



From marginalized to miracle: critical bioregionalism, jungle farming and the move to millets in Karnataka, India

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Abstract

Historically marginalized foods, which occupy the social periphery, and often function as a bulwark in times of hunger, are increasingly being rediscovered and revalued as niche commodities. From açai to quinoa, the move from marginal to miracle is often tied to larger narratives surrounding sustainable development, resilience to climate change, and traditional foodways. This article analyses the recent move towards millet production and consumption in the southern Indian state of Karnataka. Focusing upon one of the grain's chief proponents, I explore how narratives surrounding millets are grounded in conceptions of cultural authenticity and bioregionalism. Drawing upon human geographer's analyses of the turn towards the 'local' in food activism, I contribute to the development of critical bioregionalism, an emerging theoretical framework that explores how questions of value, identity, political economy, and histories of land use intersect to structure our understandings of marginal foods and their resurgence.

Keywords Marginal foods · Millets · Foodways · Critical bioregionalism

Introduction

In India, millets, marginalized traditional grains, have recently begun to be promulgated by development organizations, agrarian social movements, and doctors as a nutrient-dense food and climate smart miracle crop (Mohanty 2014; Nichols 2017; Singh and Sisodia 2018). Marginal describes agricultural practices and foodways that occupy the social periphery, utilized by non-elite populations, including indigenous, migrant and diasporic communities (Finnis 2012; Wilk 2017). Marginal foods have a dual janus-faced nature: they are at once deemed inedible and archaic by elites, but are also culturally valued amongst those on the periphery for maintaining dietary diversity, fostering social bonds, and ensuring traditional livelihoods and identities. Importantly, these social designations are anything but static. Diverse foods—from fruits, such as açai to grains, like quinoa, which have long provided indigenous communities a buffer against poor harvests, are being rebranded as superfoods (Brondizio 2013; Keressen 2015). Yet, there are important differences

between these miracle foods. Whereas quinoa's boom has been driven by substitution and export-oriented development policies, which have resulted in the grain being consumed by privileged elites in the Global North (Brett 2010), millet's rise has been fueled by expansion of organic consumption among India's metropolitan middle class, and also the global market, where India is the second largest exporter of the grain, signaling an important intersection of global and local agrifood politics.

The resurgence of millets can be contextualized at the intersection of three broad trends in food politics. The first is what Kimura (2013) describes as the rise of 'charismatic nutrients,' which proponents envision as replacing 'inferior foods,' and intervening in the global hunger problem. The second shift is what McDonnell (2015) describes as the rise of the miracle food narrative (MFN), an intervention-focused development ideology that depoliticizes hunger by blaming malnutrition on the undernourished, locating 'the solution' in Western philanthropy. The third is the emphasis on the local as a privileged site for agricultural production, food procurement, and consumption (Feagan 2007; Firth et al. 2011; Goodman et al. 2012). While much of this literature has focused on alternative food networks in the Global North, there is a burgeoning corpus of scholarship on local food in the Global South (Krul and Ho 2017; Fadaee 2019).

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Bopp (2020) proposes that non-Western societies weave together a plurality of sustainable agriculture practices; whereas in Bangkok, Thailand alternative food networks are characterized by closely linked rural and urban stakeholders that mesh producer–consumer initiatives and bartering in Chennai, India, by contrast, private entities run peri-urban farms, public institutions advocate for food safety and farmers’ rights, and youth are joining back-to-the-land movements. Yet, there are also hybridities with alternative food discourses in the Global North. Erler and Dittrich (2020) argue that Bangalore’s alternative food networks romanticize local food from an unreflexive and defensive localism, linking the valorization of agriculture in traditional India to elitist initiatives and nationalist politics.

This article focuses on the promulgation of millets in the context of one of India’s emerging small urban centers, known for its emphasis on well-being—the city of Mysore, which is located in the southern state of Karnataka. I present the results of a thematic analysis of qualitative data, which I gathered over three seasons of fieldwork between 2017 and 2020. While my data and arguments are centered around the bioregion of southern Karnataka, specifically the districts of Mysore, Mandya, and Chamrajnagar, my review of the literature suggests that certain trends that I describe in this article, particularly the concomitant social marginalization and revalorization of millets, are evident in southern Indian states of Maharashtra, Andhra Pradesh, and Tamil Nadu (Morrison 2016) and Uttarkhand (Nichols 2017), indicating that these analyses might hold broader explanatory power throughout India. The topic of millets first arose as part of my broader research project surrounding the interrelationships between food sovereignty and farmer suicides in Karnataka (Meek 2018; Meek and Khadse 2020).¹ Many of the farmers that I worked with were transitioning to millets for the first time. I became particularly interested in the cultural and ecological logics they used to frame the resurgence of millets, and as I learned more about the rural and urban food systems of Karnataka I realized that millets were being promulgated in boutique organic grocery stores, middle class urban markets, and amongst rural movements.

Through participant observation in Mysore’s organic markets and semi-structured interviews with its shop owners, I gathered data surrounding the framing of millets as a health remedy. It increasingly became clear that individuals continually mentioned a single figure in Karnataka as the chief proponent of millets. Drawing upon the methodology of key informant interviews and single focal follows (Houston

and Sudman 1975; Faifua 2014), I decided to focus on this regionally and internationally renowned individual: Dr. Khadar.² I conducted five extended interviews over 3 years with this key millet proponent. As part of following this doctor, I observed his consultations, and conducted participant observation of a workshop he led on millet consumption for diabetic patients, and then subsequently a workshop on “jungle farming.” Although these data were collected from a single vocal individual, I believe that my analysis holds broader applicability within the southern Karnataka bioregions, as similar rationales for expanding millet production were repeated by various organic shop keepers, farmers, and social movement leaders (Meek 2018; Meek and Khadse 2020).

The contemporary rise of millets in southern Karnataka

The alternative food movement has rapidly expanded in urban Karnataka over the last decade. From megacities, such as Bangalore, to smaller regional urban centers, like Mysore, the number of boutique organic markets has risen markedly. Erler et al. (2020), for example, note that between 2013 and 2017, the number of organic shops in Bengaluru increased from 50 to over 100. Similar trends are visible in Mysore, where I noted during each field season a handful of new organic markets and restaurants. The sourcing of millets, which are marketed as a superfood, is one of the main factors that is bringing consumers to Karnataka’s organic markets (*Ibid*).

