Warangal were relegated to conducting tests on publically available non-GM cotton, which few farmers planted, or renting their land to private companies who paid scientists to assist with corporate field trials. Meanwhile, one high-level Monsanto India employee explained to me that private companies are allowed to “market the same hybrid code, the

TABLE 1. *Farmer Consensus on Cottonseed Attributes for the Thirteen Most Popular Seeds in 2014 (adapted from Flachs and Stone 2018)*

Seed name	Boll size				Growth habit				N
	Small	Medium	Large	DNK	Tall	Both	Bushy	DNK	
Yuva	4 (%)	18	51	27	31	31	14	24	104
ATM	5	34	43	18	36	23	12	30	61
Jaadoo	6	36	51	6	26	28	19	28	47
Jackpot	4	29	64	4	25	18	14	43	28
Dr. Brent	16	24	48	12	40	28	12	20	25
Sarpanch	4	17	33	46	29	33	8	29	24
Bhakti	0	32	45	23	36	23	18	23	22
Mallika	6	47	47	0	24	12	35	29	17
Neeraja	21	50	21	7	36	29	21	14	14
Ankur 3028	0	17	75	8	50	17	17	17	12
Padmaja	0	50	25	25	12	62	0	25	8
Rasi	12	50	25	12	25	38	12	25	8
Denim	0	50	33	17	33	17	17	33	6

Source: Author Farmer Survey (2014).

same basic thing under different brand names,” which Stone (2007) and Herring (2007) observed led farmers to accidentally sow multiple varieties of the same misleadingly labeled seeds. “You may want [to label the same seed under different brands] partly because the Indian farmer is looking for diversification,” the Monsanto India employee continued, “even if your product is very, very good.” While beneficial to agribusiness, this diversification of seed branding does not provide farmers with clearer information about the seeds they sow. It is hard enough to learn the differences between different seed brands but impossible if farmers unwittingly plant the same seed twice—an intensification of branding and new seed distribution characteristic of Stone’s (2007) agricultural deskilling.

Interestingly, where the seed market functions differently, farmers retain far more knowledge and control, and seed rationalizations are more complicated. Farmers choose public-sector varieties of rice and heirloom vegetables very differently from how they choose cottonseeds (Flachs and Stone 2018; Flachs, Stone, and Shaffer 2017). Here, farmers describe “good yields” as a function of taste, adopt and abandon seeds more slowly, and rely more on experiential knowledge to make decisions. Public-sector breeding accounts for the vast majority (87 percent) of rice seeds planted by Telangana farmers in this study, an inherently slower and more participatory process than that seen in cotton extension services. By contrast, GM cottonseeds are solely bred by private breeders. Industry priorities, which now include herbicide tolerance and dense planting (Stone and Flachs 2017), drive the development of new cotton phenotypes.

The explosion of private brands and the now near-universal control of the cottonseed market by private companies has led to a deluge of marketing, advertisement, brand diversification, and poor retail experiences, as I will describe through ethnographic examples below. Farmers’ desire for the most popular seeds represents one element in a larger consumerist context: rural Indians seek Japanese motorcycles or Korean smartphones and place themselves in a transnational imagined community defined by urban, modern, high-tech globalization (Cayla and Eckhardt 2008). Aggressive GM cottonseed branding and marketing led to shortages of some of the most popular seed brands in Telangana in 2012 (The New Indian Express 2012; Wadke 2012), facilitating a black market for seeds smuggled from neighboring states. Similar stories of seed smuggling made headlines again in 2018 when farmers sought unapproved herbicide-tolerant GM seeds (Jadhav 2018). In neither case did farmers have firsthand knowledge that the seeds would be efficacious in their own fields.

After the Indian government liberalized the economy in the 1990s, Indians experienced a host of familiar neoliberal conditions: public-sector services diminished as agricultural markets became more exposed to global commodity prices (Rao and Suri 2006; Walker 2008), state development programs and national attention shifted from rural to urban centers even as agrarian distress manifested through farmer suicides (Aiyer 2007), new development programs exacerbated rural inequality and exploited labor relationships related to caste and credit access (Gupta 2017; Mohanty 2005; Taylor 2013), and brand-conscious consumption expanded precipitously across the country (Guha 2008; Linssen,

Kempen, and Kraaykamp 2010). While cotton agriculture is inherently speculative (Gupta 2017), mixed-methods agronomic (Gutierrez et al. 2015) and qualitative social (Münster 2015; Vasavi 2012) research shows that poorer farmers, especially those who lack irrigation facilities and who belong to historically marginalized communities, are at the greatest risk for suicide and spiraling debt. The combination of faster seed cycles, diminishing rural resources, increased consumerism, and decreasing firsthand seed knowledge exacerbate the contemporary moment of speculation, suicide, and rural distress.

The explosion of private seed brands in this formerly public market is accompanied by expansions in pesticides, fertilizers, consultations, and herbicides that farmers encounter. These accelerate input treadmills, in which farmers use ever-increasing amounts of pesticides and fertilizers to manage monocultures (Stone and Flachs 2017), as well as the time-space compression and uncertainty that accompany late consumer capitalism (Harvey 1991). Just as fashion, cuisine, and consumer products discussed by Harvey have become more volatile and ephemeral for consumers around the world, so too are cotton farmers immersed in the aggressive marketing and inherent instability of hundreds of new seed brands each year. Farmers' hope for great yields is bound to a fear of missing out on popular seeds, manifesting collectively as herding behavior to and from popular products (Stone, Flachs, and Diepenbrock 2014).

So what do we make of *manci digubadi*? Accepting the answer at face value does not make sense; the aggregated survey data presented above show that there is no yield rationale to choosing particular seeds, that farmers gamble by switching seeds frequently, that farmers themselves don't know very much about the seeds they are planting, and that the market is increasingly confusing. Seed choice and its performance on these farms occurs amidst a deluge of marketing, competition, consumption, and the persistent erosion of experiential knowledge. In a sector where Telangana farmers may only make a clear profit one out of four years (Reddy 2017), farming is a highly speculative activity balanced against variations in weather, pricing, pests, labor, or soil conditions that influence yields or profits (Gupta 2017). *Manci digubadi* helps farmers continue to rationalize their gambles despite the uncertainty of seeds and payoffs, especially as agricultural policymakers champion India's rising national yields and technological innovations (Aiyar 2013; The Economic Times 2013). This is where performance becomes analytically helpful.

