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Different farming styles behind the homogenous soy production in southern Brazil

Bert Vander Vennet, Sergio Schneider and Joost Dessein

Soy is often perceived as a typical example of a homogenous capitalist agricultural model that is responsible for ecological damage and social conflicts. But this monolithic perception of soy production can be challenged: more than 30 percent of the soy producers in Rio Grande do Sul (Brazil) are family farmers. In this contribution, we study soy production, the soy producers and their institutional environment from an actor-oriented perspective. We have uncovered different farming styles behind soy production: the colonial farmer, the niche farmer and the entrepreneurial farmer. The farming styles differ from each other not only in the farming system, but also in attitudes (for example, towards the forest). We found that the institutional environment and the technology are mainly focused on the entrepreneurial farmer. However, also, non-governmental organizations (NGOs) neglect the existence of small-scale soy producers. These results have several repercussions for further analysis of this problematic crop and how it can shift towards a more sustainable agricultural production model as small-scale farmers might produce soy more sustainably.

Keywords: food regime; Brazilian soy production; farming styles; actor-oriented approach

Introduction

In the 1950s, soy was introduced to Brazil in a small town: Santa Rosa, located in the southern Brazilian region, Rio Grande do Sul. It was the start of an agricultural success story. In a period of 30 years, the area cultivated expanded extremely quickly from Santa Rosa towards the central-west and the northeast regions of Brazil. Various drivers spurred this vast and rapid expansion. One was the existing infrastructure for cereal production, which could be easily adapted to the soy crop; another was geopolitical events such as the foundation of the Common Agricultural Policy in Europe, which substantially accelerated the European demand for imported soy (Brum 1987; McMichael 2009). Research efforts coming from EMBRAPA (Brazilian Enterprise for Agricultural Research), the federal agricultural research institute of Brazil, made it possible to modify the soy crop from a temperate-climate crop into a tropical crop (Brown and Purcell 2005). The Economist (2010) calls it ‘the miracle of the Cerrado’.1 Soy

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1The Cerrado is the region south of the Amazon, which used to be a vast area without potential for agricultural production. The region, which represents 23 percent of Brazilian land, is an ancient biome characterized by rich biodiversity (Ratter et al. 1997).
was one of the main drivers of the Green Revolution in Brazil, and this process is still going on today in the Cerrado region.

Despite its successes, such as impressive yield increases, and its positive impact on the Brazilian national trade balance, the modernization of soy production is often regarded as a classical example of an unsustainable agricultural model. Ratter, Ribeiro, and Bridge-water (1997) stated that 35 percent of the Cerrado has been transformed into an anthropic landscape. As of 2005, 50 percent had been transformed (Klink and Machado 2005). In addition to this landscape transformation, soy production is also held responsible for huge ecological problems, such as vast monocultures, deforestation and soil erosion (Pengue 2005, 2009; Hecht 2005; Brown et al. 2005; Morton et al. 2006; Steward 2007; Hecht and Mann 2008; Gudynas 2008; Altieri 2009; Walker et al. 2009, and others). The production of soy in huge monocultures is necessarily accompanied by a rising pesticide use to compensate for the increased vulnerability to pests, which, in turn, results in a reduction in biodiversity (Belo et al. 2012; Porto and Soares 2012). A number of social problems are also linked to soy production, such as the increasing number of farmers who can no longer maintain their farms (Gudynas 2008), and farmers who face difficulties with farm succession.

In the western world, environmental organizations (e.g. Genetic Modification Watch (GMWatch), Carbontradewatch, La Soja Mata, Agricultures Network, Fairfood, World Rainforest Movement (WRM), Action for Solidarity Environment Equality and Diversity (ASEED)) and the feed concentrate industry often regard soy as one monolithic production model. Wield, Chataway, and Bolo (2010), quoting James (2008), state that the nature and the geography of the crops indicate that the soy production in Brazil and Argentina is done by capitalist farmers, including corporate farming enterprises. Furthermore, soy production is often linked with the problem of land-grabbing by foreign companies and the strong effect of international soy prices on Brazilian land prices (Altieri and Pengue 2006; Li 2011, Lambin and Meyfroidt 2011; Borras et al. 2010; Oliveira 2013). Wolford (2008) also describes how large-scale farming could benefit from better access to credit and technological assistance, as these farms ‘deserve’ committed government support to develop modern agriculture that will feed the world in the twenty-first century. The Economist (2010) states that ‘big is beautiful’ and that mainly the large-scale, modern farmers will be able to feed the world instead of the ‘hobby farmers’.