In my research, I found that in southern Karnataka, private commodity producers, corporate-development organizations, and the state are each helping to herald in millets. “Millet Nation,” a Mysore-based company that offers locally-sourced millet-based products, would be legible in any Global North alternative food context with its self-description as “a conscious manufacturer of artisanal food products that are lovingly handmade in small batches.” Atma, one of the co-owners of the corporation, described to me how the company emerged out of a concern with the “junk food” that Indians now rely upon, and the rapid rise of chronic diseases; as she opined “we believe that we were always a nation of millets, so we are Millet Nation.” Atma’s framing of millet as a health food in the context of the rise of chronic disease intersects with an emerging literature which highlights that health concerns are key factors driving

¹ While this research focuses on the bioregion of southern Karnataka, I am writing from the bioregion of the central Willamette Valley, Oregon on ancestral lands of Kalapuya and the Confederated Tribes of the Grande Ronde.

² I have chosen not to use a pseudonym for Dr. Khadar, as this was his preference, and the details of his work, in addition to his domestic and international standing, would make him readily identifiable.

consumers to frequent organic food stores (Paul and Rana 2012; Nandi et al., 2016; Yadav and Pathak, 2016).

“Organic Mandya” offers a second example of an organization pushing millets as a bioregional development miracle. Organic Mandya is a hybrid between a development organization and agrifood corporation; it consists of a series of village level development projects localized in the Mandya district, and a corporate network of seven organic grocery stores spread along the Bangalore-Mysore corridor. Organic Mandya epitomizes the hybrid vision of reimagined rural development combined with haute cuisine; its highway billboard displays an idealized agrarian vision of traditionally-dressed elders harvesting millet in a bucolic setting, its classes teach middle class urbanites how to cook with millets, and it runs diverse development initiatives, ranging from farmer organic education programs to launching farmer’s markets in small urban centers. Organic Mandya is the brainchild of Madhu Chadan, a Mandya native turned US-based software engineer, who relocated his family from Silicon Valley back to Mandya to help elevate traditional forms of organic agriculture. Organic Mandya evidences the complex material and ideological connections between the global and local in its development initiatives. For example, it’s “Sweat Donation” project, where Bengaluru’s IT professionals volunteer to work with rural farmers, offers urbanites a chance to gain awareness of rural realities while helping farmers facing labor shortages.

Karnataka’s state government is also working to advance millet production and consumption from the local to the global scales. Krishna Byregowda, a state-level representative led India’s Centre (national) government to declare 2018 the year of millets. Karnataka state officials were instrumental in proposing a resolution that was accepted by the UN General Assembly to declare 2023 the International Year of Millets. The Karnataka state government also initiated the Raitha Siri scheme, through which farmers were paid Rs 10,000 (USD \$130) per hectare for adopting the grain, further solidifying Karnataka’s position as one of India’s top ten millet producers (290 tons in 2018), and India’s position as the second largest contributor to the global millet market (15.5% of global supply, valued at US \$31.3 million).

Towards a critical bioregionalism

In this article, my overarching argument is that proponents are promulgating millets within a bioregional vision, drawing uncritically upon logics of authenticity and place. I now offer a brief review of the literature on bioregionalism, which situates this research, and then turn to making the case for a critical bioregionalism, which I argue highlights how the lack of attention to cultural value systems and questions of power constrains the widespread acceptance of this grain.

Bioregionalism is at once a site of interdisciplinary academic debates, an agrifood movement, and a vision for agroecological sustainability (Parsons 1985; Frenkel 1994; Berthold-Bond 2000). Bioregions are based around shared ecological characteristics and collectively held social values, cosmologies, and norms (i.e. one should eat food produced within 100 miles). The bioregional discourse builds upon a tight syllabary within human geography and food studies surrounding the linkages between food, place, and terroir—the idea that characteristics of the natural environment, such as soil chemistry, can shape the taste of a particular food (Delind 2006; Trubek 2008; Blake et al 2010; Goodman et al. 2012).

Bioregionalism is open to many of the same critiques surrounding the politics of privilege and exclusivity that have been levied at the emphasis on the “local” in agriculture (Guthman 2008a; Littler 2011; Cappellini et al 2016). Plumwood (2008), for example, argues that bioregionalism exemplifies an exclusive self-sufficiency that elides the importance of networks between communities. Similarly, Meredith (2005) offers that the ecological principles behind bioregionalism do not equate with cultural systems, and that most individuals have regional identities that span and intersect with various scales.

As a rejoinder, scholars have begun arguing for *critical bioregionalism*. Plumwood defines such a program as instructive for making “visible north/south relationships, where the north/south pole operates as a correlate of (various different kinds of) privilege, exemplifying certain relationships of domination metaphorized as place, especially sacrificial and shadow or denied places (2008, p. 140).” Anderson’s (2012) vision of critical bioregionalism begins from the perspective that groups must work towards equalizing a region’s unequal distribution of resources before attuning with a bioregional spirit, which is a form of privilege. I build upon these nascent proposals in contributing to a more fully-developed critical bioregional framework. I see this perspective as grounded around several key elements. First, drawing upon Hobsbawm and Ranger (2012), we must remain attentive to when narratives of authenticity are mobilized to valorize particular landscapes, or land management practices. Questions of the linkages between authenticity and identity have long been central in food studies (Mintz 1996; Sweeney Tookes 2015). As Molz (2004) argues, authenticity is “negotiable, emergent and socially constructed (61).” When tradition is mobilized in the name of a bioregional vision, one must ask critical questions about *when* a practice was traditional—what were the defining political and ecological characteristics of that epoch? A second characteristic of critical bioregionalism should be a careful analysis of the subjects who are presumed to constitute a specific bioregion. Here, I am building upon previous critiques of the ways in which class and race-based privilege create the

‘local’ as an exclusive site of food privilege in the mold of neoliberalism (Guthman 2008a, b; Alkon and McCullen 2011; Mares and Alkon 2012). I argue that questions of justice and the long-term viability of bioregional projects can be substantially improved, by taking an intersectional approach, analyzing how overlapping axes of identity inflect with particular arguments for localism. A third characteristic of critical bioregionalism should be a careful analysis of how politics at various interconnected scales, ranging from the local to the global (Marston 2000; Paasi 2002), structure accounts for bioregional approaches to agriculture. Here, I take a broad view of politics to make space for everything from globalized trends, such as neoliberal policies of devolving authority, to development organizations’ discursive framings, and the quotidian clash between disparate visions of ‘healthy’ food (Dupuis and Goodman 2005; Walker 2007).

