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Peasant essentialism in GMO debates: the case of Burkina Faso

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ABSTRACT
Amidst polarized global debates about genetically modified (GM) crops, much attention has focused on Burkina Faso, where farmers grew Bt cotton from 2008-2015 in the first widespread commercial adoption of GM crops by smallholder African farmers. This article draws on ethnographic fieldwork and 125 interviews to analyze the debate accompanying this adoption, contending that both sides employed stock agrarian imaginaries that essentialized rural people. These competing imaginaries – romantic versus modern – reproduced polarized global narratives about GM crops and peasants, while misrepresenting or overlooking the inequalities and constraints shaping rural communities and the specifics of Bt cotton production. Both sides sought to claim the legitimacy and authenticity that comes from representing "the peasants," yet ironically flattened the complexity of rural experiences. This paper demonstrates how each side's adherence to agrarian imaginaries served to produce erroneous knowledge claims. This adherence resulted in part from local resource constraints and dependence on external actors, which produced pressure to conform to polarized global GMO scripts. The paper concludes that GMO debate participants and observers must eschew essentializing imaginaries if they seek to produce more accurate knowledge about the varied effects of GM crops.

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Key words: agrarian imaginary; New Green Revolution; African agriculture; biotechnology; transnational activism; political ecology

INTRODUCTION

Despite decades of debate over genetically modified organisms (GMOs), scientists and laypeople around the world remain divided over the risks and benefits of genetically modified (GM) crops in agriculture. As these debates have traveled to developing countries and been reframed in the language of "feeding the world" (Glover, 2010b; Paarlberg, 2008), polarized divisions have continued (Schurman & Munro, 2010; Stone, 2002). Certain cases, such as India, have been held up as critical test sites to ostensibly answer the question of whether GM crops are helpful or harmful for smallholder farmers in the Global South (Glover, 2010a; Scoones, 2008; Stone, 2012). As GMO debates have surged in Africa amidst clamors over the "New Green Revolution" in Africa (Moseley et al., 2017; Schnurr, 2019), attention first focused on South Africa, and then turned to the West African country of Burkina Faso (Dowd-Uribe & Schnurr, 2016).

Burkina Faso was the second African nation to commercialize GM crops with the introduction[2] of Bt cotton in 2008, but the first to do so with large numbers of smallholder farmers (Dowd-Uribe & Bingen, 2011). As such, Burkina Faso was widely viewed as a critical bellwether for the future of GM crops in Africa. Through collaboration with Monsanto and Burkinabè cotton institutions, insect-resistant Bt cotton[3] from the United States was backcrossed with long-fiber Burkinabè cotton varieties. Soon after commercialization in 2008, GMO advocates proclaimed Burkina Faso a success story, pointing to the 70% of cotton farmers who had adopted Bt cotton and claiming higher yields and pest protection (James, 2015; Pertry et al., 2016). Meanwhile, activists organized protests and crowds marched against Monsanto in the capital city Ouagadougou (Van Eeckhout, 2015). Then, to the surprise of most, in 2016 the Burkinabè cotton sector ended its contract with Monsanto, citing Bt cotton's shorter fiber (staple) length and lower ginning ratio (AICB, 2015; Dowd-Uribe & Schnurr, 2016). The Burkinabès explained that due to the shorter fiber, which is less desirable for textile manufacturers, they had lost 48 billion CFA francs (~US$80 million) in cotton sales and lost their international reputation for long-fiber cotton (Bavier, 2017).

Given widespread debates over GM crops in other African nations (Harsh, 2014; Rock, 2019; Schnurr, 2013), it is worth carefully examining what happened in Burkina Faso. While others have examined institutional dimensions of the Bt cotton story (Dowd-Uribe, 2014a; Dowd-Uribe & Schnurr, 2016; Fok, 2016), this article examines how the debate over Bt cotton played out in Burkina Faso, examining the contrasting narratives of pro- and anti-GMO actors (both within and outside of Burkina Faso) in light of empirical findings from my fieldwork.

[2] Bt cotton was first grown in Burkina Faso in field trials in 2003, and commercialized in 2008 with select farmers for seed production, and then on a wider basis in 2009 (Compaoré Sawadogo, 2018; Dowd-Uribe & Schnurr, 2016).

[3] Monsanto's Bollgard II cotton produced the proteins Cry1Ac and Cry2Ab (from the soil bacterium *Bacillus thuringiensis*), which kill Lepidopteran larvae (common cotton pests) (Dowd-Uribe & Bingen, 2011).

Although pro- and anti-GMO groups are radically divergent in many ways,[4] like Stone (2002), I demonstrate a surprising similarity in tactics between these two groups. Drawing on eight months of ethnographic data, 125 interviews, and content analysis of the debate, I contend that both promoters and critics of Bt cotton in Burkina Faso employed different, but nonetheless essentialist agrarian imaginaries that relied on one-dimensional portrayals of rural people (Bernstein, 2006; Brass, 2000; Guthman, 2004; Soper, 2019). On the one hand, GMO critics employed a "romantic agrarian imaginary," viewing farmers as traditional peasants who save their seeds and grow food in harmony with nature. Meanwhile, GM crop promoters utilized a "modernist agrarian imaginary," viewing farmers as backward peasants who are en route to becoming modern, rational professionals who follow prescribed technical itineraries. I argue that both imaginaries: 1) idealized a specific type of "peasant" while flattening out a complex, divided, and rapidly changing rural social world, and 2) operated as conceptual filters that produced empirically inaccurate narratives that failed to recognize the specifics of cotton production in Burkina Faso and the diversity of farmer experiences with Bt cotton.

While the critique of disembedded knowledge claims has been previously aimed at pro-GMO literature (Dowd-Uribe, 2014a; Glover, 2010a), my findings suggest that this tendency toward essentialism and disembedded narratives existed on both sides. These tendencies likely resulted from the divisiveness of the GMO debate, wherein debate participants were eager to claim the authenticity of representing the "peasants," yet unwilling to acknowledge nuance for fear of ceding ground. I also contend that for both Burkinabè activists *and* cotton sector employees, dependence on outside resources and donor support likely played a role in their embrace of essentialized narratives. Both sides may have (consciously or not) aligned themselves with global imaginaries as a way of attracting or maintaining resources. As polarized debates over GMOs continue across Africa, I suggest that debate participants and observers must demand and produce knowledge that is embedded in local contexts, that recognizes a diversity of rural positions, and acknowledges the ongoing and pre-existing processes of capitalist transformation already underway in African countrysides.