Despite not knowing which seeds they should plant, farmers must still perform as they justify choices to one another, save face, and brag. Thus, in spite of all this uncertainty, cottonseed choice is a fundamentally hopeful decision. As I discuss in the following section, farmers hope that they have chosen the right seed that will bring the harvest they need and the social recognition they crave in a place where high-yielding farmers are celebrated in local newspapers alongside reports of farmer suicides (Deccan Chronicle

2018; The Hindu 2013). Seed choice is paradoxically crucial yet uncertain. This suggests that *manci digubadi* is an important benchmark for agricultural decision making, not because it reveals an agronomic truth but because it is a kind of script (Bardone 2013; Vanclay and Enticott 2011) that helps farmers make sense of this neoliberal agrarian stage. My household surveys show that annual debts and incomes are roughly equal (Flachs, Stone, and Shaffer 2017), a thin margin of error in a region infamous for agrarian crisis (Galab, Revathi, and Reddy 2009; Vaidyanathan 2006). The seed is the first decision farmers make, a path-dependent decision (David 2007) that sets farmers onto routes from which they cannot deviate. *Manci digubadi* offers a way to rationalize this important choice when one must perform a justification.

SCRIPTS AND PERFORMANCE IN AGRICULTURE

One morning in June 2014, I met Shiva on the bus to Warangal, a large regional city. A member of the historically marginalized Banjara tribe, Shiva had walked to the bus stop from his hamlet (Telugu: *thanda*) on the outskirts of the town proper. Shiva watched as the bus passed billboards and posters for cottonseeds. Even our bus was painted with a seed advertisement. "Maybe I'll buy *Dr. Brent*, maybe *ATM*," he said noncommittally, listing names he has seen advertised in his village. "I heard that the harvests of *ATM* came well last year for Vikram Rao," he continued, naming a wealthy landowner in the village to which his *thanda* is adjacent. "My cousins worked as laborers for his farm. They said the plants looked strong." Stepping off the bus, we were bombarded by signs, posters, vendors, and jingles hawking cottonseeds in Warangal's main seed shop district. Shiva entered a shop and stood at the back, waiting for others to finish their business.

"What's good this year?" asked Shiva. "All my seeds are good," answered the clerk, who wore a gold ring and whose eyes traveled across me to the next customer, a Telugu caste patron. "Many people have been buying *ATM* this year. Buy that." Shiva nodded his head, and two packets of *ATM*, enough to plant an acre, went into a black plastic bag. "What about *Jackpot*, did others have a good yield (*manci digubadi*) last year?" he asked, naming another brand. The clerk shrugged, saying that it is a good seed but that it isn't as popular this year. Instead, he offered pesticides and fertilizers that Shiva refused because he didn't need them yet. "Okay, are you finished then?" the clerk asked, still eyeing potential customers walking by. Shiva left, deciding to purchase two packets of *ATM* after all. I stayed for a moment to watch the next interaction, and the clerk shook his head. "It's always the same with these Banjara people. They don't know what they're buying and they only buy cheap seeds, they never buy the quality fertilizers or pesticides that go with them." On the bus back, we met another cotton farmer from a *thanda* near Shiva who was carrying a television on his lap. Shiva looked enviously at the television and muttered to me, "He had a good yield last year, and he was able to sell it at a

great price.” Shiva paused for a moment. Still looking at the television, he added, “I had a normal yield last year, but at least I was still able to buy [his wife] Laxmi a new sari after the harvest, for the *Diwali* festival.”

There is a much to unpack in this single day of seed buying. Like Dalit farmers, Shiva is among the first generation of Banjara farmers to move from full-time wage labor to farming in pursuit of the cultivation of the kind of modernity promised by India’s neoliberal reforms (Pandian 2009; Ramamurthy 2011; Vasavi 2012). The recommendations and tacit endorsement of Vikram Rao push Shiva toward *ATM*, while the clerk tries to rush him out of his shop. Shiva’s concerns and anxieties are brushed aside in a brief, careless suggestion: buy *ATM*, many people are. Shiva could refuse an offered brand out of righteous indignation or an independent streak, but what would be the point? Like many other farmers, he has little firsthand information on which to judge the seeds.

In these interactions, “good yield” serves several purposes. *Manci digubadi* on the bus stands in for Shiva’s hope to match the success of Vikram Rao’s yields, a chance to reach Rao’s status as a member of the historically powerful Velama caste.⁵ On the ride home, Shiva’s invocation of *manci digubadi* shows the competitive side of farming, in which a fellow farmer can achieve good yields that translate into televisions and other coveted consumer symbols (Linssen, Kempen, and Kraaykamp 2010). Even Laxmi’s dress is a way to signal *manci digubadi* through his conspicuous consumption. In the shop, *manci digubadi* cuts through advertising and uncertainty regarding *Jackpot*, justifying a gamble on an unknown seed. Ramamurthy (2011) has called this kind of rationalization the vernacular calculus of the economic, in which marginalized communities historically denied land tenure aspire to upward mobility through commodity agriculture. Although Telangana cotton agriculture is rarely profitable for the most marginal farmers (Gutierrez et al. 2015; Reddy 2017), the economic calculation to grow cotton is structured less by cost-benefit analyses than by an aspiration to overcome historical marginalization and generational poverty. Ramamurthy cites Dalit farmers who grow cotton even though they would likely make more money as laborers and who stress the existential value of working one’s own land. Similarly, by invoking a Velama farmer historically associated with the ruling *zamindar* family that presided over his region, Shiva links the good yields from Rao’s *ATM* with his own desire for a piece of this public display of farming prowess.

Sometimes, farmers who work part time on Reddy or Velama neighbors’ lands simply ask those neighbors to bring them an extra packet of whatever they are buying. Rajaiah, a Dalit farmer who weeds the field of his Reddy neighbor, gambles that this high-status person chooses lucrative seeds. “I ask him to bring back some of whatever he thinks is good for my own fields,” Rajaiah explains. To farm is to claim a piece of this upward mobility, although, as Ramamurthy (2011) and Vasavi (2012) show, these historically marginalized new

farmers lack the social or economic resources available to the landlords who made profits growing cash crops during India’s green revolution. “We’re the same caste,” explained one Reddy farmer when I asked if he could trust the advice of a local shop owner. “He wouldn’t lie to me.” Although they, too, rely on expert advice, such farmers are not rushed along in the shops or condescended to like Shiva was. Beyond buying seeds for their neighbors, one recent agricultural economic study (Maertens 2017) found that better-educated and larger farmers belonging to Open Caste communities tend to influence the seed choices of others in their village networks.