This tripartite perspective—characterized by a critical approach to understanding the linkages between time and space, identity and place, and micro and macro politics is intended to provide a vantage to better assess proposals for remaking agricultural practices, ecologies and landscapes. Adopting a critical bioregionalist approach is not to say that a particular agricultural practice, foodway, or relation to nature is de facto wrong, unhealthy, or unjust, but rather that one must be attentive to how questions of power—from expertise to institutional dynamics—are used to make legible or obscure particular social histories of interrelations with the landscape.

Landscapes of power and marginality

The agricultural production of millets, and foodways involving them, have long been embroiled in politics. The cultivation of millets in India dates back to early Neolithic times. Archaeological evidence suggests that what is commonly termed *ragi* or finger millet (*Eleusine coracana*) was likely brought from East Africa to India’s Western Ghats around 2500 B.C.E., and its cultivation coincided with the origins of sedentary agriculture in South India (Morrison 2016, p. 32). Beginning with the later Iron age (1200–300 BCE), the landscape began to be differentiated into ‘wet’ and ‘dry’ areas as local chiefs built irrigation tanks that enabled the cultivation of rice, and production of cattle fodder. Through the creation of irrigation tanks, rice rose by the 14th century to become the foundation of elite cuisine; its production led to the flowering of the kingdom of Vijayagara (1340–1672) (Hazareesingh 2020, p. 10).

By contrast, Karnataka’s laboring castes have historically subsisted on millets. As early as 1800, Scottish botanist Francis Buchanan noted that the *ragi* crop was “the most wholesome and invigorating food for laboring

people” (Hazareesingh 2020, p. 10).” A century later, millets remained a foodway that differentiated social class and caste. The *Imperial Gazetteer of India*, reporting in 1908 on agricultural trends in the then princely state of Mysore, noted that “*ragi* is the staple food of all the labouring classes, and if this crop fails there is widespread distress. Rice, which is the main irrigated crop, is not much eaten except by Brahmans, but always commands a ready sale for export (Frowde 1908, p. 226).” These accounts underscore that millets have long been a subsistence food of the laboring poor, defined as marginal by its diametric opposition in social values to rice.

Beyond caste and class, the consumption of millets is tied in complex ways to conceptions of race, and processes of racialization in India. As Nichols (2017) found in the Kumaon hills of Uttarakhand, millet consumption is structured by a racialized politics of purity: *roti* (flat bread) made with millet are darker in color, and respondents report anecdotes of family members not consuming them because millet would “make one’s skin darker” (877). This racialization of millets as a “darker food” directly tracks the broader stereotypes of stigmatized foods that confront dark skinned Indians (Hunter 2007). Rather than an explicitly modern phenomena, the racialization of darker foods was also part and parcel of the colonial “discovery” of malnutrition in contemporary India and Bengal (Arnold 1994; Roy 2013).

In contemporary rural Karnataka, millets remained marginalized. Hazareesingh’s (2020) ethnographic account of contemporary millet foodways finds that *ragi* and rice coexist in essentially all households in the Virayanadoddi village, but there is a generational divide. The older generation (over 60) base their foodways around the *ragi mudde* dish (finger millet soft balls). Rice, by contrast has become the staple grain for the younger generation who see *raagi mudde* as too time consuming (Hazareesingh 2020, p. 10). From a critical bioregional perspective, we can see that the linkages between millets and regional identity are complex; millets have historically been racialized, associated with lower caste status, and increasingly with labor intensive antiquated cultural traditions. Rice, by contrast, has long been attributed high social values. What these accounts suggest is that contemporary efforts—by diverse entities like Millet Nation, Organic Mandya, and the Karnataka State Government—to promulgate millets paper over many of the defining characteristics of caste and generational identity that structure whether or not the grain is socially valued.

In addition to cultural value systems, political and economic processes have been major drivers connecting rice with shifting conceptions of modernity. Beginning in the 1970s, in the wake of the Green Revolution, India’s central government reformed and expanded the Public Distribution System (PDS), offering rice at highly subsidized prices. In Karnataka and other southern states, the rice distributed through the PDS was not the traditional irrigated dryland

paddy which had been a marker of higher caste society for centuries, but rather the hybridized Green Revolution varieties that were promulgated throughout India beginning in the late 1960s. The rising hegemony of rice in rural foodways was a function of a desire for symbolic social mobility, and eating up on the caste hierarchy. Rice from outside the region was seen as desirable because it was new and exotic—a sentiment promulgated by India's Ministry of Information and Broadcasting, which launched a series of concerted rice promotion campaigns involving films and brochures centered around encouraging farmers to switch from *ragi* to rice.

Yet, the story of millets is unquestionably not one of simple loss, and disappearance. Rather, within the last two decades millets have been rediscovered and rebranded. I now turn to analyzing how millets have become transformed from a marginal to a miracle food.