DEBATES OVER GM CROPS AND PEASANT ESSENTIALISM

Regardless of geographical context, knowledge and public discourses about GM crops have been strongly shaped by polarized camps of anti-GMO and pro-GMO actors (Fitting, 2010; Kinchy, 2012; Schurman & Munro, 2010; Stone, 2002). In an early examination of this polarization, Stone (2002) examined how agribusiness interests play the Malthusian card: arguing that new technologies and increased production are the only way to solve hunger. Meanwhile, activists tend to argue that genetic modification will worsen hunger or disrupt traditional seed systems. Stone (2002, 2012) has suggested that both sides have been unwilling to consider evidence that contradicts their positions, and that both sides tend to create monolithic categories of genetic modification that lump together many different technologies as well as differences between public and privately funded technologies.

This paper revisits Stone's call to scrutinize the polarized and often manipulative positions in the GMO debates in part to "increase the empirical veracity of the global debate" (Stone, 2002, p. 616). In doing so, I do not address many important but related conversations

[4] These differences include considerations and evaluations of risk, attitudes toward capitalism and privatization, and broader visions of agrarian change (see Fitting, 2010; Kinchy, 2012; Schurman & Munro, 2010).

about GM crops, including: the deep ideological divides and different interpretations of the stakes of GM crops or definitions of risk (Fitting, 2010; Kinchy, 2012; Schurman & Munro, 2010), questions about the relationships between industry funding/influence, biotechnology, and scientific research and knowledge (Glenna et al., 2011; Moore et al., 2011; Schurman, 2017), and broader conversations about GM crops as embedded in a capitalist food regime, including questions about intellectual property and seed enclosures (Kloppenburg, 2004, 2010; McAfee, 2003), or the structural causes of poverty and hunger (Jansen & Gupta, 2009; Moseley, 2017; Tripp, 2009).

Instead, this article considers how the polarization of the global GMO debate has itself produced particular effects, particularly regarding knowledge claims. My aim is not to dismiss the debate, as some promoters of "biotechnology for the poor" have done (as discussed by Jansen & Gupta, 2009). Instead, like Stone, I call attention to a surprising similarity in tactics between the ostensibly polar-opposite camps of anti-GMO activists and GM crop promoters. This similarity was also described in Fitting's (2010) study of GM maize in Mexico, where she found that both sides of the GMO debate tended to portray rural farmers as rooted in a traditional, unchanging agrarian culture. I build on Fitting's observation by drawing upon literature on agrarian imaginaries and peasant essentialism. I consider how these ideological frameworks have shaped claims made about GMOs in Burkina Faso, and by consequence, broader debates over GMOs in the Global South. This builds on previous scholarship examining how polarized GMO narratives are shaped by particular worldviews. Stone has argued that in India, the two sides of the debate rely on knowledge authentication systems that "are structured by their own social conventions for creating certain forms of knowledge while nullifying others" (2012, p. 63). Similarly, Böschen (2009) draws on the concept of epistemic cultures to consider differing interpretations of risk among GMO debate participants.

In this article, I take a new angle by examining how broader agrarian imaginaries shaped the GMO debate in Burkina Faso. The idea of the agrarian imaginary has been variously studied and labeled as agrarianism (Dalecki & Coughenour, 1992), the agrarian imaginary (Guthman, 2004), the agrarian ideal (Mariola, 2005), the agrarian myth (Brass, 2000), or the third world agrarian imaginary (Besky, 2013). These concepts, though varied, generally refer to romantic, moralizing, or idealized portrayals of rural culture, peasants, and farming in numerous geographic and temporal contexts. These imaginaries tend to flatten out or overlook rural conflict, diversity, and change.

A closely related literature has criticized tendencies of peasant essentialism in various versions of peasant populism, food sovereignty, or post-development scholarship (Agarwal, 2014; Bernstein, 2014; Brass, 2000; Li, 2015; Nanda, 2001; Soper, 2019). As Bernstein concisely argued, "nothing is gained, and much obscured… by characterizing contemporary small farmers as 'peasants'" (2011, p. 454). Criticisms of peasant essentialism have come from numerous angles, including Marxist critiques that peasant essentialism overlooks class factions (Brass 2000) or the divide between farm owners and farmworkers (Besky, 2013; Guthman, 2004), and feminist critiques that gender divides are ignored (Agarwal, 2014; Razavi, 2009). Others have pointed out the pitfalls of presuming farmers' desires or motivations (Agarwal, 2014; Nanda, 2001). In essence, peasant essentialism overlooks or flattens conflicts and differences along multiple intersecting lines such as gender, class, occupation, local politics, land ownership, age, race, ethnicity, or education (Luna, 2019; Mollett, 2017).

Agrarian imaginaries usually employ elements of peasant essentialism, as particular projections of an agrarian world rely upon pre-conceived notions of the peasantry that lives

there. There are two key variants of the agrarian imaginary, both of which are relevant for my analysis. First, the romantic agrarian myth has been visible in iterations of U.S.-based agrarianism and many contemporary food sovereignty and organic food movements (Guthman, 2004; Jansen, 2015). In the romantic imaginary, peasants are portrayed as closer to nature, as inherently nurturing of the earth, as rooted in tradition, as small-scale, as focused on subsistence rather than motivated by profit, and as hostile to foreign interventions and technology (Besky, 2013; Brass, 2000; Fitting, 2010; Guthman, 2004).

A second agrarian imaginary that emerged in the 20th century is what Fitzgerald (2003) calls the industrial ideal: the modernist ideal of modeling farms and farmers after the rational and utility-maximizing logic of factories. Agricultural change in the United States over the 20th century was founded on this ideal – the "get big or get out" push for mechanization, specialization, increased scale, uniformity, and an "obsessive preoccupation with yield increases" (Kloppenburg, 2004, p. 6). This ideal was then exported via the Green Revolution and the likes of Norman Borlaug. These same logics continue to characterize the contemporary push for a "New" Green Revolution in Africa (Moseley et al., 2017; Patel, 2013). The modernist ideal has long competed with the romantic ideal, as evidenced in the debate between James Scott and Samuel Popkin over whether rural small-holder farmers operate according to a moral economy or as rational actors (Wilk, 1996), or longstanding debates in the U.S. between conventional and alternative agricultural paradigms (Beus & Dunlap, 1990).

Despite major differences, the modernist and romantic imaginaries both employ a similar trope of rural peasants outside of capitalism. Both imaginaries tend to view small-scale farmers as "a residual of a pre-capitalist past" (Bernstein, 2006, p. 402; Fitting, 2010). The difference is that modernists view these traditional peasants as obstacles to be removed or transformed, whereas the romantics view them as heroic yeomans to be preserved. Viewing small-scale farmers as pre-capitalist peasants, however, contradicts extensive evidence that small-scale farmers in most parts of the world have long been implicated in capitalist relations (albeit with extensive diversity and debate as to how they articulate, resist, or survive within or alongside these systems) (Akram-Lodhi & Kay, 2009). In sum, both imaginaries overlook the complexities of how rural people – including in Africa – have been extensively intertwined with processes of capitalist change for quite some time (Berry, 1993; Oya, 2007, 2012; Piot, 1999).

