

Performing alternative agriculture: critique and recuperation in Zero Budget Natural Farming, South India

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Abstract

This article explores how 'Zero Budget Natural Farming', an Indian natural farming movement centered on its founder and guru Subhash Palekar, enacts alternative agrarian worlds through the dual practices of critique and recuperation. Based on fieldwork among practitioners in the South Indian state of Kerala and on participation in teaching events held by Palekar, I describe the movement's critique of the agronomic mainstream (state extension services, agricultural universities, and scientists) and their recuperative practices of restoring small-scale cultivation based on Indian agroecological principles and biologies. Their critique combines familiar political-ecological arguments against productionism, and the injustices of the global food regime, with Hindu nationalist tropes highlighting Western conspiracies and corrupt science. For their recuperative work, these natural farmers draw, on one hand, on travelling agroecological technologies (fermentation, spacing, mulching, cow based farming) and current 'probiotic', microbiological, and symbiotic understandings of soil and agriculture. On the other hand, they use Hindu nativist tropes, insisting on the exceptional properties of agrarian species native to, and belonging to India. I use the idea of ontological politics to describe the movement's performances as enacting an alternative rural world, in which humans, other-than-human animals, plants, mycorrhizae, and microbes are doing agriculture together.

Keywords: agricultural anthropology; alternative agricultures; naturecultures; critique; ontological politics; small-scale cultivators; India; Kerala; Subhash Palekar

Résumé

Cet article explore la manière dont «Zero Budget Natural Farming», un mouvement d'agriculture naturelle indien centré sur son fondateur et gourou Subhash Palekar, met en œuvre des mondes agraires alternatifs par le biais de la double pratique de la critique et de la récupération. En me basant sur le travail de terrain effectué auprès de praticiens de l'État du Kerala, dans le sud de l'Inde, et sur la participation à des événements pédagogiques organisés par Palekar, je décris la critique du mouvement concernant le courant agronomique (agents de vulgarisation agricole, universités agricoles et scientifiques) et leurs pratiques de récupération à la restauration à petite culture basée sur les principes agro-écologiques et les biologies indiennes. Leur critique associe des arguments politico-écologiques bien connus contre le productionnisme et les injustices du régime alimentaire mondial, avec des tropes nationalistes hindouistes mettant en lumière des complots occidentaux et une science corrompue. Pour leur travail de récupération, ces agriculteurs naturels s'appuient, d'une part, sur les technologies agroécologiques itinérantes (fermentation, espacement, paillage, élevage bovin) et sur les conceptions «probiotiques», microbiologiques et symbiotiques actuelles du sol et de l'agriculture. Par ailleurs, ils utilisent des tropes nativistes hindous, insistant sur les propriétés exceptionnelles des espèces agraires originaires et appartenant à l'Inde. J'utilise l'idée de politique ontologique pour décrire les performances du mouvement en tant que représentation d'un monde rural alternatif, dans lequel des humains, des animaux, des plantes, des mycorhizes et des microbes autres que les humains, pratiquent l'agriculture ensemble.

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Mots-clés: anthropologie agricole; agricultures alternatives; nature / cultures; la critique; politique ontologique; cultivateurs à petite échelle; Inde; Kerala; Subhash Palekar

Resumen

Este artículo explora cómo Zero Budget Natural Farming, un movimiento agrícola natural centrado en su fundador y gurú Subhash Palekar, promulga mundos agrarios alternativos a través de las prácticas duales de crítica y recuperación. Basándome en el trabajo de campo entre los practicantes en el estado de Kerala, en el sur de la India, y en la participación en los eventos de enseñanza organizados por Palekar, describo la crítica del movimiento a la corriente principal en agronomía (extensión estatal, universidades de agricultura, científicos) y sus prácticas de recuperación para restaurar cultivos en pequeña escala. Basados en supuestos biografías y principios agroecológicos indios. Su crítica combina argumentos familiares, ecológicos y políticos contra el produccionismo y las injusticias del régimen alimentario global con los tropos hindúes nacionalistas de las conspiraciones occidentales y la ciencia corrupta. Para su trabajo de recuperación, estos agricultores naturales recurren, por un lado, a tecnologías agroecológicas ambulantes (fermentos, espaciado, acolchado, cría de vacas) y entendimientos "probióticos", microbiológicos y simbióticos actuales del suelo y la agricultura, y por otro lado en hindú tropos nativistas, insistiendo en las propiedades excepcionales de las especies agrarias nativas de (y que pertenecen a) la India. Utilizo la idea de la política ontológica para describir los movimientos de los movimientos como la promulgación de un mundo rural alternativo, en el que los humanos, los animales, las plantas, la micorriza y los microbios están haciendo juntos la agricultura.

Palabras clave: antropología agrícola; agricultura alternativa; culturas naturales crítica; política ontológica; cultivadores de pequeña escala; India; Kerala; Subhash Palekar

Zusammenfassung

Der Artikel untersucht wie eine indische Naturlandbaubewegung, die Zero Budget Natural Farming Bewegung, die sich auf ihren Gründer und Guru Subhash Palekar konzentriert, alternative agrarische Welten durch die doppelte Praxis der Kritik und der Genesung (recuperation) erschafft. Basierend auf Feldforschung bei Kleinbauern im südindischen Bundesstaat Kerala und bei Lehrgängen von Palekar beschreibe ich die Kritik der Bewegung am agronomischen Mainstream (Landwirtschaftsberater, Landwirtschaftsuniversitäten, Wissenschaftler) und ihre Praktiken der Wiederherstellung von kleinbäuerlicher Landwirtschaft basierend auf vermeintlich indischen agrarökologischen Prinzipien und Biologien. Ihre Kritik kombiniert bekannte politisch-ökologische Argumente gegen den Produktionismus und die Ungerechtigkeiten des globalen Nahrungsmittelregimes mit den hindunationalistischen Theorien einer westlichen Verschwörungen und korrupter Wissenschaft. Für ihre wiederherstellende Arbeit greifen die Naturlandbauern einerseits auf bekannte agroökologische Technologien (Fermentation, Pflanzabstand, Mulchen, Kuhhaltung) und aktuelle „probiotische“, mikrobiologische und symbiotische Vorstellungen von Boden und Landwirtschaft und andererseits auf nationalistische Ideen, die auf den außergewöhnlichen Eigenschaften von in Indien heimischen landwirtschaftlichen Arten bestehen. Ich benutze den Begriff der ontologischen Politik, um die performative Produktion einer alternativen ländliche Welt, in der Menschen, nicht-menschliche Tiere, Pflanzen, Mycoriza und Mikroben gemeinsam Landwirtschaft betreiben, in dieser Bewegung zu beschreiben.