The politics of knowledge the production of a miracle

Dr. Khadar, who is 63, wears white linen pants and a formal full-length white *kurta*. Dr. Khadar's full name is Khadar Valli Dudekula, indicating that he is a member of the Dudekula social caste. The Dudekula are a numerically small, Telugu speaking, Muslim community from the neighboring state of Andhra Pradesh. *Dude* means cotton and *ekuta* cleaning, indicating that this caste's members have historically been cotton cleaners and mattress makers (Saheb 2003). Dudekula are legally designated by India's Central Government as a "Backward Caste," and as such occupy a generally low social status. Dudekula have historically been Hindu, but within the last century have adopted Islamic religious traditions, social customs, and foodways. I begin with noting Dr. Khadar's positionality within the Indian social system, as caste remains a significant driver of the linkages between foodways and social values of purity and pollution (Iversen and Raghavendra 2006). Dr. Khadar's valorization of millets—a politically valent grain whose consumption is closely linked to identity—may read differently coming from a member of a socially marginalized backward caste than it would from a Brahmin. However, in my analysis, I do not see Dr. Khadar's caste status as playing a formative role in his promulgation of millets. In our conversations, Khadar did discuss the importance of bioregional development, as I will subsequently highlight, but it was not tied to the type of Ambedkar-inspired critical analysis linked to the Dalit movement. Similarly, as I'll subsequently explore, while Dr. Khadar was critical of the cow-politics associated with Zero-Budget Natural Farming, he did not position his arguments for a millet-based diet in opposition to the Satvic

diet of Brahmins, or in accordance with Islamic dietary proscriptions.

As I learned over a period of three field seasons, and watching numerous videos of his lectures online, Dr. Khadar often begins his narrative, whether in a lecture, workshop, or interview with his own origin story. His narrative follows a linear trajectory of coming to a critical understanding of the food system, its linkage with chronic disease, and ultimately the importance of defining "right food."

Dr. Khadar has a Master's of Science, with a specialization in Education, and a PhD in toxicology from the Indian Institute of Sciences in Bengaluru, where his research focused on steroids, sex hormones, and estrogen. Dr. Khadar's story begins in 1987 in Beaverton, Oregon, where he was working as a post-doctoral fellow, researching the deactivation of Agent Orange and Dioxin. A key component of his narrative is the moment in which he gained a critical consciousness about the negative health effects of the industrial food system. While working in a clinic, he saw a young mother with an 8-year old girl in the waiting room. Upon inquiring about the girl's symptoms, the mother informed him that the girl had already begun menstruating, and the bleeding was not stopping. Dr. Khadar was shocked at the early onset of this young girl's menstruation, and realized that that "something must be wrong here, this wasn't normal." Following this experience, Dr. Khadar began his own personal research; he began asking himself about the "nature of foods." "How is the milk produced? Why are they giving hormones, like estrogen, in order to increase milk production," Khadar recalls rhetorically asking himself. He quickly made the connection between the globalized agricultural system, science and technology, and ill-being.

Within two days I started to make the connection that it is the milk that the girls are drinking; milk which is supposed to be a wonderful thing that children are drinking, that is a connection between the baby and the mother, here in the name of science and technology, these guys have changed it. And they call themselves scientists and doctors. When we go away from nature this is what has happened, we have changed the nature of the system. Lady is not lady; at 6 years, she is calling herself lady, and she is not a lady, she is a small baby.

As Dr. Khadar's narrative highlights, it is the departure from nature, the reworking of the connection between the mother and child, and the push to increase dairy production through science and technology that breaks the linkages between culture and nature. Dr. Khadar's recrimination of the linkages between agricultural modernization and somatic experiences of disease track other social scientific analyses of India's pluralistic medical system. For example, Nichter's (2001) research on Karnataka's

Ayurvedic *vaidyas* found that indigestion is seen as a symptom of both defective modernization and a degraded physical environment, and Nichols (2015) results from Kumaon suggest that the chemical adulteration of food is linked to farmers' negative perceptions of health (see also Dewan 2019). After coming to his own critical consciousness, Dr. Khadar felt that he could no longer work in a foreign country, and needed to return to India to address the question of "what are we eating?" Dr. Khadar returned to Karnataka in 1997, and settled in Mysore where he began to experiment with the production and consumption of millets. I now turn to the next stage of Dr. Khadar's origin story—how he began study what makes "right food."

Millet and making the right food: Authenticity and critical bioregionalism.

Dr. Khadar's simple question "what are we eating" expanded to his broader investigation of what constitutes the "right food." The search for what is the "right food" has been a longstanding focus of diverse movements, from early 20th century dietary reformers that sought to shift Appalachian foodways (Engelhardt 2011), to neo-liberal school garden projects, which inculcate "unbearably white" relations to food (Guthman 2011). When I asked Dr. Khadar if eating the "right food" meant eating organically, he became somewhat indignant: "What I'm not talking about is organic vs. inorganic, *I'm talking about the fundamental nature of food.*" For Dr. Khadar, discovering the fundamental nature of food required going back to explore "lost" agrarian traditions and resurrecting cultural knowledge. "We need to be organic by defining what our food is, and how it was. So we have traced back how our forest was, and in the shade of the forest we grow our food, that is what we call jungle farming." Discovering what constitutes right food required defining "how it was," which involved "tracing back how our forest was." Dr. Khadar's historical agrarian imaginary consists of grains, like millets, produced in an agroforestry context. Dr. Khadar draws upon this vision of past agrarian practices to promulgate a system of agriculture he calls *khadukushna* or "jungle farming." What Dr. Khadar is proposing is akin to a historically revisionist bioregional approach; one that focuses on replicating what are perceived to be the defining characteristics of traditional agroecologies. Here, the local is place-based, but it is an understanding of place as seen through the lens of "authenticity." Foodways scholars find that narratives of authenticity are often grounded in historical and geographical claims, and the environmental context is mobilized to valorize particular culinary skills and create niche markets for regional foods (Bortolotto and Ubertazzi 2018). Although Dr. Khadar does not employ the language of authenticity, his conceptualization of jungle farming is clearly rooted in a reading of historic

agricultural practices, and their relation to 'authentic' Indian food.

We are trying to rejuvenate our cultural food habits, and that starts from these grains. Millet is a central, central theme; it is a central part of that process. We have a whole literature based on this, songs. Culture is based on this. So we are trying to revive all of this stuff so we can be healthy, and have our cultural roots. We are tracing back the roots of our food, the roots of our culture.

As Dr. Khadar emphasizes, the definition of "right food" emanates directly from a conceptualization of tradition. Dr. Khadar's narrative underscores the point made by Finnis (2012) that conceptualizations of "right food" are intricately interconnected with notions of authenticity and cultural heritage. His narrative also aligns with what Sinha et al (1997) term the "new traditionalism," where historic Indian agriculture and society-nature relationships are reimagined and held up as inherently ecologically sustainable. Khadar's account of "right food" mirrors the new traditionalism, where representations of "traditional" Indian culture and agriculture are counterpoised to the era of colonial rule, agricultural modernization, and empirical science (Erler and Dittrich 2020, p. 4).