Regardless of the favorable or unfavorable regard for large-scale soy production, the above-mentioned trend in the literature seems to agree that soy production is a synonym for capitalistic, large-scale agriculture. This monolithic perception of one specific capitalistic industrial production model heavily affects the discussion about sustainable agriculture, because many of the current discussions about sustainable agriculture are tightly linked with scale. Large-scale farms are seen as fostering huge monocultures which negatively affect the ecological system (e.g., Weis 2010 and Woodhouse 2010). Furthermore, the strong concentration of the genetically modified (GM) crops (with soy as one of the top three GM commodity crops) has generally been considered a main driver for homogenization.

However, Wield, Chataway, and Bolo (2010) have already suggested that only little research has been done on the class differentiation of farmers cultivating GM, glyphosate-resistant soy. Schneider (2009) and Schneider and Niederle (2010) showed that family farms in the southern region of Brazil are a diverse group with varying agricultural practices. Up to now, very few studies have focused specifically on diversity in the case of soy producers. In reality, soy is produced in diverse ways, ranging from large-scale to small-scale production, with GM, conventional and organic soy all being grown
In Brazil, family farms are responsible for 36 percent of the state’s soy production (de França et al. 2009). These diverse soy production practices do not automatically lead to different outcomes regarding sustainability. As Brown and Purcell (2005) demonstrate in the case of rubber and coffee production in Brazil, it is not the scale itself but the specific political, economic and ecological details of an agricultural project that are important in the sustainability outcome. Therefore, the question arises: Do these diverse soy production practices fit within a global, corporate food regime (Friedmann 1987)? If so, how? Why would small-scale producers still continue with soy production if they have to compete with large-scale producers? And is their production technique as standardized as is generally assumed in the literature?

Van der Ploeg (1993) suggests that specific farming practices are linked with a specific patterning of resources in a goal-oriented way, where different logics shape specific farming practices. We hypothesize that the producers adhering to different farming practices have different attitudes towards soy crop production, with different ecological positions and different future development paths. This contribution, which is based on a qualitative comparative case study approach, uses the concept of farming styles (van der Ploeg 1993). Van der Ploeg (1993, 241) defines a farming style as

a specific way of organizing the farm enterprise: farmer practice and development are shaped by cultural repertoire, which in turn are tested, affirmed or adjusted through practice. Therefore a style of farming is a concrete form of praxis, a particular unity of thinking and doing, of theory and practice.

He continues, ‘a farming style is a specific pattern for tying together land, labor, cattle, machines, networks, knowledge, expectations and activities: this is done in a goal oriented knowledgeable and coherent way’ (van der Ploeg 2010, 4). This concept, which is a specific way to organize farms based on theory and practice, is used to explore the soybean production system as an embedded entity of a larger global food regime (e.g. Friedmann 1987 and McMichael 2005). We visited two regions in the southern region of Brazil to gather information using semi-structured interviews with farmers, bank employees, extension workers, teachers, scientists and consumers. This research topic is operationalized in two research questions: (1) Can we distinguish different farming styles with respect to Brazilian soy production? (2) How do these differences in farming styles influence soy production, and what is their relation to technology use?

To answer these questions, we have to know in which ways family farms have become and can still become integrated and embedded into the current food regime. The case of soy commodity production in Brazil sheds light on this question. Furthermore, this paper represents a contribution to a broader discussion on agrarian and rural development. We mainly use the perspective of policies and initiatives that need to be addressed. We address the need to take such a diverse realm of actors in the whole agribusiness chain into account and explore how different actors become integrated in the social division of labor in the global food regime.

We will first discuss the soy crop embedded in the food regime, the concept of farming styles and the characteristics of the case studies. Then we will describe the context and history of soy production in Brazil. After that, we discuss the social reality of the soy

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2 In Brazil, a family farm is defined as a farm with an area smaller than 4 fiscal units (in Rio Grande do Sul, between 56 and 140 ha, depending on the municipality) and it should be mainly managed with family labor (Planalto 2006).
crop in Brazil, the three farming styles, how their visions about good farming and their future aspirations differ and how these are influenced by differing values. Finally, we discuss how the institutional environment and technologies have a different impact on each farming style.