Schlüsselwörter: Ethnologie der Landwirtschaft; alternative landwirtschaft; naturenkulturen; kritik; ontologische politik; kleinbauern; Indien; Kerala; Subhash Palekar

1. Introduction

When I reached Mr. Appachan's² farm in the Christian settler region of Wayanad on the day he wanted to show me how to make *jīvāmṛta*, the fermented brew of the urine and dung of native cows that is central to Zero Budget Natural Farming (ZBNF), another visitor arrived on a motorcycle, who was also keen on learning about natural farming's "miracle preparation." To my surprise Mr. Kumar introduced himself as the Agricultural Officer of the local Krishi Bhavan, one of the main institutions for agricultural extension in Kerala. As Mr. Appachan carefully retrieved handfuls of the cow dung that he had collected in the past weeks from his native cow (*nāṭan paśu*), appraised its texture and smell, and mixed it with a bucket of urine collected from the same cow, the three of us – the agronomist, the ethnographer, and the farmer – had a conversation that ranged across

² All names are pseudonyms.

the sensory differences between native and hybrid cows, "beneficial microorganisms" (*mitra kīṭannal*) in the soil, the pH values in aerobic fermentation, and the potential of *jīvāmṛta* for restoring the degraded fields of Wayanad. While Appachan continued to add a flour of pulses, sugar cane jiggery, and a handful of forest soil to the mixture, I recalled our previous conversations during which he had expressed his discontent with the agronomy of the Green Revolution as well as with the indifference of agricultural officers, who, according to him, were "interested in their salary only", and with the scientific advice to apply more chemicals to his fields he had received all his life.

As Appachan stirred the mixture that would ferment in a few days to become the "nectar of life" (*jīvān* means life, *amṛta* is a divine nectar of Hindu mythology) in a 200 liter barrel, he kept politely silent about the harsh critique leveled by himself and other self-declared natural farmers against agronomical sciences and state extension workers. Today's event was "beyond critique" (Shear and Burke 2013). It was about tinkering with and celebrating new low cost technologies for recuperating small-scale agriculture. As we walked back towards the house Mr. Kumar revealed his plans to make Mr. Appachan's farm a model farm for the experimental application of *jīvāmṛta* for paddy cultivation (on model farms see also Flachs 2017). The collaboration between the alternative farmer and the state agronomist occurred at a moment in which it would be easy to dismiss science as inhumane and flawed (Shiva 1991) and alternative agriculture as reactionary and nativist (Nanda 2003). I take the slowly fermenting barrel of *jīvāmṛta* as an indicator of what recuperation might come to be. It indexes an ontological politics that involves the performances of humans and microbes in a project of recuperating small-scale agriculture that necessitates both the critique of science and a curiosity about emerging scientific facts.

This article presents the onto-epistemological project of ZBNF as a heterogeneous combination of critique and recuperation. Natural Farming presents a historically situated and place-based critique of science and of 'productivist' (Wilson and Rigg 2003) agriculture. The movement challenges conventional or mainstream agriculture with many of the same arguments shared by scientists, activists, and farmer-activists in the cosmopolitan fields of agroecology and alternative and organic farming, which have emerged in response to the externalities of industrial agriculture since the beginning of the twentieth century (for an institutional history see Lockeretz 2007; Thirsk 2000). I hope to show the ambivalent position of science in ZBNF. On one hand, it is seen as foreign occupying force, responsible for deskilling farmers and the colonization of traditional lifeworlds. On the other hand, recent biological sciences (e.g. microbiology, ecology, soil science) with their increasingly symbiotic (Gilbert *et al.* 2012) and "probiotic" (Lorimer 2017) understandings of soil and plant life are also an inspiration for the ecological renewal of agriculture. By teaching farmers about bacteria, mycorrhizae, symbiosis, and metabolic relations between plants, the world of soil and animals in ZBNF works toward a restoration of relationships of care (Puig de la Bellacasa 2017) between humans, animals, plants, microbes, and the reskilling of farmers with knowledge about soils and other interdependent ecosystems in agriculture. Following Donna Haraway's formulation I see this as a recuperative politics, which makes possible a "partial and robust biological-cultural-political-technological recuperation and recomposition [...]" (Haraway 2016: 101).

My perspective on alternative agriculture rejects two prevalent positions in the literature. The first is the uncritical endorsement of natural farming movements as progressive movements for food sovereignty. Khadse *et al.* (2017) celebrate Zero Budget Farming as a success story of "scaling up" agroecology, but remain largely silent about many of the contradictions of the movement, most notably the Hindu nationalist affinities I detail below. The second position outright rejects alternative agricultures and other forms of neo-traditional environmentalism for their convergence with the Hindu Right in their perspective on pre-colonial India as largely "intact" (Mawdsley 2006) and their putatively anti-science stand (Nanda 2006, 2003). Both of these positions, by either interrogating the contradictions of neo-traditionalism or focusing only on the urgency of agroecological reform, fail to fully appreciate the creativity and affect involved in the ontological politics of alternative agronomies. Following Naisargi Dave (2017) I am skeptical of what she calls the tyranny of consistency, "which demands that any ethics in an oppositional or oblique relationships to the way things are (...) account for its apparent inconsistencies or contradictions" (Dave 2017: 37).

This article deals with the epistemological, political, and practical consequences of the critiques of rural realities expressed by 'natural' farmers. Their intellectual rejection of soil science, agricultural engineering,

development ideologies, and the workings of the global agro-food system is rooted in their own past experiences with growing crops in a crisis conjuncture. Their critique contributes to quite outspoken forms of oppositional knowledge and contestations of mainstream agricultural science and technology. Natural farmers are enacting their contestations in their fields. Through tinkering with alternative technologies and practices they are performing an alternative rural reality of mutualism and abundance: "Realities are produced along with the statements that report them" (Law 2004: 38). The politics of alternative agriculture performances lies in their production of alternative realities, the ontological otherwise, by rejecting chemical theories and nurturing microbial and symbiotic understandings of cultivation. These performances also include the microbial cultures and other reevaluated species.