Dr. Khadar suggests the path to defining food is researching bioregional traditions.

So, just go back 100 years, 200 years, and figure out what your ancestors were eating... In America they were eating corn and brown tail millet. In Italy, they were eating Foxtail millet. In Japan, they were eating Barn Yard millet. In the Himalayas, in Tibet and China they were eating quarter millet. This is the history. So it was very simple for me to trace back and get these grains and grow and give them to the so-called diseased conditions.

In emphasizing tradition, Dr. Khadar mobilizes millets as a tool for simultaneously resisting the injustices of the present food regime and preserving authentic forms of culture. In contrast to "food from nowhere" produced by the contemporary agri-food system, and its concomitant processes of concentration, commodification, and delocalization, millets, and other resurgent foods are positioned as tied to place, terroir, and cultural knowledge in complex ways. Part and parcel of connecting millets to traditional culture is responding to concerns about the loss of culinary knowledge and foodways in the face of dietary globalization. As Finnis (2008) describes in an analysis of the redefinition and re-presentation of minor millets in southern India, advocates position millets as repositories for a rich set of culinary practices that are connected to place and in danger of disappearing alongside the loss of agricultural biodiversity.

Drawing upon the work of Hobsbawm and Ranger (2012) on the invention of tradition, accounts of long standing ‘traditions’ should be critically re-examined, as many have their roots in nineteenth and twentieth century efforts to construct new nationalities and post-colonial nation states. Dr. Khadar’s promulgation of millets presupposes that in their ‘authenticity,’ they are actually a desired foodstuff among both Karnataka’s urban and rural consumers. Here, Dr. Khadar’s emphasis on place-based authenticity as a proxy for social value is similar to the diverse emerging organic commodity producers (Millet Nation), hybrid development organizations (Organic Mandya), and state entities (Karnataka agriculture department) introduced earlier, that are promulgating millets. Yet, as Chera highlights (2017), this emphasis on resurrecting local foodways often falls flat; externally-driven programs to promote minor millets often fail due to questions of taste. Millets are ultimately jettisoned for being unpalatable—neither the rural poor, whom are the subjects of development projects, nor even the urban technocrats that are promoting ancient grains as heritage foods, find the grains desirable (*ibid*). In proclaiming a sense of millets’ authenticity whereby culture and taste are rooted in place (Trubek 2008), Dr. Khadar, development organizations, and entrepreneurs are obscuring millet’s cultural politics, as in both a historical and contemporary context there has long been a cultural preference for rice (Hazareesingh 2020). While Dr. Khadar and others mobilize a symbolic logic of traditionalism and authenticity, they ignore that for many centuries if not millenia, millets were a sign of economic poverty, underdevelopment, and unsophisticated behaviors, and that rice was a symbol of social mobility, cultural capital, and economic advancement (Morrison 2016, p. 362).³ The optics of linking millets to place reads well, as it draws upon increasingly popular logics of the local, artisanal production, and traditional foodways; however, without attention to the ways in which long standing social values, economic histories, and cultural politics structure the interrelations between place and taste there remains a fundamental disconnect in the projection of millets. Yet, as I will now explore, Dr. Khadar’s bioregionalist vision is not devoid of critical analysis, rather it offers some suggestions as to what a critical bioregionalism might look like.

³ Due to a lack of textual and archaeological evidence, the eclipse of millet’s hegemony by rice is hard to pinpoint. While there is mention of rice in South Aisan in both Iron Age (1200-300 BCE) and the Neolithic (3000-1200 BCE), it appears to not have been extensively grown in what is now Karnataka prior to the first few centuries BC, and even during this time period it remain unclear how common were consumption or cultivation. What is clear is that by the Early Middle period (starting around CE 1000), rice was both well-established and highly valued in Karnataka, and that millet foodways had begun to be replaced (Morrison 2016).

Bioregionalism, the politics of sustainable agriculture, and growing the “right food”.

What differentiates Dr. Khadar’s promulgation of millets from similar miracle agriculture and foodway narratives is its’ critical agrarian perspective on the structuring effect of capital and science. Dr. Khadar’s starting point is a critique of the linkages between agroindustrial capitalism, the loss of food sovereignty, and the degradation of foodways. In his analysis, the “whole farming community is under the grip of the multi-national companies, and they don’t allow any other type of food production practice.” As a society, “we have been screwed up by this so-called Green Revolution, or whatever words they use. We have been screwed up in that society has come to believe that we cannot produce food without intensive chemical inputs, and so corporations are defining what is considered food.” Here, Dr. Khadar’s analysis is similar to critical agrarian scholars in noting that the Green Revolution has structured farmers’ subjectivities and understandings of what can be considered productive agriculture, and ultimately food (Meek 2018). Of particular note here are the ways in which agricultural modernization has transformed not only *how* we produce, but also *what* we consider food (Patel 2013).

Against this critique of industrial agriculture, Dr. Khadar advocates for a bioregional approach to food. Farmers should turn to planting what traditionally has been cultivated in a particular locality, emphasizing those crops that do not require extensive irrigation or chemical inputs. It is here that Dr. Khadar positions millets as an ecological antidote against the ravages of the agroindustrial system. This ecological logic holds that a transition back towards millet production can help stem the loss of ecological and agrobiodiversity that is associated with the rise of industrial farming. In his book, *Siridhanyalu: Food that Heals*, he describes the context for this recovery of authentic Indian agroforestry:

Forests are being destroyed due to farming. In the name of farming and modern farming techniques, agriculture is being practiced with the misguidance of multinational fertilizer and seed companies. Huge quantities of chemical fertilizers, pesticides and herbicides are being applied for crops nowadays. Farmers are being lured to make a lot money by growing mono crops like BT cotton, sugar cane, paddy, wheat and the like which require enormous amount of water.

In counterpoint, Dr. Khadar describes having “started this method of agriculture to grow real foods, and protect the soils and conserve flora and fauna of the earth at the same time (38).”