Shiva’s aspirations to *manci digubadi* are also aspirations to land stewardship, social mobility, respect in shops, and clarity in the cotton market at the moment when he will purchase one among hundreds of possible brands. Shiva had spent the previous year learning how another seed, *Neeraja*, responded to different fertilizers and fought off pests. He listened to his neighbors to learn how deep the root stretched to collect water on their unirrigated fields. But that was only one season, and he can never know for certain if one of the hundred seeds behind the Warangal clerk holds a greater potential this year.

Agrarian studies scholarship has used performance as a metaphor for the inventiveness and adaptability of agricultural knowledge (Richards 1989, 1993) based in quotidian practice (Leslie and McCabe 2013; Netting 1993). Such performances are largely improvised, but they can be structured (Batterbury 1996) or actively impeded (Scott 1998) by a political economy where environmental signals are difficult to understand (Flachs 2016; Herring 2007; Stone 2007). Yet even in this highly commodified landscape where branding erodes experiential knowledge, farmers still make and justify choices. *Manci digubadi* is a rationalization that continues to make sense as farmer-consumers seek out the newest technology and gamble that by investing more they can obtain greater yields. This is an aspirational decision, and my analysis of farmer decision making contextualizes quotidian practice within the ways that farmers hope to farm well.

Other scholarship on agrarian performance asks how farmers conceptualize rural identity within their larger political economy. Agriculture helps signal social values that resonate in a rural community, ranging from masculinity (Peter et al. 2009) to Christian land stewardship (Stoll 2002), the pursuit of postcolonial modernity (Pandian 2009), or environmentalism (Silvasti 2003). As India’s neoliberal reforms shifted development priorities from rural to urban areas, cotton farmers internalized their precarity as individual, shameful failures set against the dominant success story of India’s urban, high-tech development (Münster 2012; Vasavi 2012). The degree to which Telangana cotton farmers see themselves as part of that neoliberal success story informs their performed rural identity. Analyzing daily practices as performative acts, Butler (1990) and Bourdieu (1977) ask how social categories like the sexed body or class, respectively, are produced through daily performances that normalize those categories. For farmers sifting through a

rapidly changing seed market and aspiring to participate in the neoliberal rural gains championed by Indian agribusiness, *manci digubadi* helps to normalize a cotton agriculture with deeply ambivalent returns. *Manci digubadi* is the performance that remains possible for farmers seeking profits and recognition from their agriculture. Other farmers abandon the agricultural stage altogether and sell their land, move to urban centers, or even commit suicide in protest (Sarma 2017).

All such performances require an audience, and the multiple ways in which farmers deploy *manci digubadi* suggest that this script is flexible. Rural sociologists (Bardone 2013; Vanclay and Enticott 2011) describe scripts as moments that structure public agrarian performances, emerging from iterative course corrections in the field. As a shared set of phrases or ideas, they help farmers justify agricultural decisions to themselves, officials, families, neighbors, and other audiences. Scripts reveal how farmers are conditioned to follow rules and norms (Silvasti 2003), help to define the parameters of good farming (Vanclay, Silvasti, and Howden 2007), and illuminate how farmers justify choices as a way of aspiring to live the lives they want to live (Leith and Vanclay 2017). As the seed market continuously erodes farmers' adaptive and learned responses to agroecological stimuli (Stone 2007), farmers make and rationalize seed decisions in ways that align with neoliberal discussions about yield, choice, and the purpose of cotton agriculture. The *manci digubadi* script thus both constructs a worldview and is reduced from it, limiting the range of options that people perceive are available to them (Vanclay and Enticott 2011). This is an insight not just into agricultural decision making but into the neoliberal stakes behind its justification. What kind of farming is made possible by the explosion of choices in the seed market, and how do farmers adopt the discourse of modernist agricultural development when coming to terms with those new possibilities?

MANCI DIGUBADI AS A SCRIPT

While unhelpful in fine-grained analyses of agricultural decision making or ground-truthing seed technology, *manci digubadi* illuminates how farmers engage with agricultural development. Scripts imply performers and stages, drawing our analytic attention to the ways in which farmers stake social claims witnessed by audiences, including neighbor farmers, media, shops, and visiting researchers. Scripts both reflect and create the expectations and norms of the performance. First, they introduce a shared vocabulary from the economic and social conditions of one's life. In neoliberal rural India, technocratic interventions and crisis narratives have driven the quest for ever greater yields since the green revolution (Cullather 2013). For agricultural scientists and policymakers, as well as for the farmers themselves, good yields are by definition a necessary and desirable part of farming. Second, repeated justifications to auditors of various kinds reinforce the notion that one's response is correct or incorrect. In a climate of frequent audits, including national

production updates, fluctuating commodity stock prices, farm-level research, and neighbors walking by, farmers frequently justify their seed choices to others. As a repeated justification, *manci digubadi* reinforces the notion that seed choices should be made on the basis of good yields and that good yields are a reasonable criterion for having made past decisions. That farmers do not agree on seed qualities, do not plant them long enough to observe such qualities, and reap similar yields from all seeds is not important. Indeed, *manci* (good) is not a precise term. What matters is that *manci digubadi* is an acceptable response to this diverse audience. In the context of systemic market uncertainty, the script becomes the justification.

Manci digubadi provides a way to respond to a question that has no good answer. Nationally, this refrain has developed a circular logic. Farmers are collectively praised by agribusiness for their choice of GM hybrid cottonseeds (Mohan 2013; Monsanto 2012), bolstered by data on national yield increases (Kathage and Qaim 2012), which legitimizes the justifications of farmers seeking some reason to choose one seed over the other. Understanding the hope for good yields as a performed script illuminates the ways in which, for farmers and analysts, the biotechnology capitalist world of cotton agriculture has limited the range of options that performers find available to them. Cotton agricultural decision making has become scripted and performed as the search for a good yield. This normalizes the private seed market even as it masks the uncertainties and anxieties at the edges of cotton farming: suicide, debt, frustration with stagnant yields, evolved resistance to target pests, uncertainty as to which seeds are best, a growing reliance on off-farm experts, and the rural–urban migration that leads older farmers to sell or lease much of their land.