Understanding agriculture as performance speaks of the discursive and non-discursive enactments of specific styles and realities of agriculture. My perspective on agriculture as performance combines the economic and ecological realism of political ecology with attention by Science and Technology Studies (STS) to ontological "multiplicity" (Mol 2002) in agriculture enacted by varieties of scientific knowledge and farming practices in (see also Goldman *et al.* 2011). The challenges put forward by Subhash Palekar, the main protagonist of this article, in books, in social media, and on stage are rooted in a profound understanding of what political ecologists call "vectors of rural dispossession" (Li 2009: 71) that see small-scale cultivators across the Global South struggle to survive in the globally integrated market for agrarian commodities (Weis 2007). Alternative agricultures respond to rising suicides, declining yields, and increasing debts. They unfold with new force after the end of hegemony. Farming as performance, as a way of doing, knowing, enacting farming, has increasingly become experimental. The current political-ecological crisis among small-holders in India has stripped all systems of farming of their taken-for-grantedness. Uncertainty and plurality is the new normal.

What is Zero Budget Natural Farming? In the shadow of Kerala's much-noted organic policy (Thottathil 2014), a more radical natural farming movement has become active. Followers of charismatic farmer-cum-scientist Subhash Palekar practice an alternative agronomy, also known as 'Zero Budget Spiritual Farming' that is based on the activation of microbial life in the soil via a revival of putatively 'ancient' farming methods and technological innovations by their 'guru' Palekar. Compared to certified organic farmers in the region, "zero budget" farmers, as they call themselves, pose a radical challenge to the agricultural system, both in terms of their disregard for state agronomy and their working toward food sovereignty and independence of agrarian markets. Aiming for the economic and ecological self-sufficiency of their farms, Palekar and his disciples are outspoken critics of mainstream agricultural sciences, government-run agronomical extension, and everything that is associated with modern industrial agriculture and the global food regime. They counter these with utopian visions of rural autonomy, prosperity, and abundance that are actualized through heterodox practices based on fermentation, multispecies mutualism, and the centrality of native cows. However, their recuperative practices also build on emergent scientific understandings.

Small-scale producers of Wayanad, like Mr. Appachan, have experienced the ecological and financial costs of cash crop farming under neoliberalizing conditions. When Mr. Appachan speaks of his knowledge and practice as 'natural farming', or *prakṛti kṛṣi* in Malayalam³, he explicitly contrasts it with both organic farming (*jaiva kṛṣi*) and what he calls 'chemical' farming (*rāsa kṛṣi*). Natural farmers participate in a complex epistemological and ontological project of recuperating vitality, multispecies togetherness, symbiotic processes, and prosperity in a dying and degraded world of smallholder agriculture. However, they feel this relational and ecological vision can only be achieved by a fundamental break with mainstream science and development and through the exposure of the 'Western conspiracy' against Indian agriculture. It is thus a dual project of ecological repair and place-based critique of science.

The ontological quality of this project involves doing agriculture differently — sensing, inhabiting, and dwelling in new ways on the farm and cultivating modes of care that allow for symbiotically relating to soils, plants, insects, animals, and even microbes. Regenerative ways of farming, they sense, have the potential to

³ Malayalam is the language spoken in Kerala. English is widely used in Kerala when speaking about farming methods, owing perhaps to the fact that Palekar does speak in English to his audience and that organic farming was earlier introduced by Non-Governmental Organisations and certifying bodies with strong transnational ties. ZBNF is hence most commonly known as *zero budget kṛṣi* in Wayanad.

affectively and economically transform precarious lifeworlds into self-sufficient, autonomous and abundant worlds of life. Following Annemarie Mol (1999) among others, I call the combined challenges of thinking, knowing and doing agriculture differently an "ontological politics" (Mol 1999). Cultivation, like laboratory work, can be described as "a sociomaterial practice where reality is transformed and where new ways of *doing* reality are crafted" (1999: 75). In ontological politics "'the real' is implicated in the 'political' and vice versa" (1999: 74). Mario Blaser calls this a politics of worlding: "(...) a politics concerned with the processes through which a world is being brought into existence" (2016: 552).

I have written elsewhere about the practices of natural farming, the context of agrarian crisis that contributed to their rise, and the novel relationships with native cows in Zero Budget Natural Farming (Münster 2016, 2017b). In this article, I focus on the discursive performances of this alternative agriculture movement – its critiques of science, the state, and the West: how does this natural farming movement articulate questions of authenticity, belonging, and attachment to place in a historical conjuncture where various enactments of knowledge, science, and practice compete for allegiance? How does the movement position its agronomical innovations in relation to the sciences and engineering involved in contemporary agriculture? What specific epistemic space do they carve out for their movement in confronting the encroachments of colonialism, global capitalism, Indian nationalism, and the biopolitics of development in their livelihoods? What are the positive uses of science for the onto-epistemological project of cultivating a new ecological agriculture of the future in a postcolonial landscape?

2. On methodology

This article is based on several periods of ethnographic fieldwork among smallholder farmers in Wayanad, Kerala, beginning in 2008 (Figure 1). I had first visited Wayanad district in order to study the historical changes in the agrarian landscape (Münster 2017a) and how they contributed to crisis and farmer suicides (Münster 2015a). At the agrarian frontier of Wayanad, located at the frontier of settler cash-crop farming and wildlife conservation, decades of plantation monocropping, chemical biocides and commercial cultivars have produced an 'environment of crisis', in which people involved in extractive agriculture experience increasing precarity, debt, and the destruction of their agro-environments. In the context of the agrarian suicide crisis, Subhash Palekar's Zero Budget Farming was a beacon of hope that could provide a plausible answer to questions of how to continue living as agriculturalists on a damaged planet.