The jungle farming methodology is agroecological at its core, and relies upon the sub-surface microbial diversity of the “deep forest” as a treasure trove to reset the ecological balance of an agricultural area. Over the last decade, Khadar

has been developing a farm that puts his vision into practice. In 2009, Dr. Khadar purchased 7 acres of barren land and began transforming it through jungle farming to its present form, consisting of 3 acres of forest and 4.5 acres of crops. Dr. Khadar describes his methodology as beginning with having gone into the “deep forest” and identified eight trees that were “keystone species.” He brought the seeds from those trees, and collected soil from the forest to produce a microbial concoction. He then collected the leaves from the forest and dispersed those around his land. For Dr. Khadar, this agroecological approach is closely linked to the essence of the bioregion. “From the microbes of deep forest, we have rejuvenated the soil, and so with the help of forest, we have been able to successfully grow. Because you see, I keep talking about good food, right food, and that is what we need to grow.” After 3 months of this agroecological restoration, which he terms *atavi prasadam*, Dr. Khadar remembers that the land became fertile once again. Showing me a variety of photos from his farm, Dr. Khadar tells me that “we can grow anything we want: this is groundnut (peanut), this is sesame seed, this is quarter millet, this is corn. Through this farming method, we are able to grow all the things that we eat.”

A key component of Dr. Khadar’s vision is the idea that bioregional foods are more natural. The opening heading of his book reads: “Move back to Nature-worship and revere NATURE!! (in original).” As the text opens, he paints a common dichotomy “We are hit by a crisis by sticking to just paddy rice and wheat. In order to get out of this crisis, we should walk towards Nature.” By drawing upon this language of naturalness, millets are posited as linked to ecologically sustainable forms of production, and ‘green’ landscapes. Dr. Khadar, and other proponents of millets, are not the only ones that draw upon logics of nature to transform foods (and agricultural practices) from marginalized to miracle. For example, the marketing of açai fruit draws upon Western cultural imaginaries surrounding the Amazon as a primeval wilderness (Fajans 2014).

In arguing for the need to shift to jungle farming and millet production, Dr. Khadar often sets up a dyad, whereby he critiques Western science and promulgates a vision of indigenous agrarian environmentalism. As he tells me.

The meat, the sugar cane, the wheat, these are all the foods that are selected by the companies, and the so-called agricultural scientists, which are raping the natural resources.

There is no need for us to have organic fertilizers, or produce organic compost, all that is unnecessary for us, because we have microbes coming from the forest which are multidimensionally diverse; we produce this in our own field in a small clay pot, and this is what is called jungle essence, which can fertilize all the unfertilized soil.

Here, Dr. Khadar engages in the selective critique of Western science that is characteristic of the “new traditionalism” (Sinha et al 1997)—lambasting ‘so-called agricultural scientists’ for their connection to industry in structuring commodities, the agrarian environment, and ecological change. To complete the critique, and fill in the dyad, Dr. Khadar lifts up what he sees as the inherently beneficial elements of traditional agroecosystem. One simply has to go to the forest, which is seen as a space of true Nature. For it is in nature, that one can obtain its pure essence. From the forest, Dr. Khadar produces the ‘elixir of jungle’ (*Aranya Chaithanyam*), which consists of a fistful of soil collected deep from the forest, ¼ kilogram of a combination of all five Siridhanyalu grains, 1/4 kg of pulse grain, 50 g of jaggery (local brown sugar) and 30 L of water. To prepare the concoction, he suggests burying a clay pot in the ground in a shaded area, adding water, then the various ingredients, and stirring once a day for 5 days. The mixture is good for 3 weeks, and the fertilizer should be sprayed on the ground in the farm at dusk to help rejuvenate the soil and on plants to fertilize them.

Dr. Khadar’s vision of jungle farming and the ‘elixir of the jungle’ is explicitly bioregional; it is through bioregional approaches to agriculture that we define, and actually produce, real food.

This jungle essence is dynamic. It’s not the Oregon jungle essence that is required for Western Ghat fields. What you do is go to Oregon, and you get the essence. No transportation is required. Wherever you are, you can make your soil fertile, and produce what was being produced without anyone’s intervention. That is our food. And in that sense, all these five grains can be produced anywhere on this planet, because they were there all the time. *They were there all the time. And only in the last two hundred years we have screwed it up.* And luckily we had the seeds, somehow saved in our area.

Within Dr. Khadar’s analysis, agriculture should be bioregionally based, and engaged with the agricultural traditions and foodways that have historically characterized that landscape. By turning back the historical dial, one can rescue agricultural biodiversity and its associated foodways. Dr. Khadar’s analysis here offers a glowing glorification of India’s agrarian past, and combines that with a scathing, if selective, critique of Western science. Such a hybrid approach—turning to an agrarian imaginary, while critiquing a broad view of agricultural modernization, is characteristic of the “new traditionalism,” and common in Indian sustainable agriculture circles.

Dr. Khadar positions himself in diametric opposition to various other agroecological approaches, whose adherents vie for power within India’s burgeoning sustainable