While shop owners and agricultural extension officers that I met discriminated between seed brands by their growth habit (bushy, branching cottons are ill-suited to dense planting) or leaf hairs (a physiological defense against pests that suck juices from leaves and spread plant diseases), farmers remained fixated on brands. English names like *ATM* or *Jackpot* and Telugu names like *Jaadoo* (magic) or *Sarpanch* (a village-level political leader) make promises that farmers do not know if they can trust. Most packets bear suggestive images, like *ATM*, with a picture of an anthropomorphic cash dispenser shooting cotton bolls out of its cash slot; *Dr. Brent*, bearing a smiling, studious man in glasses and a red turban; and *Jaadoo*, bearing a chicken laying golden eggs. Other, less-showy brands simply bear enormous cotton bolls. One Banjara farmer, when predicting the size of her seed's cotton boll, referenced the image on the front of the packet. "It will be huge," she said, "look at the picture." "Are these pictures accurate," I asked, surprised at her rationale. She laughed. "Of course not, but who knows. This one might be." Her hope for a large boll also includes her hope for an easier picking season when the cotton ripens, as it is almost always women, rather than men, who do the picking. While both she and the men in her family who buy the

seeds hope for big, full cotton plants and high yields, the specific ways in which they hope for a good yield can differ. Ultimately, neither the women who pick and weed cotton nor the men who buy, spray, and plow it know much about the differences between these brands. Reading the barrage of advertisements and hoping for a good yield based on the image is, as farmers recognize, not the best rationale, but it feeds into the hopefulness with which farmers choose seeds.

These are existential as well as agricultural threats. *Manci digubadi* gives some order, a stage direction, to farmer performances. Simplifying the innumerable variables of farm life, this script helps to place farming within a shared narrative of neoliberal India, defined by high-tech development and rising power in the global political economy (Aiyer 2007; Münster 2012). “One must switch seeds at a minimum every three years,” explained one Reddy cotton farmer. “The new seeds have the best *science*.” His use of the English word “science” in his justification highlights how Telangana farmers connect themselves to India’s high-tech success story, including GM seeds, with the newest and best technology. Just as Ramamurthy (2017) shows with the use of “technic,” “science” helps farmers join dominant state narratives of success defined through technical knowledge, industrial capitalism, and the professional expertise of the government bureaucracy. As a material product, seeds make social worlds possible by bringing together families and by fulfilling religious duties (see Gold 2003). Cotton, in particular, holds a special place in the Indian imaginary, creating possibilities for beauty and complex displays of status (Herring and Gold 2005; Ramamurthy 2003), including India’s national aspirations in the global commodity economy (Beckert 2014; Guha 2007). *Manci digubadi* would not resonate if it did not allow farmers to couch their personal experiences within these broader narratives. Drawing from empirical fieldwork in the UK and eastern Australia, and commenting on Silvasti’s (2003) work in Finland, Vanclay and Enticott (2011) describe four forms of such cultural scripts: expected responses, catchphrases, parables, and common lines of argument. *Manci digubadi* serves all four purposes.

Farmer seed choices have expanded, even as seed selection itself has become an increasingly uncertain agricultural decision. From the three GM cottonseeds first available to farmers in 2002, farmers now choose between more than 1,200 private seed brands (USDA Foreign Agricultural Service 2015). This neoliberal paradox gives farmers more consumer choice but less-steady ground on which to weigh options and make decisions. When the farm is a stage that reflects one’s abilities, success, and potential to provide for a household, *manci digubadi* is an expected response to the GM cottonseed as a commodity. Using the text-mining program Automap (Carley and Diesner 2005) to create a semantic list (Lambert 2017) from six farmer focus groups, I found that the word pairing “good yield” was three times more common than any other grouping of words and phrases used to justify seed choices, including weather,

expert suggestions, personal observations, pest responses, and responses to other agronomic conditions. Farmers buy seeds because they have the potential for economic return, and that justification informs buying decisions, the observations of neighbors, and the sales pitches of vendors, none of whom have much empirical data to prefer one seed over another. This reinforces the normative message: seeds are tools for good yields, and thus seeds chosen should be chosen because of this yield factor. Moreover, “good yields” are a familiar justification for cotton because it is a cash crop. Others have documented the search for good yields as a justification for other cash crops like tobacco, hybrid rice, and hybrid maize (Gupta 1998; Vasavi 2012).

As a catchphrase, *manci digubadi* is the only consistent rationale given to describe cottonseed choices. Farmers do not agree on the agronomic qualities of seeds or plant seeds based on their observed yields. In one analysis, I found that farmers who planted given seeds were significantly less likely to plant them in the future and were far more likely to plant seeds that they saw in neighbors’ fields (Flachs, Stone, and Shaffer 2017). The performance of the script and the act of justification serve a much greater purpose than the ostensible meaning behind those words. The agronomic question of good yields is very difficult to answer, but as a catchphrase, *manci digubadi* alleviates some of this choice anxiety.

Scripts as parables are opportunities for farmers to couch an argument within assumed sequences of events, conveying moral or normative instructions. Vanclay, Silvasti, and Howden (2007) describe stories of farmers whose hard work allowed them to persist even as other family farms failed, mirrored by extension workers who celebrate hard workers for adapting to new ways of life (Vanclay and Enticott 2011). *Manci digubadi* is now inseparable from national media and commercial branding in cotton agriculture. Farmers gossip about spectacular yields on farms that they have never seen, referencing seeds profiled in newspapers or on television. The highest agricultural offices celebrate yield as the product of wise seed choice in nationalistic terms (Aiyer 2013; The Economic Times 2013), and farmers and seed vendors match their enthusiasm. Yield is the benchmark by which agribusiness and state development groups measure cotton farming (Herring 2013; Qaim 2009), so farmers also embrace the language of producing bumper crops and maximizing returns on investments. As with all moralizing parables, the danger of chasing high-yielding seeds also creeps into justifications of *manci digubadi*. Seed shortages of wildly popular cottonseeds in 2012, 2013, and 2014 led to widespread accusations of spurious “duplicate” or fake seeds sold by brokers and smugglers taking advantage of farmer demand. Seed smugglers continue to be apprehended by the police (The Hindu 2017), while in 2014 companies placed full-page newspaper notices that showed farmers how to spot fakes. The parable of the good, aspirational yield is kept in motion both by the celebrated stories of high-yielding farmers in rural news media and by the threat of gambling and losing with black market seeds.

The script reveals farmers' explicit and implicit audiences. *Manci digubadi* is a response to fellow farmers and the assurance of shop owners, but it also reflects the expectations of crop scientists and the larger discourse of agricultural economics mediated through policy, news, and shops. Farmers can be deeply troubled by their own uncertainties and reliance on shops, but they have few alternative sources of information. The script is a way to understand and justify one's decisions, especially when asked to justify them in conversation with audiences ranging from curious neighbors to foreign anthropologists.