This article, however, despite being informed by my fieldwork among farmers, focusses mostly on the guru of the movement, Palekar, who I have encountered in ZBNF training camps, in his books and all over the internet (on various social media platforms and websites).⁴ I will focus on his published writings (Palekar 2010b, 2011). Palekar mostly speaks English when addressing farmers in South India. His English books are not translations from vernacular languages, but written by Palekar himself in English. I have resisted the temptation to 'translate' Palekar's English into (my Germanic version of) Standard English in the hope that these verbatim quotes may convey a good sense of his oral style and rhetorical force. Comparing his writings with my audio tape from the workshop in Nilambur, I find his written texts almost identical in content, wording and style to his performances of his message on stage. The way his quotes are reproduced here is also very close to the way he spoke to me on the one occasion I was able to interview him in 2014. This unfiltered, raw, and uncorrected stream of Marathi-inflected English seems to be Palekar's deliberate choice and part of his populist agenda. As he explains in the preface to his first book, he had 'reader farmers' in mind when writing it, "who cannot speak English but can read a simple non literal English. So, they will accept this rustic or boorish English language, no doubt. I have not written these books for Professors, Doctors, Scientists, Barristers or so called Intellectuals. So, please, Sorry" (Palekar 2010b: 11).

⁴ Subhash Palekar runs his own website, which also features video lectures he has given (<http://palekarzerobudgetspiritualfarming.org>, accessed 15/11/2013). The online presence of his community followers is also vast.



Figure 1: Wayanad, Kerala. Cartography B. Kraus.

3. Critique of science: confronting the mainstream

In February 2014, I participated in one of the five-day workshops on Zero Budget Natural Farming, or *celavillā prakṛti kṛṣi* in Malayalam, in the South Indian town of Nilambur (Kerala), which Subhash Palekar was going to teach. I had first met his followers in Wayanad, some 150 committed farmers who, like Mr. Appachand were mostly members of the agrarian settler community that had migrated to Wayanad in the second half of the 20th Century. Mr. Appachan, for example, had converted to ZBN in 2008 when Palekar taught his first workshop in Wayanad. Wayanad thus came relatively late to the movement, which has existed since the mid 1990s and is much larger in other parts of South India, most notably in Karnataka.

The 2014 workshop in Nilambur had the character of a revival meeting for peasant farmers. It was hosted in a large multi-purpose auditorium in the outskirts of town at the foothills of the Western Ghats, geographically located directly below Wayanad district. The auditorium seated several hundred farmers from across Kerala, members of women's self-help groups (*Kudumba Shree*), agricultural officers, and other members of the interested public in long rows of white plastic chairs. The workshop lasted long hot days from morning to evening interrupted only by a vegetarian lunch break and 'coffee breaks' without coffee (Palekar pushes his followers to break the habits of drinking tea, coffee and milk). Most of the day was thus spent listening to Palekar on stage.

Palekar speaks in a very energetic and captivating style and mostly in English, which another person on stage struggles to translate to Malayalam after every other sentence. Palekar's speech is full of irony and puns. He calls Justus von Liebig (1803-1873), the nineteenth-century pioneer of soil chemistry, "Mr. Lie Big"; renames biodynamic farming "bio-dynamite farming"; refers to the Green Revolution as "suicide revolution"; and mocks the incompetence of extension officers with little anecdotes. Occasionally he interrupts his lectures

and calls his audience to order shouting, "Are you understood?!", to which his audience replies with an enthusiastic "Yes!"

Palekar holds a BSc in agronomy and is a farmer himself. According to his scattered autobiographical statements, he developed his heterodox agronomy in the years 1989 to 1995 on his farm in his native Maharashtra. He spent these years studying Vedas, Western sciences and organic farming methods. Most importantly, he conducted experiments on his farm until he found his system of natural farming and the recipes for his central 'miracle preparations' which he calls *jīvāmṛta* (Sanskrit: nectar of life) and *bijāmṛta* (seed nectar). Before Palekar lets his audience in on his findings and his methodology he spends the first two days debunking all other methods of farming, the Green Revolution and agriculture science. He decries the 'scandal' of vermicomposting as practiced by organic agriculture which robs Indian soil of fertility, and lectures on incompetent and corrupt agriculture universities, which "should be closed." He warns his audience to keep away from "demonic" substances (chemical fertilizers, pesticides), "demonic" species (*Bos taurus* or "foreign cows", the "destructor beast" *Eisenia foetida* which is the earthworm used in vermicomposting), hybrid seeds, and "demonic" technologies (biotechnology and the "demon tractor"):

This tractor is a demon, which destroy your future. This tractor does not give you milk, dung or urine, but it drinks Diesel, which is not prepared in any factory, which is lifted through the stomach of the earth and which is created before crore of years, by buried forests under the earth by means of earthquake and volcanoes. (Palekar 2011: 20)

Wayanad's farmers respond particularly emotionally to Palekar's repeated references to rural suicides and the increase in dreaded diseases, most notably cancer. After many years of prosperity from cultivating pepper and other high-value cash crops Wayanad has entered a situation of crisis, not least because of increasingly speculative monocrops and chemical inputs that have degraded soils and human health. Many have subsequently lost their entire plantations to pathogens, cancer is on the rise, and farmers are trapped in loan and pesticide treadmills. For farmers it is quite clear that they have been ill advised by the "government" [*sarkkār*]. Palekar is perhaps more precise in pointing to the origin of agricultural extension work in India.

Who guide the farmers to purchase these inputs? Agricultural Universities? Yes! Agricultural Universities! If, it is proved that, there is no any necessity to purchase or to use these inputs, so also, then, are Agricultural Universities misguiding the farmers? Yes! So, the guidelines of the Agricultural Universities are straight responsible for the debt. And debt is straight responsible for the suicides of the farmers. (Palekar 2010a: 5)

Regarding suicides, Wayanad's farmers can also relate to statements like this one, which was paraphrased several times during the workshop:

Millions of farmers have committed suicides and these suicides waves are continued and are increasing. Every year millions of people are dying by increasing deathful diseases. Increasing cost of production by means of chemical farming and organic farming is the main cause for farmer's suicides, and poisonous food and polluted air, water are the main causes for deathful diseases of both farmers and consumers; which is given by both chemical and organic farming. (Palekar 2013: 8)

Natural farming's promise of hope through a restoration of joy and fascination in farming has to be seen in relationship to farmers being affected by declining incomes, forced exits from agriculture, deteriorating health, the disappearance of familiar species, and a general sense of abandon by state agronomy.