Both the modernist and romantic agrarian imaginaries have been promoted by transnational networks of actors – whether activists promoting the romantic ideal (Borras et al., 2008; Keck & Sikkink, 1998) or agribusinesses promoting the modernist ideal (Downey, 2015; Schurman & Munro, 2010). However, when applied with insufficient attention to local context, these imaginaries can result in inaccurate knowledge claims. Literature promoting GM crops has been duly criticized for depending "upon an analysis that disembeds the technology from the technical, social and institutional contexts in which it is applied" (Glover, 2010a, p. 955; also Stone, 2011; Tripp, 2009; Schnurr, 2012, 2019; Dowd-Uribe, 2017; Flachs, 2019). This article considers how *both* activists and promoters relied on disembedded agrarian imaginaries and scripts about GM crops while paying insufficient attention to local context. This, I argue, may result from dependence on international donors (who espouse those imaginaries), yet jeopardizes the production of accurate and textured knowledge about GM crop outcomes. Furthermore, essentialist arguments are used to make claims for and about farmers' lives, yet in ways that obscure the diverse struggles farmers face.

CASE AND METHODS

Bt cotton was introduced in Burkina Faso ostensibly as a solution to pesticide-resistant cotton pests (Dowd-Uribe, 2014a), and to increase yields. Similar to India (Stone, 2011), Bt cotton thus responded to systemic problems created by the extended monocropping of a pest-vulnerable crop. Yet cotton is the leading agricultural export crop in Burkina Faso, and creates substantial and much-needed export income for the state (Gray, 2008). Despite World Bank-led efforts to liberalize the cotton sector in the 2000s, the sector remains monopsonistic, with the parastatal company SOFITEX controlling the southwestern region, where 80% of Burkina Faso's cotton is produced (Dowd-Uribe, 2014b). SOFITEX provides farmer groups with credit for inputs and collects harvested cotton. This vertical integration, which ensures that debts are repaid, was attractive to Monsanto as it sought to expand into African markets (Dowd-Uribe & Schnurr, 2016). It also creates a highly unequal relationship between farmers and the cotton company. Despite optimistic claims of farmer empowerment through a farmers' union (*L'Union Nationale des Producteurs de Coton du Burkina Faso* – the UNPCB), recent scholarship indicates that the union has been largely co-opted by larger, wealthier farmers (Dowd-Uribe, 2014b; Gray et al., 2018). This reflects deepening socio-economic differentiation in Burkina Faso, where farmers are splitting into noticeably different categories with highly unequal access to resources and political power (Gray & Dowd-Uribe, 2013; Luna, 2019).

This paper draws on eight months of ethnographic fieldwork conducted in Burkina Faso in 2016. In early 2016, Monsanto and the Burkinabè cotton organizations negotiated the fate of Bt cotton, and I conducted interviews throughout this time period with actors on all sides. I conducted 125 open-ended interviews: with government officials and research scientists (7), cotton company (SOFITEX) employees at all levels (15), agribusiness employees, including Monsanto (5), non-governmental actors and activists (10), and male and female farmers of varying wealth and other attributes (80 total, including Bt, conventional, and organic[5] farmers). Interviews and fieldwork were conducted in Dioula and French, both languages I spoke fluently before fieldwork began. Two Burkinabè Master's degree students assisted me during portions of my research.

In addition to interviews, I conducted participant observation in multiple sites. To observe GM crop "promoters," I spent time with mainstream cotton sector actors. I attended a West African cotton conference and spent one month doing participant observation with SOFITEX in the Houndé region, where I followed along in daily work and meetings with farmers. To observe activists, I attended anti-GMO events, including a multi-day "caravan" passing through West Africa, and a multi-day anti-GMO event in Ouagadougou that featured many international anti-GMO activists. I met many activists and interviewed some of them separately, and also conducted interviews with people working for related organizations, including FENOP (*Fédération Nationale des Organisations Paysannes*), INADES (*Institut Africain pour le Développement Economique et Social*), Terre à Vie, and SYNTAP (*Syndicat National des Travailleurs de l'Agro-Pastoral*). I also tracked newspaper and online coverage related to GMO debates in 2016. In this article, I leave interviewees' specific positions somewhat vague to protect anonymity.

Finally, I lived in a rural community where there had been notable anti-GMO activism as well as Bt adoption: the neighboring towns of Kongolekan and Dougoumato in the Houndé

[5] Organic cotton is roughly 1% of total cotton production, and is often farmed by women (compared to the male-dominated cotton sector as a whole) on very small plots of land, in regions with limited conventional cotton.

region (roughly 4,000 combined residents, mostly Bwa ethnicity). I found the site through a group of activist farmers I met repeatedly at anti-GMO events. They graciously invited me to conduct five months of fieldwork in their community. After carefully introducing my work to the community with the help of my research assistant (emphasizing my interest in the varied experiences of *cotton farmers*, and *not* as an anti-GMO activist), I was able to conduct extended participant observation with large numbers of cotton farmers with a diverse range of farm attributes and attitudes toward Bt cotton. My fluency in Dioula enabled me to participate in many social and community events and pass long afternoons and evenings chatting with small groups of people. Given that this community was the site of some of the most pronounced anti-GMO activism in Burkina Faso (yet also featured large numbers of pro-GMO farmers and many farmers with mixed views), my findings from this fieldwork form the backbone of many of my analyses in this paper.

Making and critiquing knowledge claims

In examining the production of essentializing peasant imaginaries, I risk producing my own essentialism: portraying all activists or all GM crop promoters in singular ways. This is a critical caution framing my analysis. Importantly, not all anti-GMO activists or GMO promoters (discussed below) subscribed to the imaginaries I describe. There were people on both sides that recognized complexities, and many people "in between" who tried to avoid essentialized narratives. Nonetheless, with this awareness in mind, this paper focuses on the essentialized agrarian imaginaries because they were widespread and influential in shaping the construction of knowledge around GM crops in Burkina Faso.

Second, this article must navigate the epistemological waters of any discourse analysis, a task further complicated by the "post-truth" moment (Neimark et al., 2019). I frame my analysis within political ecology, which has long examined interlinkages between knowledge production and political-economic relations (i.e. Bryant, 1998; Forsyth, 2013) and between global-and local-level processes, often pointing out disjunctures between "international rhetoric versus local realities" (Gray, 2008; also see Adger et al., 2001; Leach & Mearns, 1996). However, political ecologists engaged in these analyses must tread carefully. On one hand, they risk relativizing all knowledge claims; on the other hand, these kinds of analysis can implicitly assert a special claim to truth that cuts through the false narratives of others (Forsyth & Walker, 2008; Hannigan, 1995; Potts, 2000). I attempt to thread this needle, recognizing that all truth claims are situated, yet some claims are backed by much better evidence than others. I draw on my empirical fieldwork (and broader literature) to argue that certain claims made by actors in the Burkina Faso Bt debate were either false or incomplete. Beyond noting these empirical inaccuracies, however, my primary aim is to critically examine *why* these claims were produced, showing how they were significantly shaped by adherence to essentialist imaginaries. Later in the paper, I interrogate the political-economic drivers and consequences of these claims.