TAKING SCRIPTS OFF THE FARM

Introduced as a solution to a crisis of pest attacks and low yields, GM cotton has been judged largely on its promise to raise yields (Herring 2015; Scoones 2006). Through public discourse in newspapers, on television, and in scientific reports, Telangana farmers have adopted this measure of success, justifying all seed choices in the context of the *manci digubadi* script. Since 2010, by which time most farmers had adopted GM cotton, national yields have largely stagnated (Kranthi 2016; Stone 2011). Yet this script persists. More than just an economic hope, *manci digubadi* encompasses the neoliberal vision of success in GM cotton agriculture: invest more, choose more, earn more, and produce more. Farmers internalize this through the performance of the right kind of farmer, who takes advice but chooses freely, makes the right decision, cares for his farm by investing agrochemicals, and reaps the rewards of this hard work.

Unquestioned in this story is why yields would plateau when almost all farmers plant GM cotton, why hybrids are water intensive when so many farmers lack irrigation, why the hybrid seeds are exclusively *Gossypium hirsutum* species so vulnerable to nontarget pests that total insecticide use has now surpassed pre-GM levels (Kranthi 2014), or what farmers will do now that some bollworms show resistance to the insecticidal genes (Aryai 2016). Also unquestioned is why the world needs so much cotton; the planet produces far more cotton than could be spun into clothing, a glut that has lasted several years (Patwardhan 2015; USDA Foreign Agricultural Service 2016). India and other states bear the cost of this global surplus by providing minimum support prices, effective subsidies against global market rates. Further down the supply chain, this ever-increasing stock is spun into cheap clothing at the expense of worker rights and safety, exported to wealthy markets in the United States and Europe, and eventually sold back to poorer nations through large-scale donations that suppress domestic industry (Beckert 2014; Brooks 2015).

This analysis has practical and theoretical contributions. Scripts themselves are undertheorized in the social study of agriculture, which is too often seen not as a set of socioecological performances but as a set of economic decisions. The reduction of agricultural complexity to *manci digubadi* illustrates how farmer decision making has increasingly narrowed its scope in ways that benefit agribusiness but place farmers

at risk. The explosion of possible seed brands that farmers can choose from is the most obvious way that agribusiness takes advantage of this uncertainty, but as farmers adopt the script they also adopt the logic of agricultural economists who see no reason to plant cotton other than to pursue good yields.

Farmer decisions cannot be understood without considering agriculture's performative nature or the neoliberal stages on which this performance occurs. Taking *manci digubadi* seriously as a script provides a vocabulary through which we can understand larger contexts, roles, cultural norms, and the unseen work of various agricultural values at play in rural India. These include subjective discourses about farming well in the effort to be a successful person, village- and farmer-level conceptions of development and progress, the temporal acceleration of the seed market, and the singular focus of the academic agricultural community on quantifiable increases in production. All of these agrarian norms are reflected in the *manci digubadi* script but because this script breaks down under ethnographic scrutiny, it masks a deep ambivalence about what it means to have "good" yields.

As consumers of seeds, farmers often have little basis for choosing the seeds they sow. As producers of cotton, farmers invest and effectively gamble in the hope of reaping a large harvest for a global market already facing a cotton glut. This problem stems from the rapid diversification of a private seed market as well as the uncertain local agricultural conditions in which farmers evaluate those seeds across their own and neighbor fields. India's cotton sector has been increasingly capitalized over the past twenty years, first through pesticides and hybrid seeds and now through GM seeds and herbicides. As the performance of knowledge and self are further squeezed into the limiting script of *manci digubadi* with the growth of herbicides and high-density cotton planting systems (Stone and Flachs 2017), farmers will continue to perform the role of consumers seeking economic returns. This has helped drive increases in urban industrial production, export, and gross domestic product on the positive side, and rural inequality, the dissolution of rural safety nets through neoliberal policies, and farmer suicide on the negative side.

Finally, the lens of performance combats a persistent question in Indian cotton agriculture: If GM seeds are not inherently better, why have farmers adopted them with such enthusiasm? This question, posed in endless variation by economists (Herring and Rao 2012; Kathage and Qaim 2012), critical observers (Kranthi 2016; Stone 2013), and government officials (Mohan 2013), presumes an economic rationalism: farmers simply do what's best. But to really do what is best, farmers must have a way of knowing what choices will be best. Because knowing what's best is often quite difficult for farmers, my focus on performance illuminates the larger socioeconomic context in which farmers choose GM seeds, year after year. *Manci digubadi* is about more than just yields. This script reveals a search

for social recognition, personal satisfaction, relief, and affirmation from an audience of shop owners, agricultural scientists, neighbors, and relatives that these yields might bring. By recognizing that the ultimate goal of agriculture is as much about the performance of good farming as it is about yield production, we understand the complexity of agriculture as a social act.

Andrew Flachs  Assistant Professor of Anthropology, Department of Anthropology, Purdue University, West Lafayette, IN 47907, USA; aflachs@purdue.edu

NOTES

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1. Selected villages represented a range of variation in urban connectivity, soil quality, access to irrigation, and ethnicity, which in this context differentiates members of the Banjara Scheduled Tribe (ST) from ethnic Telugu caste communities.
2. Member of India's historically marginalized Scheduled Caste community.
3. Member of India's historically landowning and Open Caste community.
4. Literally a large farmer, this term also connotes high socioeconomic status.
5. Another high-status, historically landlord Open Caste.
6. Rural town here refers to rural villages at least forty minutes to the nearest minor city but with reliable electricity and transportation routes. Town refers to villages within twenty minutes of the nearest minor city. Rural refers to villages lacking reliable transportation or electricity, where population density is lower. The differences and meaning of those differences between village types and ethnicities will be explained in greater detail below.