In the case of Wayanad and many other regions of the South Asia sustainable agroecological knowledge, skills and practice have been lost in the "epistemic rift" (Schneider and McMichael 2010) of decades of chemical

farming. Farmers with a commitment to continue living as agriculturalists today cannot simply tap into cultural reserves of pre-Green Revolution practices. Instead they are faced with a plurality of new competing and heterogeneous technologies and practices that they are called upon to adapt. After independence, the region became a frontier of expanding agrarian capitalism. Its forested landscape turned into the site of a "land-rush" of internal colonization by Syrian Christian settlers from central Kerala. On these fertile forest soils, settler farmers successfully established cash crop cultivation of a great variety of spices and export crops. A boom in these products brought considerable wealth to some parts of Wayanad in the 1980s and 1990s. To simplify a very complex story, a dual crisis of production and of prices hit the region at the end of the 20th century. Fluctuations in the liberalized and globalized commodities market manifested themselves for farmers as a series of devastating price crashes of central commodities, most of all coffee and pepper. While prices eventually rose again, the crisis of production turned out to be much more pervasive. Decades of overuse of chemicals and monocropping and lack of management of soil fertility have depleted formerly fertile forest land.

Living through agrarian crisis has put the hegemony of Green Revolution agronomy in question for many, and opened up possibilities for experimenting with radically alternative non-capitalist agronomies, and to contest the knowledge, practices, and materialities disseminated by the agricultural office and other institutions of state extension work. The moment of pause and reflection that the suicide crisis afforded, was also a moment in which performances of traditional, alternative, and mainstream agriculture pluralized. Farmers would speak of chemical-intensive cash crop agriculture as the "traditional" agriculture of Wayanad's settlers, alongside the "traditional" paddy agriculture of Wayanad's autochthonous agrarian castes.⁵ Certified organic agriculture, by contrast, is increasingly "mainstreamed" through its standardization and propagation by a various governmental and non-governmental institutions. This leaves ample room for a variety of alternative agricultural systems and technologies to flourish and circulate among more edgy farmers who experiment with these alternatives. Palekar and his followers are radically opposing what they consider to be the agrarian mainstream.

Mainstream agriculture "refers to prescribed agricultural practices within conventional systems [...]. Mainstream agriculture and the wider agri-food regime is underpinned by a productivist logic with established supply chains and formal institutions and actors" (Maye 2016). Under this global productivist regime, agricultural science and research, as well as state and industry support is exclusively geared towards the expansion of production, quantitative growth, increase of yield, and the intensification of chemical and capital inputs (Puig de la Bellacasa 2015). The Green Revolutions of the 1960s have brought productivist regimes to many countries in Asia—installed to combat hunger and to win the Cold War. Here is what Palekar has written about the "violent, unscientific, inhuman, barbarous, demonous, atrocious, ferocious, monstrous Green Revolution" (2010b: 13): "[it] is a world wide preplanned conspiracy to exploit our rural economy, natural resources like soil, water, environment and existence of living being" (2010b: 37).

For actual devotees of Palekar, ZBNF entails a change of personality, the cultivation of an agro-environmental subjectivity, as well as a change in the culture of farming. Palekar camps double as revival meetings in which farmers were repeatedly invited to stand up, raise their right arm and solemnly vow to transform themselves from being a "demon destroyer of nature" to a "saint protector of nature." In Palekar's words:

While practicing Zero Budget spiritual Farming in your farm, there will be a beginning of dramatic and miracle changes in your behavior automatically. You will be internally changed. (...) Your bad habits i.e. drinking the liquor, gambling, eating non vegetarian, waste, falsehood, defilement also will be continuously run away from you. Absolute cultivation of mind. Spiritual farming means to overall change you yourself. The internal change and external change simultaneously. (Palekar 2010b: 186)

⁵ Autochthony is always a matter of temporal scales. All inhabitants of Wayanad migrated there at some point in history. By autochthonous caste I am referring to cultivators and hunter-gatherer groups that lived in Wayanad prior to large scale immigration of cultivating settlers in the mid-20th century, a process I have called "internal colonization." Autochthonous castes include groups that are classified as Scheduled Tribes.

Mr. Appachan, the Natural Farmer of Wayanad with whom I talked for hours about his conversion to natural farming, emphasised the great importance of the aspects of ZBNF that are unrelated to agriculture: the 'simple lifestyle', the withdrawal of coffee, vegetarian food, and the daily appreciation of life on his farm. To Appachan ZBNF has been realized in the almost utopian terms set out by Palekar:

Natural farming is a self-developing, self-nourishing and self-sufficient farming. So, in this system, there is no any human made exploitation. There is no any chance for it. It is a pain free, care free, loan free, passion free⁶ farming. (Palekar 2010b: 194)

Mr. Appachan was particularly impressed by Palekar's insistence that farmers should not rely on the capacity of humans to control things. "He challenged us if we could produce a single molecule", he said. From Palekar he claims to have learned that there are many things humans cannot do.

4. Scientism, ecology and displaced knowledge in modern agriculture

Agriculture is indeed an ancient empirical science, in which cultivators innovate and engage in seasonal experiments on the basis of vast knowledge about their environment. As Henke puts it: "In this sense, science and agriculture share a practical interest in a kind of mastery of the world, disciplining and systematizing it into a form that reduces but does not quite eliminate uncertainty" (Henke 2008: 6). Much of farmers' knowledge, however, is practical, experiential, tacit, or embodied knowledge. Agriculture as science is thus closely related to skill (Stone 2007), practice, and performance (Richards 1993). There is thus a point to be made that scientist and economic imaginings constitute a new quality of scientification in agriculture, with the power to alienate producers from their own capacities for practical research. Chemical farming, in Palekar's words "carries you from life to suicide, from creation to destruction, from knowledge to ignorance, (...) from affluence to poverty. Chemical Farming is Allopathic farming" (Palekar 2010b: 193).

Historically speaking, agriculture has been a relative latecomer to the scientification of human lifeworlds. Compared with human bodies, for example, whose study in medical texts is among the oldest in the history of science (Foucault 2008 [1973]), agriculture only became the focus of scientific attention in nineteenth-century Europe. But agrarian science and engineering had epochal consequences. Vaclav Smil (2001) has called the Haber-Bosch synthesis of ammonia and nitrogen one of the most important technological inventions of all human history, as it made chemical fertilizers and hence the contemporary growth in world populations possible. Scientism in agriculture has had close connections to threats to human lives and responses to crises such as famines. If we define scientism as "the misuse of the language of science, and its aura of predictive certainty, to portray certain political and economic visions as being inevitably true, natural and triumphant" (Douglas 2009: 145), then the question is: what is the particular political, economic, aesthetic vision that is rendered inevitable by technoscientific interventions in agriculture? Defenders of the Green Revolution have always argued that it was all about hunger and poverty and continue to accuse its critics of "antiscience zealotry" (Borlaug 2000: 147). On the other hand, its most outspoken critics have called it a project of the Cold War (Cullather 2013).