ANTI-GMO ACTIVISTS AND THE ROMANTIC IMAGINARY

In this section, I examine how many anti-GMO activists working in and reporting on Burkina Faso employed a romantic agrarian imaginary, wherein peasants were portrayed as fighting against outside corporate intervention and as desiring food sovereignty, local seed provisioning, and agro-ecological farming systems. These narratives reflect the standard scripts of transnational anti-GMO activism. In Burkina Faso, the romantic ideal was promoted by some

members of locally based anti-GMO groups, but also quite often by international NGOs and journalists working in and reporting on events in Burkina Faso. I examine how activists deployed the romantic imaginary, and how it shaped their interpretation and portrayals of Bt cotton.

Peasants kicking out Monsanto

A prominent theme in activism and news coverage of events within Burkina Faso was the idea that peasants were rising up to fight against Monsanto, the evil multinational corporation, in a "battle against Goliath" (Slow Food, 2018). This narrative became particularly loud in March 2016, when the Burkinabè cotton sector ended their contract with Monsanto. One activist organization in Burkina Faso had the slogan "Only the fight of the Burkinabè people can push out Monsanto" on their website home page. At an anti-GMO event in Ouagadougou, a video was projected with a message from the renowned French activist José Bové: "Since 2008 in Burkina Faso, Monsanto imposed its GMO cotton. *Many Burkinabè peasants, many citizens mobilized* against this GMO cotton, and they were right. Today, ten years later, it is a complete failure ... *The cotton producers have decided,* and they're getting out of GMOs" (translated from French by author; emphasis added). Bové describes peasants mobilizing and deciding they did not want GMOs. Some news coverage made similar claims. For example, the website "DownToEarth" ran an article titled: "Africa's big little anti-GM revolution: Burkina Faso's farmers have thrown out Monsanto's Bt cotton and returned to conventional seeds, with a little help from India" (Jishnu, 2017).

However, this message was factually inaccurate. Based on extensive interviews from 2016, the Burkinabè decision to not renew a contract with Monsanto was based entirely on Bt cotton's lower profitability for the cotton companies because of the shorter fiber length and less desirable ginning ratio (also see Bavier, 2017; Dowd-Uribe & Schnurr, 2016; Fok, 2016; L'Economiste du Faso, 2016; Sanou et al., 2018). Concerns about these quality issues had been present for years (although not made public), and the Burkinabè parties had even obtained some financial compensation from Monsanto for the 2009/2010 and 2010/2011 cotton seasons (AICB, 2015). However, negotiations broke down when Monsanto failed to fix the issue, and Burkinabè cotton sector leaders opted to end Bt cotton production in order to salvage their plummeting cotton sales.

In contrast to the narrative of peasants kicking out Monsanto, cotton farmers themselves did not make this decision, and it seems hard to find evidence that anti-GMO activism played any role in Monsanto's exit. While some activists and journalistic coverage did refer to these fiber quality issues, the point here is that peasant activism was not the cause of Monsanto's exit. When activists made this claim it actually reinforced their dismissal by GMO proponents. Many cotton sector employees derided anti-GMO activists for making claims about peasants kicking out Monsanto. In one interview, a cotton sector employee commented on a public debate with a prominent activist, saying: "(He) had no idea what he was talking about. Nearly everything he said was false. And it was as if he did not want to learn – he did not want to hear what we had to say." Cotton sector employees and GM crop advocates used these disjunctures as evidence that activists were uninformed and to dismiss their concerns. This has been a recurrent tactic of GM crop proponents, who seize on false claims to call critics "anti-science zealots" (Borlaug, 2000).

A second concern about this message is that the size of the anti-GMO movement in Burkina Faso was exaggerated. While the true size of the movement is hard to substantiate, it appears that a relatively small core of people were engaged in active resistance to Bt cotton. I witnessed small numbers of farmers at anti-GMO events, in the range of a few dozen (though

attendance is limited by transportation costs, knowledge about events, and potential fear of reprisals). Furthermore, my field site was a particular hotspot for anti-GMO activist farmers, yet by 2016, anti-GMO farmers appeared to be a minority in the community (see footnote six for further evidence). Leading up to 2009, there was heated contestation over Bt cotton within the community, with many farmers having heard (likely from French activists) that GMOs would kill their animals and cause sickness. However, by 2016, many farmers had since chosen to grow Bt cotton or become less concerned about it. Nonetheless, many farmers were extremely critical of the higher risks of debt with Bt cotton (also see Dowd-Uribe, 2014a; Renaudin et al., 2012; Sanou et al., 2018; Vognan & Fok, 2019). A smaller group was still convinced that Bt cotton killed animals and caused sickness. This smaller group of committed activists told me that they felt somewhat marginalized within their community. Further supporting this point, a survey conducted in 2015 of 324 farmers from 12 villages found that 88% of farmers disapproved of the state decision to suspend Bt cotton (Sanou et al., 2018). If anything, farmers target their ire more proximally at SOFITEX (Luna, 2019). These findings thus call into question the narrative of peasants rising up against Monsanto.

Furthermore, in one instance, I observed a prominent activist creating misleading evidence to support the narrative that large numbers of Burkinabè farmers were anti-GMO. At this event, hundreds of rural people had gathered to oppose dam-induced land dispossession. An anti-GMO activist, however, placed a large banner in front of the crowd with the words (in French): "People of the world and Burkina Faso standing up against GMOs," while journalists took photos. However, I had spoken earlier with a community leader about local cotton production, and been told that "the whole village grows Bt," and that they got good yields and profits. Based on this interaction, which indicates that at least some farmers in this community had a positive view of Bt cotton, and the fact that the entire event – and thus the large crowd of people – was organized *around the issue of a dam, not Bt cotton*, I found it disingenuous that this activist placed an anti-GMO banner in front of this crowd to create a photo-op – making it appear that those people were gathered to protest GMOs, when in fact they were not. Although this is one person and one instance, and certainly does not invalidate other events, this raises questions about how activists (*or GMO promoters*) can become so attached to the imaginary they want to promote that they may go to extreme lengths to produce their message.