REFERENCES CITED

- Agrawal, Arun, and K. Sivaramakrishnan, eds. 2000. *Agrarian Environments: Resources, Representations, and Rule in India*. Durham, NC: Duke University Press.
- Aiyer, Ananthakrishnan. 2007. "The Allure of the Transnational: Notes on the Some Aspects of the Political Economy of Water in India." *Cultural Anthropology* 22 (4): 640–58.
- Aiyar, Swaminathan S. Anklesaria. 2013. "Higher Yields & Farmer Preferences Show, Bt Cotton Detractors Spreading Patent Falsehoods." *The Economic Times*, January 30. <https://economictimes.indiatimes.com/swaminathan-s-a-aiyar/higher-yields-farmer-preferences-show-bt-cotton-detractors-spreading-patent-falsehoods/articleshow/18246681.cms>.
- Aryai, Shishir. 2016. "Is Bt Cotton No Longer Safe against Pink Bollworm?" *Times of India*, February 13. <http://timesofindia.indiatimes.com/city/nagpur/Is-Bt-Cotton-no-longer-safe-against-pink-bollworm/articleshow/50967835.cms>.
- Bardone, Ester. 2013. "My Farm Is My Stage: A Performance Perspective on Rural Tourism and Hospitality Services in Estonia." Thesis, University of Tartu. <http://dspace.utlib.ee/dspace/handle/10062/34504>.
- Basu, A. K., and R. S. Paroda. 1995. *Hybrid Cotton in India: A Success Story*. Bangkok: Asia-Pacific Association of Agricultural Research Institutions.
- Batterbury, Simon P. J. 1996. "Planners or Performers? Reflections on Indigenous Dryland Farming in Northern Burkina Faso." *Agriculture and Human Values* 13 (3): 12–22. <https://doi.org/10.1007/BF01538223>.
- Beckert, Sven. 2014. *Empire of Cotton: A Global History*. New York: Knopf.
- Bell, Michael Mayerfeld. 2010. *Farming for Us All: Practical Agriculture and the Cultivation of Sustainability*. State College: Penn State Press.
- Bourdieu, Pierre. 1977. *Outline of a Theory of Practice*. Translated by Richard Nice. Cambridge: Cambridge University Press.
- Brooks, Andrew. 2015. *Clothing Poverty: The Hidden World of Fast Fashion and Second-Hand Clothes*. London: Zed Books.
- Butler, Judith. 1990. *Gender Trouble: Feminism and the Subversion of Identity*. New York: Routledge.
- Carley, Kathleen M., and Jana Diesner. 2005. *Automap: Software for Network Text Analysis*. Pittsburgh, PA: Center for Computational Analysis of Social and Organizational Systems.
- Cayla, Julien, and Giana M. Eckhardt. 2008. "Asian Brands and the Shaping of a Transnational Imagined Community." *Journal of Consumer Research* 35 (2): 216–30. <https://doi.org/10.1086/587629>.
- Cullather, Nick. 2013. *The Hungry World: America's Cold War Battle against Poverty in Asia*. Cambridge, MA: Harvard University Press.
- David, Paul. 2007. "Path Dependence: A Foundational Concept for Historical Social Science." *Cliometrica* 1 (2): 91–114. <https://doi.org/10.1007/s11698-006-0005-x>.
- Deccan Chronicle. 2018. "Burdened by Debt, 2 Farmers Commit Suicide in Telangana." *Deccan Chronicle*, March 6. <https://www.deccanchronicle.com/nation/crime/060318/burdened-by-debt-2-farmers-commit-suicide-in-telangana.html>.
- Deshpande, R. S., and Saroj Arora. 2010. "Editor's Introduction." In *Agrarian Crisis and Farmer Suicides*, edited by R. S. Deshpande and Saroj Arora, 1–42. New Delhi: SAGE Publications India.
- The Economic Times. 2013. "Farmers Prefer Growing Genetically Modified Crops: Sharad Pawar." *The Economic Times*, August 27. <https://economictimes.indiatimes.com/news/economy/agriculture/farmers-prefer-growing-genetically-modified-crops-sharad-pawar/articleshow/22095086.cms>.
- Fedoroff, Nina V. 2011. "Genetically Engineered Food for All." *New York Times*, August 18. <http://www.nytimes.com/2011/08/19/opinion/genetically-engineered-food-for-all.html>.