**Soy production system becomes embedded in a food regime**

The soy production system, and more particularly the genetically modified organism (GMO) soy production system, is strongly embedded in a global food regime (Pechlaner and Otero 2008). Inspired by a global political economy perspective, Friedmann (1982, 248) first conceptualized a food regime as ‘a stable set of complementary state policies whose implicit coordination creates specific prices relative to other prices, a specific pattern of specialization, and resulting patterns of consumption and trade’, resulting in a process of ‘accumulation and class formation on a world scale’ based upon agricultural and food production, processing and commercialization. Several food regimes can be distinguished. The first food regime, from 1870 to the 1930s, is characterized by the combined import of colonial tropical products with basic grain and livestock imports coming from European colonies. These imports provided the emerging European industrial classes with low-cost food. The second food regime (1950s–1970s) was characterized by the adoption of the model of national agro-industrialisation by the ‘development states’, expressed by the Green Revolution technologies. ‘Agribusiness elaborated transnational linkages between national farm sectors, which were subdivided into a series of specialized agricultures linked by global supply chains (e.g. the transnational animal protein complex linking grain/carbohydrate, soy/protein, and lot-feeding)” (McMichael 2009, 141). From the 1980s until now, we are in the third food regime, a corporate food regime (McMichael 2005).

Pechlaner and Otero (2008, 352) argue that the inter-relationship between regulatory change and genetic engineering (GE) are integral to the emerging third food regime: national neoregulation and supranational regulation around important aspects of the technology (such as intellectual property rights (IPR)) provide the means for biotechnology’s ascendancy as a central technology for capitalist agriculture (Mascarenhas and Busch 2006), while the technology itself provides a means for further corporate concentration and integration of the food regime.

Pechlaner and Otero (2008, 352) wonder in addition ‘whether it is inevitable that neoregulation and the introduction of corporate agri-biotechnology will, in fact, widely reorganise agricultural production relations in the somewhat homogenous manner suggested by food regimists’. Or, in other words, does the food regime standardize the farming practices of the soy production system, or does the soy production system, with its many practices, challenge this claim of homogenization?

The current food regime is often linked with its disastrous effect on sustainability (Oosterveer and Sonnenfeld 2012; Buttel 2006). For example, Weis (2010) mentions the biophysical limits of the capitalist industrial agriculture and argues for rebuilding it into a biodiverse food system. Moore (2010) even questions whether the socio-ecological crisis of the current food system could be the end of the capitalistic system, and wonders whether the coming transformation will be able to incorporate new agro-ecological conditions. Many studies about soy focus on environmental degradation: for example, Pengue (2005, 2009) and Altieri (2009) state that soy production not only causes landscape

Our study contrasts with those that treat soy as one homogenous production system associated with large-scale capitalist agriculture. We have explored the different attitudes, practices and interfaces that shape the various farming styles existing in the soy production system. The concept of farming styles has been elaborated and tested by different researchers such as Roep, van der Ploeg, and Leeuwis (1991), Commandeur (2003), Vanclay (1994), Vanclay et al. (2006), Howden and Vanclay (2000) and de Bruin (1997). Some critics point out the heuristic character of farming styles, the influence of the specific research questions and the false suggestion of farming styles as fixed identities.

However, as Vanclay et al. (2006) state, the usefulness of the farming style concept depends greatly on the research questions and the aim of the research. Given our research question, we rely on farming styles as a key concept to examine how farmers operate within the soy production system according to their proper values and knowledge, and how this results in a specific soy-farming style based on specific farming practices, knowledge, future aspirations and visions of good farming and the environment. This discussion has a two-step structure: first, we explore the different materializations of the soy farm practices and, second, we exemplify the different world views behind these practices.

The farming styles are identified by individual identification of several elements as mentioned by van der Ploeg (2010): these include land, labor, knowledge, expectations and others. Farmers respond either differently or equally to some of these elements. For example, labor can be divided into (1) reduction of labor and increased use of machinery, (2) focusing labor on the production of high value products, or (3) increasing the labor use in order to reduce the fixed costs. We also allowed other aspects to emerge. For each element the farmers gave different responses, and, after this exercise was done for each item and each farmer, different clusters could be made. Each cluster is made up of a consistent logic behind the several elements that were shared by a group of farmers – a specific pattern behind the combination of the elements. This logical combination of the constructions shared by a group of farmers resulted in a specific farming style. The number of clusters depends on the explanatory power of the different clusters, and their internal consistency. To better understand the clusters, we apply an actor-oriented approach that treats soy as a crop that can be produced differently according to the values that inform a particular production style (Long 1985, 2001).