Agronomy, the technoscientific research in agriculture, is historically deeply entangled with European colonialism (Brockway 2002) and the development of global food regimes since the mid-nineteenth century (Friedmann 2005). The publication of German chemist Justus von Liebig's 1840 seminal work *Organic chemistry and its application to agriculture and physiology* is inextricably linked to the 'Guano mania' of the 1840s (Mann 2011). Liebig had recommended the use of Guano as the best source of nitrogen, a scientific statement that contributed significantly of the 'age of guano', in which the Guano islands off the coast of South America became an essential material part of the first global food regime that provided cheap food for the Industrial Revolution in Europe (Friedmann 2005; Mann 2011). Colonial botanical gardens have been key

⁶ In the context of Palekar's writings, the notion of 'passion free' refers to Indian yogic tradition of freedom from passions and attachments as a goal for an ascetic lifestyle. It does not refer to boring farming without passion.

research institutions for the expansion of tropical plantation crops across the colonial world. The globalization of cultivars like rubber, tea or coffee has been synonymous with Green Revolution research and extension.

With the introduction of the Green Revolution in 1966, each state in India was given a centrally funded State Agriculture University as part of the National Agricultural Research System. In 1971 the Kerala Agricultural University (KAU) was founded, incorporating two earlier state-run institutions, the Agricultural College and Research Institute at Vellayani, and the College of Veterinary and Animal Science at Mannuthy.⁷ Since then, the state of Kerala has installed a wide network of research and extension institutions. Kerala Agricultural University includes six colleges, six Regional Agricultural Research Stations (RARS), seven KVK, 15 Research Stations and 16 Research and Extension Units across the state.

As became evident during my research on farmers' suicides, rural publics in India are increasingly unhappy with agricultural recommendations and 'packages of practices.' The agriculture officers and the researchers at Wayanad's KVK and RARS stations did little to discourage farmers from shifting to monocultures and overusing chemicals and were seen as helpless when it came to fighting the pathogens and drought that ruined so many fields in Wayanad. Research and Extension has to a great extent lost legitimacy among small-scale producers. During the Nilambur workshop, small farmers would cheer statements like Palekar's calls to "boycott all the techniques of Agricultural Universities", and his sentiment that "Agricultural Universities have no any right to say that chemical farming is a science and truth. It is a fraud" (2013: 15). While disaffection with state extension is very widespread in Wayanad, not all farmers criticize it for the same reasons. Natural Farmers constitute only a tiny fraction of the settler farmers in Wayanad. A more widespread response to the agrarian crisis is the practice of speculative cropping of ginger (*Zingiber officinale*) with the intense use of fertilizers and biocides (Münster 2015b). This practice also runs against agronomists' recommendations, and ginger growers are also critical of governmental extension work. To assess the unique contribution by natural farming, I thus turn to their performances of cultivating "with nature."

5. Recuperation: soil ontologies in Natural Farming

One way to live and die well as mortal critters in the Chthulucene is to join forces to reconstitute refuges, to make possible partial and robust biological-cultural-political-technological recuperation and recomposition [...]. (Haraway 2016: 101)

Palekar and other contemporary and historical critics of the "'actually existing" science' (Kloppenborg 1991) of agronomy and of technoscientific interventions in agricultural production have much in common. This includes a rejection of an increasing chemicalization of agriculture in favor of biological dynamics; critique of the mechanical understanding of soil fertility and plant health in favor of symbiotic and microbial processes; uneasiness about the loss of tacit and local/traditional knowledge in processes of deskilling and loss of biocultural diversity; and dismay at the increasingly exploitative integration of small farms into industrial complexes 'upstream' and 'downstream' of farming (Levins and Lewontin 1985), among numerous other issues.

Despite the shared concerns among activists and critics of agriculture, I hope to show that Palekar's position of critique is also very specific and differs from many other alternative agricultures—permaculture, biodynamic, organic—in its insistence that agrarian technoscience is not so much a hybrid of high modernism (Scott 1998) and capitalist development but first of all 'Western', 'foreign', and alien to India. According to Palekar most practitioners of alternative agricultures other than his own are also part of the foreign exploiter system:

Friends, attention please, *how much dangerous is chemical farming, more dangerous is this Organic or Biodynamic or Sustainable Farming.* These alternative farming systems are more exploiter than Green Revolution techniques. We have to strongly protest against these

⁷ For the history of KAU see <http://www.kau.in/basic-page/about-kerala-agricultural-university>. Accessed 10/12/2016.

alternatives. These both, chemical and organic farming systems are a preplanned array or conspiracy arranged by this exploiter system. (Palekar 2010b: 39, emphasis in original)

Subhash Palekar's movement is arguably the largest and most successful among several agroecological systems in India that call themselves natural farming and work toward a specifically Indian system. These communities of oppositional theory and alternative practice are united in their opposition to both Green Revolution agriculture, in the widest sense of the word, and the conventionalization trends in the certified organic agriculture of exporters, NGOs, and sustainable developers, which are deemed Western. Indian alternative agricultures have since the beginning struggled to find the proper balance between an embrace of Western science and a revival of Indian agronomical heritage. There seems to be a shared tendency to glorify the agrarian past, as is evident in this statement from Claude Alvares' popular *Organic Farming Sourcebook*:

In contrast [to the Green Revolution], agricultural practice in India dates back more than 4,000 years. Indian agriculture therefore could be called a self-sustaining agriculture simply because it has maintained soil fertility over this enormously huge period of time. This is permaculture at its best. (Bajaj and Srinivas 1996: 10)

Alternative agricultural movements beyond organic operate across India, with highly variegated numbers of followers and impacts. Their oppositional understandings of agriculture and practices of farming have complex transcultural influences that include Mahatma Gandhi's (1869–1948) ideas of rurality and ascetic lifestyle (Jodhka 2002), the agrarian ecocritique of Rachel Carson (1907–1964), Albert Howard (1873–1947) and Masanobu Fukuoka (1913–2008), and the travelling technologies of alternative agricultural movements like Permaculture or Biodynamic farming. Palekar is also only one among several charismatic agrarian gurus of natural farming in India; other important names include L. Narayana Reddy, Shripad Dabholkar (1924–2001), G. Nammalvar (1938–2013) and Baskar Save (1922–2015), who each innovated their own style of farming and have regional groups of followers. It may not come as a great surprise that Palekar rejects them all:

They have given the name for their alternative technology as 'Organic Farming', 'Eco Friendly Farming', 'Agro Ecological farming', 'Jaiva Krishi', 'Alternative Farming', 'Sustainable Farming', 'Saawaya Krishi', 'Aero Greens Technology', 'Biodynamic Farming', 'Rhishi Krishi Technology', 'Agnihotra Farming', 'Rekki Farming' and so on. All these techniques are alternative techniques, but unnatural and non-scientific techniques. (Palekar 2010b: 120)

The reason for rejecting them – being unnatural – points to the central theorem in the recuperative side of Palekar's system: the nature of nature.

Which is in existence in the nature is natural and which is not in existence in nature is unnatural. (...) What is natural, it will be not certified by Agricultural University or Organic University or any third party. It will be certified only by the Nature. Nature will define. Nature can discuss with it's mouth, in it's language. What is nature's language? Forest trees are the forest's language. (2013: 60)

Palekar's idea of Nature (capital N intended) is based on an idealized forest as a model ecosystem. In the forest, he claims, we can observe plants growing and bearing countless fruits without any interference from humans. In the same way, natural farming has to follow the example of the forest: "How nature is self-developing, self-nourishing and self-sufficient, our Spiritual Farming is also self-developing, self-nourishing and self-sufficient" (Palekar 2010b: 184). In the forest plants don't need any farm management techniques, mainstream or organic, in order to bear fruit: "That means, both chemical and organic farming are totally absent in the nature" (Palekar 2013: 15). Observing forests is also the preferred scientific method: "What are existed

in the nature are the knowledge, science, truth and non-violence. Forest is the nature. Nature is the system of the God, eyes of the God" (Palekar 2013: 14). Looking at the actual performances of nature (Abram and Lien 2011) in ZBNF, the centrality of domesticated plants and animals, most notably the native cow, is a significant blind spot to the forest as model ecosystem. The forest seems to be little more an allegory, than an actual reference to forest ecology, warning against Promethean hubris in agricultural technology that decenters the human in agriculture.

The scorn and bile Palekar has reserved for the sciences and biologies of mainstream farming are mirrored by his exuberant praise for the techniques and multispecies assemblages enrolled in Natural Farming. He activates all his poetic capacities when he speaks of "beautiful and marvelous biodiversity", the grace of native cows, their urine and dung, and the amazing liveliness of soil, or compares the necessity for mulching to the need for covering the body of your mother with a *saree*. His wit is then also sometimes combined with ironical anthropomorphism, like when he calls microbes nature's "input industries" that have been given "contracts" by God to fix nitrogen, or speaks of "Potash the wanderer." When it comes to his allies in the fields of academia, he has no issue speaking the language of science and even claims that certain principles are "basic science" or have been "proven by science." On stage, he lectures extensively in the 'scientific' language of nutrient cycles, microbial symbioses between plants and bacteria, nitrogen fixing, soil biota, phosphate solubilizing bacteria, mycorrhizae, and so-on. Palekar's system of farming thus rests on the principle of consciously designing farm plots for multiple crops and maximum diversity of species. The "five layer Palekar model" (Palekar 2010a) follows Palekar's principle that plants do not compete for water, but only for sunlight, and hence arranges plots vertically for the best utilization of sunlight and shade.

The main onto-epistemological shift happens when natural farmers learn a novel appreciation of soil as a living being, or as Palekar puts it, as *annapurna*, mother soil. ZBNF is all about building and maintaining the health and fertility of soil with the help of microbial agents. The microbial turn in soil care is a remarkable shift from mainstream practices in Wayanad. Soil care is a fundamentally relational activity that requires humans, cows, plants and microorganism to work symbiotically for mutual benefit. The cows of ZBNF need to be absolutely native, *dēśi* cows as Palekar calls them or *nāṭan paśu* in Malayalam. Only *Bos indicus*, they claim, has the miraculous high microbial count in their dung and urine that makes it possible to cultivate 30 acres (12 ha) with one cow. As the movement is vegan, the cows are only kept for their dung and urine. Their excrements are fermented for several days with sugar, water and pulses into Palekar's 'miracle preparation' *Jiwamrita* (*jīvāmrta*) — Sankrit for 'nectar of life':

Jiwamrita is an Amrit. *Jiwamrita* is a deathless, immortal beatitude of nectar. *Jiwamrita* has not only a microbial saturation; it has a spiritual power, make the soil saturated and spiritual, make the crops saturated and spiritual, make the food eater (naturally grown) nutrition saturated and spiritually saturated, powerful, potent, valiant, a mighty person. *Jiwamrita* is not only a culture; it is a message of God. *Jiwamrita* is a saver, protector of the life. (Palekar 2013: 131)

When applied to the soil, *Jiwamrita* (*jīvāmrta*) does not act as a fertiliser – which means it is not absorbed by the plants. Instead, it feeds and activates the soil microorganisms: "countless beneficial and effective microbes are divided speedily and activated; soil becomes bio-diversitically saturated, soil becomes alive animate; all creative forces and spiritual forces are activated in the soil" (Palekar 2010b: 128). Microorganisms in turn attract (native) earthworms, who in turn cycle macronutrients from deep layers of the soil to topsoil. Earthworms and microbes feed on the organic matter that is placed as mulch cover on the ground. This entire process produces humus near the roots and feeds the plants with nutrients. Plants grow and feed humans with healthy and nourishing grains and vegetables.