- Flachs, Andrew. 2016. "Redefining Success: The Political Ecology of Genetically Modified and Organic Cotton as Solutions to Agrarian Crisis." *Journal of Political Ecology* 23 (1): 49–70.
- Flachs, Andrew, and Glenn Davis Stone. 2018. "Farmer Knowledge across the Commodification Spectrum: Rice, Cotton, and Vegetables in Telangana, India." *Journal of Agrarian Change*. <https://doi.org/10.1111/joac.12295>.
- Flachs, Andrew, Glenn Davis Stone, and Christopher Shaffer. 2017. "Mapping Knowledge: GIS as a Tool for Spatial Modeling of Patterns of Warangal Cotton Seed Popularity and Farmer Decision-Making." *Human Ecology* 45 (2): 143–59. <https://doi.org/10.1007/s10745-016-9885-y>.
- Galab, S., E. Revathi, and P. Prudhvikar Reddy. 2009. "Farmers' Suicides and Unfolding Agrarian Crisis in Andhra Pradesh." In *Agrarian Crisis in India*, edited by D. Narasimha Reddy and Srijit Mishra. New Delhi: Oxford University Press.
- Gold, Ann Grodzins. 2003. "Vanishing: Seeds' Cyclicity." *Journal of Material Culture* 8 (3): 255–72. <https://doi.org/10.1177/13591835030083002>.
- Guha, Ramachandra. 2008. *India after Gandhi: The History of the World's Largest Democracy*. New York: Harper Collins Publishers.
- Guha, Smit. 2007. "Genetic Change and Colonial Cotton Improvement in Nineteenth and Twentieth Century India." In *Situating Environmental History*, edited by Ranjan Chakrabarti, 307–22. New Delhi: Manohar.
- Gupta, Akhil. 1998. *Postcolonial Developments: Agriculture in the Making of Modern India*. Durham, NC: Duke University Press.
- Gupta, Akhil. 2017. "Farming as Speculative Activity: The Ecological Basis of Farmers' Suicides in India." In *The Routledge Companion to the Environmental Humanities*, edited by Ursula K. Heise, Jon Christensen, and Michelle Niemann, 185–93. London: Routledge.
- Gutierrez, Andrew Paul, Luigi Ponti, Hans R. Herren, Johann Baumgärtner, and Peter E. Kenmore. 2015. "Deconstructing Indian Cotton: Weather, Yields, and Suicides." *Environmental Sciences Europe* 27 (1): 12. <https://doi.org/10.1186/s12302-015-0043-8>.
- Hakim, Danny. 2016. "Doubts About the Promised Bounty of Genetically Modified Crops." *New York Times*, October 29. <http://www.nytimes.com/2016/10/30/business/gmo-promise-falls-short.html>.
- Harvey, David. 1991. *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change*. Oxford: Wiley-Blackwell.
- Harvey, David. 2007. *A Brief History of Neoliberalism*. Oxford: Oxford University Press.
- Herring, Ronald J. 2007. "Stealth Seeds: Bioproperty, Biosafety, Biopolitics." *Journal of Development Studies* 43 (1): 130–57. <https://doi.org/10.1080/00220380601055601>.
- Herring, Ronald J. 2013. "Reconstructing Facts with Bt Cotton: Why Scepticism Fails." *Economic and Political Weekly* 48 (33): 63–66.
- Herring, Ronald J. 2015. "State Science, Risk and Agricultural Biotechnology: Bt Cotton to Bt Brinjal in India." *Journal of Peasant Studies* 42 (1): 159–86. <https://doi.org/10.1080/03066150.2014.951835>.
- Herring, Ronald J., and Ann Grodzins Gold. 2005. "Biology and Utility: Meanings and Histories." *Economic and Political Weekly* 40 (38): 4117–20.
- Herring, Ronald J., and N. Chandrasekhara Rao. 2012. "On the 'Failure of Bt Cotton': Analysing a Decade of Experience." *Economic and Political Weekly* 47 (18): 45–53.
- The Hindu. 2013. "Use of Bt. Cotton Increased Yield, Farmers' Income: Pawar." *The Hindu*, August 29. <http://www.thehindu.com/news/national/use-of-bt-cotton-increasedyield-farmers-income-pawar/article5069072.ece>.
- The Hindu. 2017. "Spurious Cotton Seeds Seized." *The Hindu*, June 9. <http://www.thehindu.com/news/national/telangana/spurious-cotton-seeds-seized/article18869248.ece>.
- Jadhav, Rajendra. 2018. "India Farmers Sow Unapproved Monsanto Cotton Seeds, Risking Arrest." *Reuters*, June 12. <https://www.reuters.com/article/us-india-cotton/india-farmers-sow-unapproved-monsanto-cotton-seeds-risking-arrest-idUSKBN1J80YT>.
- Jha, Dilip Kumar. 2013. "Bt Cotton Losing Steam, Productivity at 5-Yr Low." *Business Standard India*, February 7. http://www.business-standard.com/article/markets/bt-cotton-losing-steam-productivity-at-5-yr-low-113020601016_1.html.
- Kathage, Jonas, and Martin Qaim. 2012. "Economic Impacts and Impact Dynamics of Bt (*Bacillus Thuringiensis*) Cotton in India." *Proceedings of the National Academy of Sciences* 109 (29): 11652–56. <https://doi.org/10.1073/pnas.1203647109>.
- Kranthi, K. R. 2014. "Cotton Production Systems—Need for a Change in India." *Cotton Statistics & News* 38, December 16, pp. 4–7.
- Kranthi, K. R. 2016. "Technology and Agriculture: Messed in India!" *The Indian Express* blog. March 10. <http://indianexpress.com/article/india/india-news-india/technology-and-agriculture-messed-in-india/>.
- Lambert, Natalie J. 2017. "Text Mining Tutorial." In *Group Processes: Data-Driven Computational Approaches*, edited by Andrew Pliny and Marshall Scott Poole, 93–117. New York: Springer International Publishing.
- Leith, Peat, and Frank Vanclay. 2017. "Placing Science for Natural Resource Management and Climate Variability: Lessons from Narratives of Risk, Place and Identity." *Sociologia Ruralis* 57 (2): 155–70. <https://doi.org/10.1111/soru.12124>.
- Leslie, Paul, and J. Terrence McCabe. 2013. "Response Diversity and Resilience in Social-Ecological Systems." *Current Anthropology* 54 (2): 114–43. <https://doi.org/10.1086/669563>.
- Linssen, Rik, Luuk van Kempen, and Gerbert Kraaykamp. 2010. "Subjective Well-Being in Rural India: The Curse of Conspicuous Consumption." *Social Indicators Research* 101 (1): 57–72. <https://doi.org/10.1007/s11205-010-9635-2>.
- Maertens, Annemie. 2017. "Who Cares What Others Think (or Do)? Social Learning and Social Pressures in Cotton Farming in India." *American Journal of Agricultural Economics* 99 (4): 988–1007. <https://doi.org/10.1093/ajae/aaw098>.
- Menon, Meena, and Uzramma. 2018. *A Frayed History: The Journey of Cotton in India*. Oxford: Oxford University Press.