Empirically, we explore the data using the case study approach as described by Eisenhard (1989) and Eisenhard and Graebner (2007), with semi-structured interviews as the most important data-gathering technique. The interviews were complemented with informal conversations, as well as secondary data sources such as newspapers and policy documents. To gain a thorough understanding of the different farming styles, we opted for a sample of maximum contrast instead of a statistically representative sample. Based on discussions in the scientific literature (as mentioned above) and the reports of NGOs (such as Via Campesina, Movimento dos Trabalhadores Rurais Sem Terra (MST), Wervel, Aseed, Oxfam) about sustainable farming, we distinguished the following criteria for farmer selection: large-scale vs. small-scale, organic vs. conventional vs. transgenic; specialized or mixed (with other activities such as milk, vegetables and off-farm activities). Moreover, we added the farmers who stopped (organic) soy production and shifted to another
production system in their search for alternatives in order to sustain their farm. When combining these criteria, and relying on insights from extension workers, farmers and other practitioners, we used multiple entry points to start a snowball sampling until the total number of farmers interviewed was sufficient to saturate the database with relevant information (Glaser and Straus 1967). Several discussions with agricultural specialists and peers, and a confrontation with the secondary data sources, allowed for a triangulation of the data.

We have selected two municipalities in our case study area (Figure 1): Três de Maio and Londrina. Três de Maio is a municipality in the northern area of Rio Grande do Sul. This community was founded by European immigrants in 1915 and is characterized by its rather small-scale family farming (15 ha is a common farm size). Soy production is very important in this municipality, which has also a cooperative called Cotrimaio, with 13,104 members in total (including members from other municipalities). Londrina, located in the northern area of Paraná, was founded in 1920. The region is characterized by family farms and large-scale farms producing mainly feed crops such as soy, wheat and corn, as well as coffee and oranges. The region of Londrina is more densely populated, with more small towns in the neighborhood than is the case for Três de Maio. Twenty farmers were interviewed in Três de Maio. Their farm size varied from 4 to 400 ha. The farmers were all male except two, and were between 28 and 53 years old. In Londrina, 11 farmers were interviewed, with a farm size varying from 12.5 to 1500 ha.3 The farmers here were all male, aged

A farm of 1500 ha is a big farm in South Brazil; however, in the Center-West region (Mato Grosso, for instance), this would be a small farm. But because of a lack of contacts and limited time, we didn’t choose this region as a case study. As such, the huge farms of more than 4000 ha are not included in our study. We agree that the difference in size between farms of 1500 and 4000 is considerable, but we
The interviews took from 30 minutes up to 2 hours. The farmers’ interviews were complemented with interviews with other people involved in the soy market: employees from the cooperative Cotrimaio (the director and a technician), a private soy processor in Londrina, an administrator of the soy cooperative, an employee of the Bank of Brazil, 15 consumers at the farmers market in Três de Maio and four experts (an agronomy professor, two scientists at Instituto Agronômico do Paraná or Agronomic Institute of Paraná (IPAR)’s department of socio-economy (the governmental agricultural research institute of Paraná) and the director of the Setrem agronomy school).

Context and history of soy production in the southern region of Brazil

In 2010, Brazil produced 70 million tons of soybeans on 24.7 million ha. Thirty million tons of those soybeans were exported (MAPA 2011). Of the 70 million tons in total, Rio Grande do Sul accounted for 12 percent and Paraná for 20 percent (MAPA 2011). In 2006, 195,000 farmers produced soy on 6.8 million ha in the southern region (including the state of Santa Catarina), which is an average of 35 ha of soy cultivation per farmer (Zanon et al. 2010). This is much less compared to the farmers of the central-east area (including Mato Grosso), where 500 ha of soy was cultivated per farm (Zanon et al. 2010). In 2009, Brazil exported 28.6 million tons of soy, which was worth USD 11.4 billion (FAOSTAT 2012). This represents 11 percent of the total Brazilian export value (Lamucci 2011). Soy is therefore a strategically important commodity for Brazil. For 40 years, this commodity product has been heavily promoted by the government for the same reasons as today: the acquisition of foreign currencies (Brum 1987 and Lamucci 2011).

We will describe the historical evolution of the policies regarding soy and their effects on the local level in our two research areas, Rio Grande do Sul and Londrina.