Peasants re-appropriating seeds

A second consistent theme in anti-GMO activism is the idea that patented GM seeds threaten traditional practices of saving and re-planting indigenous or native seed varieties. This concern is connected with a broader critique of the neoliberal political economic system, and an important attempt to re-frame the debate over GMOs from one about narrowly defined risk to a debate about capitalism itself, who wins and who loses, and broader systems of ownership and control (Fitting, 2010; Kinchy, 2012; Kloppenburg, 2004). While I agree that these concerns are important, in the case of activism in Burkina Faso, the cut-and-pasting of this global anti-GMO imaginary paid insufficient attention to the specifics of this particular case, where cotton farmers have not saved cotton seed for many decades.

Nonetheless, the theme of re-appropriating seeds was prominent in activist messages in Burkina Faso. For example, at one anti-GMO event, a prominent activist addressed the crowd: "We must stop the patenting of life, the monopolization of life, the unbalancing of our ecosystem." In an online article about GMOs, a Burkinabè representative for the Slow Food movement was quoted: "The privatization of seeds poses a serious threat to Burkina Faso and its

food sovereignty. The decline of many local varieties, adapted to local territories and resistant to many of the effects of climate change, is likely to accelerate" (Slow Food, 2018). We can also turn again to the video from French activist José Bové, where he addressed an activist event in Ouagadougou: "The meeting you are holding can bring to fruition the conditions to allow the peasants to re-appropriate their seeds, to re-appropriate their future, with the support of all citizens." In another example, a local activist played the following message on the radio: "(Monsanto's goal is) to force the peasant to re-purchase their seeds every year, to make them prisoners of Monsanto… We must fight to reclaim the rights of Burkinabé peasants to use their own seeds and exchange seeds with their neighbors…"

Yet these claims about re-appropriating seeds contradict the specifics of the case of Bt cotton in Burkina Faso. The departure of Bt cotton from Burkina Faso had no impact on cotton farmers being able to re-appropriate their seeds. Cotton farmers have purchased cotton seed from the cotton companies for decades. They do not save cotton seeds. For one thing, removing cotton seeds by hand is difficult and time-consuming (thus, the historical importance of the cotton gin). Second, traditional cotton cultivars grown in Burkina Faso were largely eliminated post-WWII by the French colonial effort to increase cotton exports from African colonies. The French Company for the Development of Textiles and Fibers (CFDT) then introduced new cultivars with desired characteristics for textile production (Dowd-Uribe, 2014a). In sum, some activists ignored the specific local reality that the only GM seed then commercialized in Burkina Faso was cotton, and that farmers would not revert to saving cotton seeds once Monsanto left. Farmers' seed costs would go down, but they would still buy seed. Anti-GMO activists, in this case, seemed so focused on GM seeds as the vehicle for capitalist expansion that they overlooked the ways in which agricultural inputs have been steadily commodified in other ways.

When peasants don't fit the imaginary: they are duped

While activists exhibited a tendency to portray peasants according to the romantic imaginary, they nonetheless had to recognize that not all farmers fit this image. How did activists deal with the inconvenient fact that up to 70% of Burkinabè cotton farmers adopted Bt cotton? One strategy was to claim that Bt cotton was imposed on farmers – the narrative of state and corporate power bearing down upon small-scale farmers. Here again, this narrative was not fully substantiated by my fieldwork. Some farmers stated that early on, Bt cotton was heavily promoted and that SOFITEX tried to impose it. However, these farmers stated that after 2009, farmers had a choice in which seed variety (conventional or Bt) they ordered. This is further substantiated by cotton group records from 2015 that showed farmers' seed orders, demonstrating a mix of Bt and conventional seed choices, and that many farmers grew some of each type.[6] The claim that farmers grew Bt cotton because they were forced to simply doesn't match the evidence.

A second (related) strategy was to de-legitimize farmers who adopted Bt cotton as essentially the wrong kind of peasant. One local activist explained to me that farmers had been deceived by the Western vision of modernity. A French activist framed farmers who grew Bt cotton as stupid and duped. This activist had flown in for an anti-GMO event, and was relatively

[6] Across three farmer groups (GPCs), of 116 farmers, 58 ordered only Bt seed, 20 ordered only conventional seed, and 38 ordered some of each. Nonetheless, there are reports of SOFITEX determining what kind of seed a GPC will receive, particularly in 2015 when SOFITEX sought to reduce Bt seed use and forced some farmers to grow conventional (see Sanou et al., 2018).

uninformed about the specifics of Bt cotton in Burkina Faso. In a casual setting among other French activists, he told me that Burkinabè farmers who had adopted Bt cotton, "*etaient cons* (were stupid). They didn't know what it was. They didn't know it was GMO. They were just told, *voila*, this will protect against pests, and *voila*." He portrayed the farmers as uninformed victims. From my perspective, this was a patronizing view of African farmers, and the negative corollary of a romantic imaginary that portrays peasants as traditional, non-Western, and thus easily duped by corporate villains.[7] In my fieldwork, most farmers I spoke with had nuanced understandings of the practical aspects of the technology. They may not have understood what genetic modification was, and many were likely influenced by narratives promoted by SOFITEX and social imitation of other farmers (also see Fitting, 2010; Stone, 2016), but they were not duped idiots. They exhibited aspects of what Stone (2016) has called "environmental learning – observing and basing decisions on empirical payoff information from experiment" – with some (often poorer) farmers, for example, deciding to stop growing Bt because of the high seed cost, risk of debt, and perceived issues with harvest weight, and other (often wealthier) farmers expanding Bt production because of perceived labour savings (see Sanou et al., 2018 for similar findings).

GMO PROMOTERS AND THE MODERNIST IMAGINARY

If I ended here, this article would read as a criticism of anti-GMO activism. This might leave us in a default position of accepting the counter-claims made by GM crop promoters. Instead, I contend that GM crop promoters also employed peasant essentialism, promoting a rival agrarian imaginary that was equally prone to producing erroneous claims and simplistic glosses of complex farmer realities. In this section, I demonstrate how GMO promoters in Burkina Faso viewed the world through the lens of a modernist agrarian imaginary that – like the romantic imaginary – simplified the complex realities of rural life-worlds, and in doing so produced inaccurate or incomplete claims. Bt cotton was viewed as disembedded from social relationships of culture and power, and backward peasants became the foil for technological failures. As other scholars have pointed out, this perspective has been systematic in broader pro-GMO literature and narratives (Dowd-Uribe, 2014a; Glover, 2010a; Stone, 2011; Thompson & Scoones, 2009).

GMO promoters included the vast majority of cotton sector employees I spoke with, as well as most scientists and other technical employees at government research agencies, and Burkinabè employees of Monsanto. External groups such as the ISAAA (the International Service for the Acquisition of Agri-biotech Applications) were also heavily involved in promoting Bt cotton, and in using the case of Burkina Faso as evidence for the success of GM crops in Africa (Dowd-Uribe & Schnurr, 2016; Schnurr, 2012).