- Mohan, Vishwa. 2013. "Sharad Pawar Bats for GM Crops in House, Holds up Bt Cotton as Success Story." *Times of India*, August 28. <http://timesofindia.indiatimes.com/india/Sharad-Pawar-bats-for-GM-crops-in-House-holds-up-Bt-cotton-as-success-story/articleshow/22109722.cms>.
- Mohanty, B. B. 2005. "'We Are Like the Living Dead': Farmer Suicides in Maharashtra, Western India." *Journal of Peasant Studies* 32 (2): 243–76. <https://doi.org/10.1080/03066150500094485>.
- Monsanto. 2012. "India Cotton Success." <http://www.monsanto.com/improvingagriculture/pages/celebrating-bollgard-cotton-india.aspx>.
- Münster, Daniel. 2012. "Farmers' Suicides and the State in India: Conceptual and Ethnographic Notes from Wayanad, Kerala." *Contributions to Indian Sociology* 46 (1–2): 181–208. <https://doi.org/10.1177/006996671104600208>.
- Münster, Daniel. 2015. "Farmers' Suicides as Public Death: Politics, Agency and Statistics in a Suicide-Prone District (South India)." *Modern Asian Studies* 49 (5): 1580–605. <https://doi.org/10.1017/S0026749x14000225>.
- Netting, Robert McC. 1993. *Smallholders, Householders: Farm Families and the Ecology of Intensive, Sustainable Agriculture*. Stanford, CA: Stanford University Press.
- The New Indian Express. 2012. "A Mayhem Called Mahyco Seed Shortage." *The New Indian Express*, June 25. http://newindianexpress.com/states/andhra_pradesh/article550368.ece.
- Pandian, Anand. 2009. *Crooked Stalks: Cultivating Virtue in South India*. Durham, NC: Duke University Press Books.
- Patwardhan, Mayank. 2015. "Global Glut in Cotton to Persist." *Business Standard India*, June 10. http://www.business-standard.com/article/markets/global-glut-in-cotton-to-persist-115061000904_1.html.
- Peter, Gregory, Michael Mayerfeld Bell, Susan Jarnagin, and Donna Bauer. 2009. "Coming Back Across the Fence: Masculinity and the Transition to Sustainable Agriculture*." *Rural Sociology* 65 (2): 215–33. <https://doi.org/10.1111/j.1549-0831.2000.tb00026.x>.
- Qaim, Matin. 2009. "The Economics of Genetically Modified Crops." *Annual Review of Resource Economics* 1:665–94. <https://doi.org/10.1146/annurev.resource.050708.144203>.
- Qaim, Matin, and David Zilberman. 2003. "Yield Effects of Genetically Modified Crops in Developing Countries." *Science* 299 (5608): 900–902. <https://doi.org/10.1126/science.1080609>.
- Ramamurthy, Priti. 2003. "Material Consumers, Fabricating Subjects: Perplexity, Global Connectivity Discourses, and Transnational Feminist Research." *Cultural Anthropology* 18 (4): 524–50. <https://doi.org/10.1525/can.2003.18.4.524>.
- Ramamurthy, Priti. 2011. "Rearticulating Caste: The Global Cottonseed Commodity Chain and the Paradox of Smallholder Capitalism in South India." *Environment and Planning A: Economy and Space* 43 (5): 1035–56. <https://doi.org/10.1068/a43215>.
- Ramamurthy, Priti. 2017. "Technic." *South Asia: Journal of South Asian Studies* 40 (2): 400–403.
- Rao, P. Narasimha, and K. C. Suri. 2006. "Dimensions of Agrarian Distress in Andhra Pradesh. Economic and Political Weekly." *Economic and Political Weekly* 41 (16): 1546–52.
- Reddy, A. Amarender. 2017. "Agrarian Economy of Telangana." Report delivered at the Telangana Economic Association Conference, March 10, Hyderabad, India.
- Richards, Paul. 1989. "Agriculture as a Performance." In *Farmer First: Farmer Innovation and Agricultural Research*, edited by Robert Chambers, Arnold Pacey, and Lori Ann Thrupp, 39–42. London: Intermediate Technology.
- Richards, Paul. 1993. "Cultivation: Knowledge or Performance?" In *An Anthropological Critique of Development: The Growth of Ignorance*, edited by Mark Hobart, 61–78. New York: Routledge.
- Sarma, Ch. R. S. 2017. "Spurious Seeds Playing Havoc with Farmers' Lives in AP, Telangana." *Hindu Business Line*, December 15. <https://www.thehindubusinessline.com/economy/agribusiness/spurious-seeds-playing-havoc-with-farmers-lives-in-ap-telangana/article9992518.ece>.
- Scoones, Ian. 2006. *Science, Agriculture and the Politics of Policy: The Case of Biotechnology in India*. New Delhi: Orient Blackswan.
- Scott, James C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.
- Shiva, Vandana, Afsar H. Jafri, Ashok Emani, and Manish Pande. 2002. *Seeds of Suicide*. New Delhi: Research Foundation for Science, Technology, and Ecology.
- Silvasti, Tiina. 2003. "The Cultural Model of 'the Good Farmer' and the Environmental Question in Finland." *Agriculture and Human Values* 20 (2): 143–50. <https://doi.org/10.1023/A:1024021811419>.
- Stoll, Steven. 2002. *Larding the Lean Earth: Soil and Society in Nineteenth Century America*. New York: Hill and Wang.
- Stone, Glenn Davis. 2007. "Agricultural Deskilling and the Spread of Genetically Modified Cotton in Warangal." *Current Anthropology* 48 (1): 67–103.
- Stone, Glenn Davis. 2011. "Field versus Farm in Warangal: Bt Cotton, Higher Yields, and Larger Questions." *World Development* 39 (3): 387–98.
- Stone, Glenn Davis. 2013. "A Response to Herring and Rao." *Economic and Political Weekly* 48 (33): 70–72.
- Stone, Glenn Davis, and Andrew Flachs. 2017. "The Ox Fall Down: Path-Breaking and Technology Treadmills in Indian Cotton Agriculture." *Journal of Peasant Studies*. <https://doi.org/10.1080/03066150.2017.1291505>.
- Stone, Glenn Davis, Andrew Flachs, and Christine Diepenbrock. 2014. "Rhythms of the Herd: Long Term Dynamics in Seed Choice by Indian Farmers." *Technology in Society* 36 (1): 26–38.
- Taylor, Marcus. 2013. "Liquid Debts: Credit, Groundwater and the Social Ecology of Agrarian Distress in Andhra Pradesh, India." *Third World Quarterly* 34 (4): 691–709. <https://doi.org/10.1080/01436597.2013.786291>.
- Taylor, Marcus. 2014. *The Political Ecology of Climate Change Adaptation: Livelihoods, Agrarian Change and the Conflicts of Development*. New York: Routledge Earthscan.
- USDA Foreign Agricultural Service. 2015. *Cotton: World Markets and Trade*. Washington, DC: USDA.

- USDA Foreign Agricultural Service. 2016. *China and Hong Kong: Challenges and Opportunities*. Washington, DC: USDA.
- Vaidyanathan, A. 2006. "Farmers' Suicides and the Agrarian Crisis." *Economic and Political Weekly* 41 (38): 4009–13.
- Vanclay, Frank, and Gareth Enticott. 2011. "The Role and Functioning of Cultural Scripts in Farming and Agriculture." *Sociologia Ruralis* 51 (3): 256–71. <https://doi.org/10.1111/j.1467-9523.2011.00537.x>.
- Vanclay, Frank, Tiina Silvasti, and Peter Howden. 2007. "Styles, Parables and Scripts: Diversity and Conformity in Australian and Finnish Agriculture." *Rural Society* 17 (1): 3–8. <https://doi.org/10.5172/rsj.351.17.1.3>.
- Vasavi, A. R. 1999. *Harbingers of Rain: Land and Life in South Asia*. New York: Oxford University Press.
- Vasavi, A. R. 2012. *Shadow Space: Suicides and the Predicament of Rural India*. Gurgaon: Three Essays Collective.
- Wadke, Rahul. 2012. "Mahyco Denies It Sold Its Seeds in Black Market." *The Hindu*, July 15. http://www.thehindubusinessline.com/industry-and-economy/agri-biz/article3658632.ece?homepage=true&ref=wl_home.
- Walker, Kathy Le Mons. 2008. "Neoliberalism on the Ground in Rural India: Predatory Growth, Agrarian Crisis, Internal Colonization, and the Intensification of Class Struggle." *Journal of Peasant Studies* 35 (4): 557–620.

Appendix A

Village Distribution of Farmer Respondents

Village names (changed)	Households surveyed	Average cotton landholding (acres)	Average cotton yield, 2013 (quintals)	Ethnic composition	Soil quality	Village type ⁶
Kavrupad	66	6.76	6.95	Caste/Banjara	Mixed	Rural town
Ralledapalle	62	3.86	6.97	Banjara	Poor	Rural
Srigonda	69	5.92	6.44	Caste/Banjara	Mixed	Rural town
Gongapalle	60	4.34	7.71	Caste	Good	Town
Orukonda	60	6.52	7.84	Caste	Good	Town
All Banjara	134	5.18	7.01	Banjara	Poor	Rural
All Telugu Caste	183	6.18	7.70	Caste	Mixed	Rural town/town