Soy has been grown in Rio Grande do Sul for nearly a century. In that time, its production has undergone a significant structural and functional change. The present regional diversity of farming styles is influenced by different events in history. In the nineteenth century, European immigrants arrived in Rio Grande do Sul and gradually deforested the Atlantic rainforest, or *mata*, to become the owners of small plots of land. The activities of these small-scale family farms were mainly structured around the production of lard pigs (*banha*), together with subsistence crops. From 1930 on, soy was used to feed the pigs (Shurtleff and Aoyagi 2009). In addition to these activities, the farmers in this region started to produce wheat, which was highly promoted by the government because this reduced Brazil’s need to import wheat. This brought the construction of infrastructure such as silos and other machinery. Cooperatives were founded, which had a very important influence on this process of wheat production and infrastructure construction.

In the 1970s, three interrelated events led most farmers to shift to the system of soy/wheat production and abandon the polyculture of meat and crop production. First,
Europe was organizing its ‘Never Hungry’ campaign after the Second World War (this was the foundation of the Common Agricultural Policy). Milk and pig production increased drastically. As a result, many farms shifted to an industrial farming model that uncoupled feed production from pig and cattle farming. This led to heavy reliance on external protein sources such as soy. The price of soy, one of the main ingredients in pig and dairy concentrates, rose dramatically. Second, simultaneously with the European policy shift, Brazil started the so-called Green Revolution, an agricultural modernization project. Supported by the Rockefeller Foundation, the subsistence family agriculture in Rio Grande do Sul was transformed into a high input/high output agricultural system. Knowledge centers such as EMBRAPA were founded in order to intensify and facilitate this process. Third, the existing infrastructure for wheat production only needed small adjustments in order to respond rapidly to the increasing soy demand in the world market (Brum 1987). This increase in scale forced farmers to make one of three choices: (1) abandon farm activities and move to the city to live in often impoverished conditions (Brum 1987), (2) sell their farm to buy land in the cheaper central-west region to produce soy on a much larger scale (Mato Grosso do Sul, Mato Grosso, Goiás; Figure 2; Schlesinger, Nunes, and Carneiro 2008) or (3) successfully take over the other farms that were left by the two previous groups of farmers. The phenomenon of land purchase in the central-west area is still going on and is partially responsible for the deforestation of the Amazon. Figure 2 illustrates how soy was initially grown in the South region and how the soy production area expanded very rapidly towards the central-west region. EMBRAPA played an important role in the soy expansion towards the central-west area because it actively selected soybeans that would

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5The process of either quitting farming or buying cheap land instead of instituting land reform is also described as *modernização conservadora*, or conservative modernization. This was the modernization process during the Brazilian dictatorship without any land reform (Wolford 2008; Da Silva 1982).

6There is an intense debate about this process. We find different explanatory hypotheses. The oldest one says that some families living in very bad conditions at the frontier of the Amazon are claiming property rights of a plot of forest. They cut the trees (illegally), sell the timber and light the rest on fire. After that, the land is sold to the cattle rangers who use the land for a maximum of 5 years. The land is then sold in overexploited conditions to the soy farmers. But, recently, another explanation has been proposed: the indirect cause is the deforestation of the savannah region (the Cerrado) by soy producers, which drives the cattle rangers into the forest (Arima et al. 2011).
grow in the acid tropical soils of that region. As such, soy, which normally grows in temperate climates, was ‘tropicalized’.

In the period between the 1950s and the 1980s, cooperatives were adjusting and adapting their infrastructure to soy/wheat production. However, this process ended abruptly during the economic crisis of the 1980s. In this period, many cooperatives had financial trouble and thus had to start the 1990s under impoverished conditions. In the 1990s, the national productivism of the 1970s shifted to a multinational productivism, in which many cooperatives were bought up by companies such as the four major commodity companies (ADM, Bunge, Cargill and Dreyfus; Benetti 2004). It was also in Rio Grande do Sul in the 1990s that the first GM soy beans were imported and cultivated illegally, which forced the federal government in 2003 to legalize GM crops in Brazil.