Turning peasants into rational economic actors

The modernist agrarian imaginary views traditional peasants as backward and irrational, but as holding the potential and needing to become rational, calculating, modernizing, professionals who farm according to the logics of profit and efficiency. SOFITEX has spent years promoting ideas of successful (large-scale) farming and of cotton farmers as professionals. As an employee of SOFITEX's office of modernization informed me, modernization "is not just mechanization. It's not just the new practices. It's changing peasant mentalities. They don't use their money

[7] On the flipside, GMO promoters also employ a patronizing view that traditional, unscientific African farmers can only succeed with the help of Western science.

well, they just spend it all... We want to help professionalize them – to get them to invest their money in their farms."

Bt cotton was widely viewed as a symbol of progress, and as helping farmers move toward more modern farming. In the modernist imaginary, which operates on logics of rational calculation, Bt cotton was evaluated on the criteria of average yield and profit increases (Pertry et al., 2016; Vitale et al., 2010). Where the modernist imaginary ran into problems was in its reductionist conflation of an ideal (the rationalized research farm) with the actual practices of farmers and conditions in farmers' fields (Glover, 2010a). GM crop promoters often quoted research farm yield trials as evidence that farmers would see similar benefits. However, most cotton farming in Burkina Faso does not correspond with the controlled context of research farms, and most farmers cannot or do not want to follow the technical itinerary recommended by SOFITEX.

The SOFITEX research farm I visited, for example, had a permanent team of hired laborers, 60 cattle that produce rich compost, and technical teams that plant, weed, and apply inputs according to a specific schedule. In contrast, many farmers struggle with debt and family obligations at the beginning of the farming season. Large numbers of farmers sell inputs for access to cash or divert inputs such as fertilizer to their corn fields. Many farmers struggle to follow timing recommendations because they are juggling multiple crops, multiple fields, unpredictable weather, lack of access to farm equipment such as oxen, and severe labour shortages (Luna, 2020). Poorer farmers in particular struggle to mobilize the resources needed to get good yields with Bt cotton, particularly fertilizer application (Gray & Dowd-Uribe, 2013; Vognan & Fok, 2019). Narratives about average yield gains in ideal conditions thus do not reflect the wide variety of conditions in farmers' fields. This discrepancy helps explain data that showed extraordinary variation in farmers' Bt cotton yields (data presented, but overlooked, in Vitale et al., 2010).

When the technology fails: blaming backward peasants

Just as activists' romantic vision of peasants was challenged by large numbers of farmers adopting Bt cotton, Bt cotton promoters eventually had to explain problems that arose with the technology. Soon after commercialization, holes began to show in Bt cotton's shiny veneer. Many cotton sector employees were aware early on of the short fiber length, and it began to be apparent that yield gains were not nearly as high as had been claimed (AICB, 2015). Yet the modernist imaginary had a useful trick to deal with these inconveniences: the portrayal of rural culture in a binary (or at best, a continuum) between rational/modern farmers and irrational/backward peasants. This disparaging portrayal of peasants became a useful foil for explaining why Bt cotton was less successful than originally promised, including lower yields than promised and the shorter fiber length that eventually caused the Burkinabè cotton sector to pull out of growing Bt cotton. In other words, many GM crop promoters sought to frame problems as resulting from the wrong kind of peasants, not the technology.

In the case of yields, despite an initial promise of 30% yield gains over conventional, Bt cotton yields in farmers' fields were later estimated to provide an average yield gain of 13% between 2009 and 2015 (AICB, 2015), although – importantly – this estimate does not account for farmer selection bias (i.e. Bt adopters and non-adopters are likely to be different kinds of farmers) or field cultivation bias (i.e. farmers may treat Bt and non-Bt fields differently) (Stone, 2012). In any case, what became clear was that Bt yields were substantially lower than initially promised. Most scientists and bureaucrats recognized this discrepancy, but blamed farmer

behavior, not the technology. As one senior scientist explained: "Research showed that we could increase yields by 30% - these were yields that were demonstrated. But maybe it's the practices of our farmers that we need to look at, because the variety has the high potential, but when it's not in the right conditions, it won't perform its potential." Many scientists blamed farmers for not applying the right amounts of fertilizer, explaining that Bt cotton yields could be lower than conventional cotton yields if fertilizer application rates were low.[8] Several senior cotton sector employees told me that poor farmers in particular didn't do well with Bt cotton because they didn't apply enough fertilizer.

These failures to follow technical itineraries were blamed on certain farmers' "peasant mentalities." One cotton sector employee said that "traditional-minded peasants" weren't able to understand the new innovations. Again, irrational peasants became the foil for technological failure, rather than the structural constraints farmers face. Similarly, when the short fiber length issue began to surface, Monsanto and others initially tried to blame the issue on farmer practices such as using insufficient fertilizer or failing to spray late-season insecticide sprays (Ouoba, 2012). The issue was later explained by most scientists as a problem with backcrossing, not a problem of farmer behavior.

This blaming of farmer behavior, not the technology, reveals an underlying assumption in the modernist imaginary that technologies should be evaluated in a disembedded way, free from the complications of the real world (Glover, 2010a; Schurman & Munro, 2010). In a telling example, another senior-level scientist, in discussing short fiber length and yield issues with Bt cotton, explained: "If the technical itinerary is not respected, there will be problems, but the issue is that they did not follow the technical advice... So there are a lot of questions that are linked more to following the technical itinerary, it's not at all linked to the technology." In the modernist view, if the technology performed poorly outside the stringent conditions of specific techniques, the technology was still good, and the problem was making farmers conform to the technology. As Glover argues, these disembedded analyses illustrate "the folly of a reductionist approach to agricultural development in which disproportionate attention is devoted to optimizing a few technical factors while turning a blind eye to the complex, uncertain and diverse settings in which poor farmers grow their crops" (Glover, 2010a, p. 957). When things go wrong, the modernist imaginary selectively sees this more complex landscape, but only to cast blame on the *wrong kind* of farmer – the poor, small-scale, traditional-minded farmer who doesn't fit the ideal of the rational, modern farmer.

BOTH SIDES CLAIM PEASANTS AS WITNESSES AND ARBITERS

In this section, I examine how both activists and promoters utilized similar appeals to peasants as witnesses and arbiters of the technology. Both sides used peasant testimonials and the "farmer's voice" as evidence for their side, which is a common feature of GMO debates (Stone & Flachs, 2014). Both sides wanted to claim the authority, legitimacy, and authenticity that comes from truly representing the peasants; indeed, their causes depend on these claims of representation (Borras et al., 2008). However, in making sweeping claims, each side ironically one-dimensionalized the complexity of rural voices. In many ways, farmers became pawns in the debate. Not surprisingly, testimonials for either side only featured farmers that corresponded

[8] The logic (I heard from numerous scientists) was that because Bt cotton is better protected from pest damage, it produces more cotton bolls per plant; if poorly fertilized, the bolls don't fill out.

with that side's peasant imaginary and pre-determined narrative. Furthermore, both sides focused on farmer "choice" in ways that overlooked the constraints shaping farmer decisions.