agriculture community. He goes on to describe how jungle farming is not organic, because with organic “the connotations are very simple, ‘if you don’t use this, you don’t use that, instead just use the natural cow dung than it is organic’ but that according to me is not sufficient. And Fukowkwa, that ‘one straw revolution,’ they have considered themselves organic, but without defining food, you cannot be in the game. So we define the food and we grow only that.” Similarly, Khadar’s argument for regenerative bioregional agriculture might seem similar in many ways to that of Subhash Palekar, the contested charismatic guru of Zero-Budget Natural Farming (ZBNF) (Khadse et al. 2018; Meek and Khadse 2020). For example, Khadar holds that farmers need to follow the example of the forest, a point made by Palekar who instructs adherents to remember that as “nature is self-developing, self-nourishing and self-sufficient, our Spiritual Farming is also self-developing, self-nourishing and self-sufficient” (Palekar 2010, p. 184).” Tracking Muenster’s (2018) analysis of Palekar and ZBNF, Dr. Khadar also employs a scientific method based upon the simple observation of the forest. However, Dr. Khadar sees his vision of jungle farming as in diametric opposition to Zero-Budget Natural Farming. Dr. Khadar critiques ZBNF as a fad: “it’s a catchy word,” and he is adamant that there is nothing like zero-budget in any place. As he tells me “You have to spend time, you have to spend work, you’re not calculating the money for the labor, everything is budget.” Additionally, Dr. Khadar disagrees with ZBNF’s reliance upon the cow as a source of fertility. They “are using cow urine to fertilize the land, and they think there are some microbes that fertilize the land; but, after 3–4 years, that particular piece of land where you use cow urine all the time, it has a ridiculously bad smell, and starts becoming infertile, because it’s one particular type of microbe that begins accumulating in the soil, and so that’s a monoculture; monoculture always leads to sickness, if there is no diversity, than you are sick.” It might seem that Dr. Khadar’s admonition of the cow is a neutral agricultural management choice, but I read it as explicitly political. Cattle have long occupied a primary place in Indian politics—and debates surrounding the linkages between agriculture and human values (Lodrick 2005; Ghosh 2019). This political conjuncture has become only more vaulted in recent years, as a broader wave of vigilante lynchings have targeted Muslims suspected of slaughtering cattle (Berger 2018). Scaling out from these specific instances of violence, cattle have also come to occupy national electoral politics, as India’s far right conservative party, the *Bharatiya Janata Party* (BJP), has linked the symbolism of cattle to its political program. By way of contrast, Subhash Palekar, who explicitly argues for basing ZBNF around the cow, has been criticized as being amenable to the BJP’s ultraconservative political program. Dr. Khadar’s positioning of jungle farming in opposition to ZBNF, organic farming, and one-straw

farming is in some ways similar to the differences in identities and tactics between the diverse food movements in the U.S. context, including food justice, food sovereignty, and food security. While at a broad level, each of these movements involves increasing access to healthy and nutritious foods, the analysis of the proximate problem, and the tactics for addressing it remain distinct. Similarly, within the power geometry of Indian sustainable agriculture, jungle farming is orthogonal to organic, which for Dr. Khadar simply revolves around input substitution. For Dr. Khadar, the primary step needs to be defining what is food, and only that is what one should be growing in an agricultural context. Going on, he provides an example.

Why you want to grow sugarcane is the first question. So growing sugarcane, whether chemicals or no chemicals is not the question. Growing sugarcane, whether chemicals or no chemicals is not organic, because in nature, sugarcane is not found. Growing millets in just natural conditions, without water, without fertilizer is organic, because it's the way you define the food. So, what is agriculture? To grow food. Not to grow all sorts of nonsense that you want to grow business.

Dr. Khadar’s definition of food elides specific nutritional consideration, and focuses on its placement in the bioregional context, a context that is predicated upon an essentialist vision of Nature, and its opposition to agribusiness’ capitalist imperative.

Millets as miracle.

Dr. Khadar’s arguments for millets intersect with the broader narratives of development organizations, social movements, and other civil society actors, who position millets as the quintessential example of a miracle grain and food, functioning as a silver bullet for advancing ecological sustainability, grassroots community development and well-being. Their ecological beneficence is grounded in their adaptation to specific bioregional characteristics. With their distribution around the world, specific millet varieties are argued to be adapted to those particular ecological and climatic characteristics (Padulosi 2009). As a result, millets are promulgated as a climate smart alternative to industrial agriculture, as they are drought resistant, do not require extensive irrigation, and are ‘regionally’ adapted to particular soil characteristics of a locale (Bandyopadhyay et al. 2017; Liu et al. 2020).

Millets are also positioned as miracle in terms of their contribution to grassroots agrarian development (Singh and Sisodia 2018). As Dr. Khadar notes in his book, smallholder farmers cannot afford the expensive machinery needed to process the grain. As a result, they are accustomed to sell the grain to traders in bulk for a low price. However, this is no longer necessary, due to a recent small technological innovation, which is characteristic of peasant agroecology

(van der Ploeg 2012). Rather than the traditional usage of a stone mortar to break the grain apart, and winnowing to separate the chaff, a nurse from the district of Proddatur, Kappa district, Andra Pradesh, found that one could use a domestic food mixer to rapidly process small batches of millet. Dr. Khadar devotes several pages in his book to extolling the virtues of this approach under the subheading “Income for farmers throughout the year!” With only the domestic mixer, one can husk up to 20 kilos of millet grain per day, a job that marginal farmers can do on their own when time allows during the agricultural off season. This technique is very important for Dr. Khadar’s linking of millets with grassroots community development, as it provides farmers a source of sustenance at home, and the ability to earn an income year-round by selling to local markets. Additionally, Dr. Khadar notes, this type of home processing can provide a valuable source of employment and independence for rural women. It is here that Dr. Khadar’s narratives around the miracle of millets symbolically and ideologically intersects with Gandhian ideas of *swaraj*—a Hindi word, which is frequently translated as ‘self-rule’; Gandhi originally deployed the phrase when articulating a vision of Indian independence from foreign domination. *Swaraj* emphasizes governance, not by a hierarchical government, but through community building (Sanford 2013). Dr. Khadar’s arguments in favor of developing traditional village-level processing are grounded in Gandhi’s argument that, “If rice can be pounded in the villages after the old fashion, the wages will fill the pockets of the rice pounding sisters and the rice eating millions will get some sustenance from the unpolished rice instead of pure starch which the polished rice provides.”⁴ Both Gandhi, and Dr. Khadar’s agricultural vision are based in a vision of social solidarity, whereby self-dependent agrarian development could function as a social leveler, reducing social divisions.

As pharmacologists, food scientists, and nutritionists are increasingly arguing, millets are a miracle in terms of their nutritional profile, and capacity to address diverse maladies (Rao et al. 2011; Gupta et al. 2012; Srivastav and Sharma 2012; Panwar et al. 2016). Dr. Khadar offers a similar nutritionistic approach in advocating for millets’ health benefits, focusing in on a particular “good” nutrient—dietary fiber, and a specific quantitative way of assessing it. As Dr. Khadar describes it, “because I am a scientist, I determined that it is the ratio of the carbohydrate and fiber. If the ratio is high, then it is a diseased food. If it is low, below 10 then you have the right food.” Grounding his approach in his scientific credentials, Dr. Khadar proposes a division of foods into diseased vs. right food based on a nutritionistic perspective—diseased foods are those that have a ratio of carbohydrate

to fiber that is high—greater than 10, and similarly, foods are classified as right if their ratio is low. It is in the arena of health that Dr. Khadar combines a nutritionistic perspective with a miracle food narrative (Scrinis 2013; McDonnell 2015).