The region around Londrina (Paraná) has a slightly different development path than the soy production areas of Rio Grande do Sul, although the region was affected by the same international events as described above. Londrina was characterized by pristine forests inhabited by indigenous people, not explored by European colonists. This changed in 1930, when the Northern Paraná Land Company bought the property rights and started to divide the region into different parcels. People from São Paulo, Minas Gerais and Japan migrated into this area and began the processes of deforestation and transformation into agricultural land. The region was especially famous for its coffee production. However, this production suffered a heavy crisis during the 1960s, which caused many of the coffee producers to move towards soy production, as this crisis coincided with the Green Revolution as described above.

Culturally, the farmers in Londrina still feel a significant connection to coffee production, a very labor-intensive crop which had a completely different way of farm organization than did cereal production. However, because of the increasing labor costs, coffee production has become more and more complicated and farmers are gradually moving towards soy production. The region consists of 80 percent small-scale family farms, responsible for 50 percent of the land use. The other 50 percent belongs to large landowners (fazenderos). In this sense, the soy production in Paraná differs from that in Rio Grande do Sul because of the more skewed land distribution in the former area.

The stories behind the numbers: the social reality of soy production

Brazilian farmers are squeezed between rising input prices, increasing cost of living and decreasing output prices. They have developed three strategies to secure their income and to keep farming: (1) upscaling, (2) diversification and (3) alternative agricultural strategies (direct selling, organic agriculture).

Although we focused on soy producers, we found that the majority of the farmers visited (95 percent) had a diversified production on their farms in addition to soy production. Referring to these as colonial activities, this practice coincides with the local notion of ‘a good farmer’, someone who is autonomous (‘good farmers don’t buy food

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7It is fundamental to understand that the cooperatives were “capitalist cooperatives” or large enterprises (which has nothing to do with the original idea of cooperatives or even with cooperation), which had a key role in the commercialization of soy. And this was also before the rise of multinational productivism.
8In Portuguese: produtos coloniais (referring to the European peasant farmers who went to colonize the region of Rio Grande do Sul); they are characterized as home-produced products, with no or low use of agrochemicals, such as a mixture of fruit trees and vegetables, free range chickens called frango
in the supermarket’ (Interview, colonial farmer, Três de Maio, 17 May 2011)). Furthermore, this concept refers to ‘those who conquest the mata (the Atlantic rainforest) and changed this unexploited natural richness into a fertile land for Brazil’s food production’ (Interview, colonial farmer, Três de Maio, 12 May 2011). The colonial style is a Gaucho style and defines the cultural identity within the region of Rio Grande do Sul. This region was also the country of origin of the Gauchos, settlers who went to the north and central-western area of Brazil to exploit the pristine forests in order to produce soy. They are following in their ancestors’ footsteps by transforming unused land into fertile fields that give food to the people.

In some cases, animal production was also found on the farm (mostly with smaller producers, i.e., niche farmers and colonial farmers; see below). The respondents framed the production of animals for cooperatives or integrators as diversification, as it is considered a new and promising strategy that ensures a secure monthly income. Soy is more risky for the following reasons: the major investment is at the start of the season (inputs, prepare the land, seeds); the yields can drop (because of weather events and new diseases); and prices can fall at the moment that the farmer needs to sell his crop. The diversification can be split up into milk production, meat cows, and industrial poultry and pork production. Industrial poultry and pork production is mostly on contract for meat processors and is directly sold to them. Milk production is linked with the milk processors, a private company or cooperatives. Meat cattle production is done on a rather extensive scale and is characterized by a more informal, small-scale trading system based on intermediaries.

The forest, as a part of the land, is generally seen as very important. Most interviewed farmers (colonial farmers and niche farmers; see below) were very concerned with the preservation of the forest (70 percent of the interviewed farmers). This became clear in the landscape: the fields were always attached to pristine or secondary forest: ‘The forest is important for the preservation of the biodiversity, as a climate regulator, because it is beautiful, and because it is my duty to maintain it’ (Interview, colonial farmer, Três de Maio, 19 May 2011). Older farmers talked about the period that the government and Banco do Brasil were stimulating the farmers to deforest. They refer to that period by saying ‘this was the way things were’ (Interview, colonial farmer, Três de Maio, 16 May 2011), but they are now glad about the reforestation.

Três de Maio faces a general labor shortage because the young people are massively migrating to the cities. In Londrina, farmers suffer from a shortage of labor as well, but the underlying dynamics differ. This region is more densely populated; thus, the competition with jobs in the city is much higher. This makes the labor shortage economic rather than geographical. This labor shortage, together with a profit squeeze (see below) influences many of the farmers’ decisions. A farmer reported: ‘I would shift to organic agriculture, because it’s much healthier, but I cannot do it on my own. My children are now working in the city for a much better income and they are living in better conditions than I do’ (Interview, colonial farmer, Três de Maio, 13 May 2011). This results in a general shift to less labor-intensive cropping techniques. Milk production is also limited because of this labor shortage.