These technologies are of course specified and refined by Palekar and his followers to suit the needs of particular crops and landscapes. But the transformation of practices and subjectivities actualizes a recuperative ontology of care. The performances of Natural Farming are growing alternative worlds, they are "staging", in Natasha Myers' words, "livable futures for both plants and people" (Myers 2017: 299). One could call it a relational ontology of agriculture (Goodman 2001). It is all about working with 'nature' and about enacting –

seeing, knowing, and doing – an agriculture of abundance in which farmers stand on an 'ocean of nutrients' under their feet that simply needs to be activated by allowing microscopic processes and symbiotic principles to unfold as they would naturally occur in forest ecologies. This is one side of the coin. But ZBNF is also about the claim that only native biologies (cows, earthworms, seeds, microbes) have the capacity to recuperate India's rural health and prosperity. And it further claims that India had mastered the science of agriculture thousands of years ago, with the god Krishna as the first agronomist (Palekar 2010b: 165), and that India's Golden Age was destroyed by a conspiracy of foreign forces.

6. Conclusion: performances against purity

Western philosophers are in very wrong confident mentality that, only they, have absolute truth. But, it is not correct. There is only [one] absolute philosophy that is Indian philosophy. (Palekar 2013: 21)

Slightly overstating the case, this quote may be interpreted to indicate that Palekar replaces the violence of scientism with the chauvinism of Hindu supremacy. He counters putative Western claims to universal 'absolute' truth with the equally disturbing (and false) claim that "there is only [one] absolute philosophy [and] that is Indian philosophy" (Palekar 2013: 21). To be sure, agrarian environmentalism, agroecology and food sovereignty movements have always tended to posit the belonging of species and technologies to specific places and to celebrate locality, authenticity, community, and indigenous knowledge as resources for the sustainable renewal of agrarian livelihoods. Alternative agricultures may need alternative sciences, as Kloppenburg put it: "Material resources for the reconstruction of a 'successor science' are to be found in the 'local knowledge' that is continually produced and reproduced by farmers and agricultural workers" (Kloppenbug 1991: 519). I follow Sivaramakrishnan and Cederlöf (2006) in asking what is distinctive about South Asian discourses about authentic knowledge, belonging and affinity to landscape (Sivaramakrishnan and Cederlöf 2006: 4)? They doubt whether all references to tradition should necessarily be understood as reactionary and nostalgic visions of the past. Instead, claims are often "made to define and assert rights that were promised by the liberal state" (Sivaramakrishnan and Cederlöf 2006: 9).

Essentialist claims to the putative purity of indigenous, traditional or local knowledge have been effectively deconstructed (Agrawal 1995) as "invented space of authenticity" (Gupta 1998: 229). Palekar's statement thus exemplifies Akhil Gupta's point about the dangers of a politics of purity and continuity: "Discussion or efforts to "preserve" indigenous knowledge end up privileging certain kinds of knowledge over others" (Gupta 1998: 289). My hope is that the case of Palekar's blunt and outspoken nationalist rhetoric may open up future conversations about environmentalism and questions of belonging. ZBNF may serve as a magnifier of the "false consciousness of place" (Plumwood 2008) and the reliance on unhelpful purities and unacknowledged nationalisms that may be part of agrarian environmentalisms in more subtle ways.

My aim is not simply to 'expose' nativist thinking or criticize a false consciousness of place (Plumwood 2008) in agrarian environmentalism. I hope to have been able to show that Zero Budget Farming is also a valuable contribution to theoretical and practical problems regarding food and agriculture in the contemporary world. This ambivalence makes Natural Farming a valuable case for the political ecology of agriculture. The politically reactionary, economically naïve, and ecologically progressive traits cohabit in this movement. ZBNF makes uncomfortable claims about multispecies belonging and ecological nationalism, raises important questions about epistemic violence in developmental knowledge impositions, imperial science, and the scientification of lifeworlds. It is visionary in attuning cultivators to ecological processes of symbiosis, coevolution, fermentation, and nitrogen cycling.

Palekar's very specific response – rejecting and selectively embracing modern science and technology – lacks epistemological and political purity (Shotwell 2016). It is partially articulated in a backward-looking and chauvinistic idiom. At the same time, some of its critiques are not unlike the critical positions developed in political ecology and agricultural anthropology against 'Big Agriculture, Big Science and Big Capital' (cf. Haraway 2016). ZBNF makes sense to many small-scale farmers. Farmers in Wayanad who have adopted it,

whether partially or fully, attest to its efficacy, for increased yields and availability of healthy and tasty food, and to reduced costs and labour requirements. But most importantly, they are certain that it has restored their pleasure for working in the field without having to handle toxic substances. And they blame bad extension advice for the dire situation of the agricultural sector. South Indian farmers have seen agricultural systems reorganized in the name of science and for productivity since colonial times (Gupta 1998). Mistrust of mainstream agricultural extension and agronomy is widespread among farmers in Wayanad, and usually backed by strong anecdotal evidence about clueless officials, easily noticeable evidence of the ecological costs of agrochemicals, and close experiences with the financial risks of growing cash crops.

Palekar teaches the need to be attentive to metabolic relations and microbial worlds, and speaks at the same time of a scientific orientation and the joy of experimentation. This cautious embrace of science is, again, not unlike the theoretical inspiration many anthropologists and political ecologists derive from cutting-edge corners of the sciences, such as the speculative possibilities of "homo microbis" (Sagan 2013) and the biology of "ecological evolutionary developmental worlding and unworlding" (Haraway 2016: 97). Agriculture is about growing plants and raising animals. Its performances include the world-making activities of many species on the land and in the soil, some of them invisible, some of them chemical. A relational political ecology of agriculture can learn from natural farmers to take a closer look at human-microbial and other multispecies relations.

However, theoretical and ethical traps are manifold in an ontological politics that combines biophilic relationality with place-based identity politics. Palekar frames his critique of the State-Capital-Science nexus in obscurantist idioms of conspiracy theories, cultural nationalism, and Hindu chauvinisms. He counters the justified critique of the violence of hybridization with a celebration of native cows that brings him very close to forces of the Hindu Right. To farmers, for sure, only results – performances – matter. Palekar's Malayalee followers, not least because many of them are Syrian Christians, translate and 'sanitize' Palekar's sweeping claims about spirituality, ancient Hindu wisdom and the idiocy of state-run extension into a pragmatic methodology; into recipes and instructions that have the potential of recuperating agrarian livelihoods. They do so by "tinkering" (on tinkering as care, see Mol 2008) and experimenting with his blueprint. In their actual enactments, Palekar's recommendations get adapted, transformed, and contextualized for the needs of the farmers and their biotic and abiotic environments. To fully and fairly appreciate the impact of alternative agricultures in postcolonial contexts, it is thus necessary to look at both their performances of critique and of recuperation.

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