One gets a clear picture of “millets as miracle” upon entering Dr. Khadar’s clinic. A large banner stretched across the waiting area highlights the maladies that each of the five millet varieties is capable of curing. Khadar expands on this list by describing how each of the five millet varieties that comprise Siridhanyalu—Foftail, Kodo, Barnyard, Little, and Browntop—responds to specific needs of the body, and contributes to specific disease eradication processes. I learn that Kodo millet is particularly adept at cleansing blood, boosting bone marrow, curing asthma, and fighting various types of cancer, including those of the kidney, prostate, thyroid and throat. Acute diabetic patients with gangrenic wounds can take Kodo millet. By contrast, Dr. Khadar advocates little millet for men and women suffering from reproductive health issues, such as low sperm count and polycystic ovary disease. Moving on, Dr. Khadar tells me that barnyard millet is an effective treatment for ailments of the thyroid, and pancreas, as well as diabetes. It can help cure jaundice, and strengthen the liver after illness. And lastly, browntop millet is particularly well suited for a problems of the digestive system, and various conditions ranging from hemorrhoids and ulcers to diverse cancers, including brain, blood, bone, stomach, intestine and skin.

For Dr. Khadar, and diverse civil society actors, ranging from development organizations to social movements, the miracle of millets is multidimensional. Similar to McDonnell’s findings on quinoa, millet advocates position the grain in the context of global interest in ecological resilience to climate change. Yet, Dr. Khadar and other advocates go farther, tying millets to broader narratives of gender-equitable sustainable development, the resurgence of marginal foods, and food as medicine. Support for these arguments is found in appealing to the positivist empiricism of nutritionism, and increasingly mounting pharmacological and nutritional studies of the grain. While each of these aspects is important to Dr. Khadar’s vision, it is the bioregional aspect, which emphasizes the linkages between authenticity and place-based traditions of agriculture management, that is the most salient. Here, a return to nature vis a vis the local, whether it be in Oregon or in Mysore, is the starting point for rediscovering health and wealth.

Conclusion

The rediscovery, and subsequent rebranding, of historically marginalized foods into niche commodities has become an increasingly globalized phenomenon. From quinoa to açai to

⁴ Polished vs. Unpolished, in: Harijan, 26/1 0/1 934.

ramps, long forgotten fruit, grains, and vegetables are finding a second life among global societies' elites as curatives for the varied ills of modernity. What is particularly striking is how many of these transformations follow a similar logic, whereby the marginal becomes the miracle when an agricultural practice or foodway is tied to advancing ecological resilience to climate change, rescuing traditional foodways, or recovering lost agrarian identities. Unpacking the ways in which millets become a miracle offers insight into how a marginal agriculture practice, food stuff, and assemblage of foodways becomes rediscovered, repurposed, and repackaged as a silver bullet.

In this article, I have aided the construction of a critical bioregionalist framework, advancing ongoing debates surrounding the resurgence of marginal foods and agricultural practices. This perspective builds upon critical accounts of identity and privilege in local food activism (Guthman 2008a; b; Littler 2011; Cappellini et al 2016), and synthesizes these with human geographers' insights regarding the social construction of regions and place (Tuan 1977; Paasi 2003; Feagan 2007). I began by reviewing the nascent critical bioregional framework, which holds that one must make visible how north/south relationships of privilege structure conceptions of place, and purportedly homogenous place-based identities (Plumwood 2008, p. 140). I then argued that a critical bioregional framework should incorporate three new elements. First is an analysis of how narratives of authenticity become deployed to make legible—but also illegible—particular landscapes, and agricultural practices. As my results highlight, millet's proponents are painting a series of essentialisms around cultural traditions; these narratives obscure age-old symbolic politics that denigrate millets as a food of the poor, and a crop that is unproductive. Whereas the Green Revolution and ascendance of rice are targeted, there's a lack of recognition of the cultural and historical valence of rice, which has made it hegemonic. Second is a careful analysis of how bioregional claims rely upon particular subjects. Building upon findings from Chera (2017), and Finnis (2007, 2008, 2012), I argued that millets may ultimately flop due to a disjuncture surrounding the assumed linkages between terroir and identity. While millets' proponents may construe the grain as a symbolic key, capable of reconnecting urbanites with a lost agrarian identity, the reality is that in both rural and urban Karnataka, *ragi mudde* and other millet dishes are not seen as palatable, and there remains a strong symbolic attachment to rice, which is desired in part because it is exotic, tied to modernity, and *not* place. My analysis here offers a critique of how class, race, and caste-based privilege reconfigure the marginal into the miracle in similar ways to the politics of exclusivity in alternative food movements in the Global North (Guthman 2008a; b; Alkon and McCullen 2011; Mares and Alkon 2012). Third, I've argued that a critical bioregional

framework should involve a close analysis of both macro and micro politics at various interconnected scales from the global to the local. In my results, we see the centrality of the politics of knowledge in structuring the transformation of millets from marginal to miracle. Referencing at various points his expertise as a scientist, and thus his legitimacy, Dr. Khadar argued for a quantitative and nutritionistic approach to 'discovering' and 'knowing' what constitutes 'right food.' Once he had identified dietary fiber as the charismatic nutrient (Kimura 2013), and the magic ratio of carbohydrate to fiber as ten, Dr. Khadar was able to distinguish 'good' from 'bad' foods. Lastly, millets are simultaneously connected and distanced from nationalist politics, linked to Gandhian conceptions of *swaraj* on the one hand, and in opposition to the BJP's cow politics on the other. While millets and jungle farming are increasingly advocated as a cure-all for the ills of the global food system, my results suggest that efforts to promulgate this miracle will ultimately fail if their proponents do not engage in a self-reflexive and critical way with questions of cultural politics, political economy, and identity politics that along with ecological characteristics co-constitute the bioregion.

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