Peasants as witnesses

Most anti-GMO events I attended in Burkina Faso included farmer testimonies. For example, one event advertised online that the event would be "in the presence of Burkinabè cotton farmers who directly suffered from the introduction of Bt cotton." This was often the same group of farmers from the area where I did my fieldwork. Many of these farmers' concerns were indeed important, and were concerns that I heard from numerous other farmers (as noted above). However, activists often implied that these farmers were representative of *all* Burkinabè farmers. One French journalist, for example, featured these farmers' testimonials as the basis for an article titled, "Burkinabè peasants no longer want genetically modified cotton" (Carayol, 2016). Yet based on my extended fieldwork in the exact same site featured in this article, a more accurate title would be, "Burkinabè farmers have complex and divided views on genetically modified cotton."

Videos on activist websites also employed the testimonial strategy. A video on the website GRAIN, titled "GMO cotton failure in Burkina Faso: African farmers speak out," featured twenty farmers describing their problems with Bt cotton. Again, these farmers' concerns are indeed important, but their claims were generalized by the video, with subtitle text making claims such as "Bt cotton yields were appalling," whereas broader evidence suggests *wide* variation, but likely comparable or higher yields for Bt cotton (AICB, 2015; Fok, 2016; Vognan & Fok, 2019). The video also claimed that Bt cotton "raises health concerns," making it seem as if most farmers viewed Bt cotton seed as toxic. In contrast, my broader fieldwork revealed that many farmers had the opposite view: that Bt cotton enabled them to reduce exposure to toxic insecticides such as chlorpyrifos.

Meanwhile, GMO promoters also staked a claim on representing the peasants. Many cotton sector employees derided anti-GMO activists for not being cotton farmers, and therefore "inauthentic." Additionally, like activists, GM crop promoters used peasant testimonials to make the case for the glories of Bt cotton. In a promotional video produced by the ISAAA called "Seeing is Believing" (the slogan for Bt cotton promotional tours), all the farmers interviewed expressed very optimistic views of Bt cotton. A promotional document also published by ISAAA even claims that, "farmer testimonies offer the best and most honest assessment of the benefits of agricultural innovations like Bt cotton" (Karembu et al., 2014, p. 8), and then offers two glowing testimonials. One must ask, of course, whether two selectively chosen testimonies really constitute an "honest" assessment. One testimony features a farmer discussing cost comparisons and yield and income gains, tapping into the modernist imaginary of rational, profit-maximizing farmers making logical choices. Again, just as in the activist testimonies, pro-Bt videos and documents sought to portray a very selective slice of viewpoints as representative of most farmers. Although all representations are partial (Borras et al., 2008), these representations were particularly narrow.

Appeals to farmer choice

In addition to using testimonials, both sides talked about farmers and GMOs in the (neo)liberal language of choice (Agarwal, 2014): either farmers rationally choosing the technology, or farmers choosing to reject the technology. Peasants were thus framed as the ultimate arbiters of the technology. One scientist explained to me that the "the civil society debate over GMOs is

false… If farmers adopt it, it must be useful." However, this focus on choice implies freedom, and pays insufficient attention to 1) the numerous structural constraints and cultural pressures shaping and constraining farmers' choices at multiple levels – what Flachs (2019) calls "false choices" – and 2) that farmers' choices are not a perfect indicator of whether a technology is good or bad.

First, farmers' adoption decisions are strongly shaped by economic pressures to increase incomes to repay debts, combined with increasing on-farm labour shortages (Luna, 2020). Second, farmers may choose technologies that ultimately harm them, as when they end up overly in debt, adopt technologies because of social fads, or use technologies that cause long-term health or ecological harm (Flachs, 2019; Luna, 2018, 2020; Stone & Flachs, 2014). Both scientists and large numbers of farmers in Burkina Faso eagerly embraced Bt cotton, but they did so in highly constrained conditions, where input-intensive mono-cropped cotton production is one of few choices available to farmers and the state to produce income and repay debts. Despite rapid adoption, only eight years after the commercialization of Bt cotton, the state cotton sector claimed US$80 million in lost revenue. This should remind us that rapid farmer adoption (or rejection) of a technology is not the best barometer of the broader or longer-term consequences of a technology.

DISCUSSION: EXPLAINING AGRARIAN IMAGINARIES

An important question emerging from these findings is why so many Burkinabè activists and scientists (in addition to non-Burkinabès) took part in producing essentialized discourses that appeared to be cut-and-pasted from global imaginaries and inappropriate to the Burkinabè context. One explanation is that, in the context of a polarized debate and resulting incentives to sway popular opinion and policy, each side played up narratives that supported their position and ignored or downplayed knowledge claims that muddied a crisp narrative. Additionally, based on my data, I contend that both activists and scientists were responding to a combination of material and ideological pressures. Both sets of actors faced resource constraints and dependence on external actors, which produced pressures to employ or reproduce globally resonant imaginaries in order to mobilize support.

To consider first the activists: many activists told me that they faced local resource constraints and financial dependence on outside donors. Farmer activists said they struggled to even find money for transportation to events that were often held in cities. Most activists I interviewed sought external donor support and transnational collaboration in order to fund their efforts and to gain visibility and political traction. Activists thus struggled with a tension between an "authentic" and "grassroots" movement versus the desire to connect with external actors in order to have a more impactful movement. Nonetheless, the more they sought connections with outside actors, the more they risked accusations of being inauthentic or overly influenced by Europeans (Ferguson, 2006), which has been a common allegation made by GMO promoters (Paarlberg, 2008). However, local movements without money are difficult to sustain. I would contend that activists sought to gain traction (consciously or not) by aligning their narratives with the transnational romantic imaginary of the global anti-GMO movement, in order to attract funding and participation from well-funded anti-GMO groups and organizations. Furthermore, at the ideological level, some activists I met also sought out broader associations with Westerners, perhaps seeking status or economic opportunities through associations with Westerners (also see Luna, 2018).

Burkinabès who espouse the modernist imaginary are also shaped by resource constraints and global ideologies. State researchers have become increasingly dependent for funding on outside donors as state funding for research has fallen since the early 2000s (Beitema & Stads, 2014). Many researchers lamented that they must appeal to the interests of donor agencies when writing grant proposals. Within the cotton companies and even the state research agency INERA, researchers are also beholden to the overall political aims (and attached funding flows) of the cotton sector. One researcher explained that the cotton sector as a whole emphasized technical approaches to increasing short-term production (consonant with the modernist imaginary). Some explained this imperative as a result of the Burkinabè state's reliance on cotton export revenue as a source of income to repay international loans. Furthermore, scientists and bureaucrats are shaped by the dominant global ideology of science and Western technology as representing progress. This ideology shapes the identity work and beliefs of Burkinabè scientists, many of whom were educated abroad and talk about using modern technologies to help Burkina Faso "catch up" with the West (Luna, 2018). Many scientists and technicians also believe in the dominant ideology that science and technology are value-neutral.[9]

Burkinabès are thus faced with limited resources and a Cold War-esque choice between two sides that offer resources, as long as you employ their imaginaries. This contributes to the spread of polarized narratives that are based in global agrarian imaginaries, and leaves limited room for nuanced ("third way") positions, such as the less internationally visible Burkinabè group ODJ (Democratic Youth Organization), which criticizes the broader system of neocolonial exploitation they see in the cotton sector. Future research should further probe how these agrarian imaginaries travel through transnational networks, how local people interface with these imaginaries, and how local social movements may find openings to assert their own imaginaries.

CONCLUSION

In analyzing the polarized debates over Bt cotton in Burkina Faso, this paper argued that both sides often employed essentialist agrarian imaginaries that contributed to the production of inaccurate or incomplete knowledge. Each side cut and pasted from global imaginaries, overlooking local complexity. They also idealized a specific type of peasant – which they sought to portray as representative of all peasants – while vilifying or ignoring rural residents who did not fit that ideal.

In the case of anti-GMO activists, the romantic agrarian imaginary shaped activists' perceptions and narratives, and resulted in some activists promoting storylines that were not only essentializing, but sometimes factually wrong. Contrary to claims made by some activists, for example, farmers were not rising up in large numbers against Monsanto. Farmers did not throw Monsanto out, and farmers did not re-appropriate their cotton seed. The fact that these claims were made, and circulated internationally, illustrates how many activists framed the story of Bt cotton in Burkina Faso through the lens of the romantic imaginary, even when this imaginary contradicted local realities. GM crop promoters had their own set of biases and false claims, filtered through the modernist agrarian imaginary. In assessing Bt cotton, the modernist imaginary relied on reductionist yield studies and data from research farms to make optimistic claims. When real-world results began to contradict this narrative – as in the case of lower yield

[9] An employee at the National Biosecurity Agency, for example, said that "the evaluation of risks is scientific. It is not anything else but scientific…We cannot go into emotions. It has to be scientific," and that evaluation studies did not include cultural and religious dimensions because those dimensions were too amorphous and hard to study.

gains and the problem of short-fiber length cotton – the problem was interpreted as "backward" peasants obstructing the success of rational, scientific farming. In this version of the peasant imaginary, the differentiated and structurally constrained realities of cotton farming were either ignored or seen as obstacles to be removed, and as unrelated to the evaluation of Bt cotton.

In drawing parallels between the polarized imaginaries, I found that neither imaginary accurately depicted the contemporary dynamics of rural capitalism in West Africa. The activist romantic imaginary reflected a simplistic view of the threat of capitalism, imagining that peasants are only dispossessed by foreign or outside corporations, and that by kicking out Monsanto, (undifferentiated) peasants will be saved or will save themselves from dispossession. This view fails to see the myriad ways in which West African farmers, including Burkinabès, have long been integrated in webs of capitalism (Gray & Dowd-Uribe, 2013; Luna, 2019; Oya, 2007). Rural people struggle with processes of commodification and differentiation whether or not they purchase seeds from Monsanto. On the other hand, the modernist imaginary was equally sanguine about the dynamics of rural capitalism in Burkina Faso. The idea that disembedded data from field trials could really constitute evidence for how Bt cotton would play out in farmers' fields was naive at best. Modernist technicians overlooked the structural constraints that many – particularly poorer – farmers face, including issues with debt and hunger that force many farmers to sell fertilizer and divert inputs to food crops. These farmers cannot farm according to prescribed technical itineraries, and stories about average yield increases disguise the significant differences between poor and wealthy farmers. We thus see that on both sides, an attachment to stock agrarian imaginaries reproduced a polarized debate where claims made on each side were often inaccurate.

This empirical correction is important, particularly given that the Burkina Faso case gets held up as evidence for why GMOs will save or destroy African agriculture (Dowd-Uribe & Schnurr, 2016). Many participants and observers of this debate genuinely care about improving African livelihoods and desire accurate information. Further, in a purely tactical sense, both sides stood to lose because of their myopic imaginaries and false claims. Activists were regularly dismissed by mainstream cotton sector employees as uninformed and anti-science. Yet many activist concerns about Bt cotton have been substantiated by recent social science (Dowd-Uribe, 2014a; Renaudin et al., 2012; Vognan & Fok, 2019), and deserve closer attention. On the other side, GM crop promoters' narrow evaluation methodologies and dismissal of "traditional-minded" peasants limited their ability to recognize problems. Had they expanded their view, they might have noticed problems much sooner, rather than continuing to laud a technology that was becoming increasingly untenable for the Burkinabè cotton sector.

My aim in this paper, however, was not simply to pick apart claims, but to ask deeper questions about how and why these knowledge claims were produced, and the work that they did. I contended that global agrarian imaginaries were the conceptual filters that resulted in these claims, and that local actors reproduced global scripts because of their dependence (material and ideological) on transnational actors for funding and support. In terms of what these claims *did*, most obviously, both sides used their claims to support their positions, in part to achieve political and economic goals. I would also argue that, more broadly, the flattening of rural people produced by both imaginaries ultimately funnels public thinking into simplistic questions like, "Are GMO crops good for African farmers?" rather than questions that probe complexity, difference, and change (Dowd-Uribe, 2017).

My findings, while rooted in the case of Burkina Faso, are applicable to broader GMO debates. The agrarian imaginaries I described are global in scope, and as more African countries

seek to commercialize GM crops, and polarized debates proliferate, I hope my findings can inform these conversations. I urge debate participants to consider how to discuss the potentials and drawbacks of specific interventions or technologies while avoiding narrow or essentialist portrayals of rural people. Whatever one's position, I would borrow Bernstein's phrase to argue that "nothing is gained, and much obscured" (2011, p. 454) by narrow portrayals of so-called peasants. Much is also obscured when we pick and choose rural people who correspond with our pre-existing positions, or design studies that hide rural diversity under averages or unrealistic assumptions about farmers' behavior. Instead, not only scholars but all debate participants should seek to recognize the diversity of experience, opinion, and farming conditions among rural people. The result is often a complicated picture that doesn't distill into easy soundbites or resonate with pre-existing imaginaries. However, accurate and textured knowledge rooted in local realities will serve all of us better in the long run, and will help us better understand the variegated consequences of the expanding (Old or New) "Green Revolution" in Africa.

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