A huge variety in land size (4–1500 ha) and differences in land ownership status (renting vs. owning land) determine how the farmers will combine the production factors of land and labor to respond to the cost/profit squeeze. The farmers rent extra land to optimize the

caipira (‘farmers’ chickens’) and the local breeds for the swine production that are not as vulnerable to diseases as are the breeds from the integrators.
capacity of the machinery they have bought. Rented land, however, is seen as a mere pro-
duction factor, which plays no part in the culturally laden concept of ‘good farmer’ as dis-
cussed above: rented land is only used to maximize production. A farmer does not have to
be a caring steward for his rented land, as it is merely a resource to be exploited.9

The above-mentioned production activities are linked with different marketing chan-
nels: soy and other staples are often sold to cooperatives and private processors. Chicken
and pork production is marketed on contract with large companies, while meat cows are
sold via more traditional marketing channels. Colonial products are either produced strictly
for home consumption or sold in farmers’ markets. Milk is marketed via the cooperatives,
private companies or public procurement.

Three farming styles: surprising diversity hidden behind the monolithic homogeneity
of soy

Based on the different responses to the above-described elements and the functional links
between the elements, we can distinguish three farming styles. The ‘colonial farmer’ is con-
nected with the commodity crops, but still has a strong relation with the forest and his colo-
nial activities. The ‘niche farmer’ searches for alternative markets, such as organic farming
and farmers’ markets. Finally, the ‘entrepreneur’ has a productivist approach to his farm
and the future10 (see Table 1 for more detail, and Figures 3 and 4 for illustrative pictures).

These three farming styles result from a governmental initiative, the Brazilian Green
Revolution of the 1970s. The most typical style still present is the ‘colonial farmer’
farming style: these farmers are strongly connected with the technological package that
was delivered by the institutions of the Green Revolution, while still maintaining other
activities as colonial products. This farming style is increasingly endangered because of
the profit squeeze originating from increasing input prices and increasing competition
with large-scale soy producers. In reaction to this profit squeeze, we observed two reactions.
The niche farmer searches for other (autonomous) modes of production, and the entrepre-
neur seeks to scale up production, which is a logical consequence of the Green Revolution
model that has now been taken over by multinational companies.

The colonial farmer

The colonial farming style is the dominant style in the region of Três de Maio and Londrina
(the highest number of farmers). Farmers in this style produce commodity products (soy and
wheat, and poultry, cows and pigs) with the help of intensified mechanization, high external-
input use and a high dependency on external knowledge. The common marketing channels are
used to sell their commodity products: cooperatives, private processors and also futures
markets. The colonial products are strictly for home consumption. However, farmers are com-
plaining about the ever-more-challenging profit squeeze, which forces them to shift towards
diversification. A few farmers are getting an additional income from non-farming activities.
These farmers continue farming ‘as our parents did’, although their children have often

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9 The difference in attitude towards owned land and rented land decreases when talking to the indus-
trial soy producers, as they already have the maximization strategy on their own land (see the descrip-
tion of the different farming styles below).
10 The farming styles as such are a conceptualization of the farming practices and their related world
views. However, for the sake of simplicity, we will refer in this paper to, for example, the colonial
farmer, while meaning ‘the farmers within the farming style called the “colonial farmer”’. 
Table 1. Summary of the characteristics of the different farming styles.

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<th></th>
<th>Colonial farmer</th>
<th>Niche farmer</th>
<th>Entrepreneur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income strategy</td>
<td>Improve production results per ha, production of milk and/or pigs for the integrators</td>
<td>Search farmers’ markets, deliver for the school food program</td>
<td>Scale enlargement, improve production results</td>
</tr>
<tr>
<td>Main activity</td>
<td>Soy/wheat or pigs and dairy cows</td>
<td>Colonial products, organic products</td>
<td>Soy/wheat</td>
</tr>
<tr>
<td>Forest</td>
<td>Important functional element in the farm</td>
<td>Important functional element in the farm</td>
<td>No functional element in the farm</td>
</tr>
<tr>
<td>Colonial products</td>
<td>Functional element in the farm, but only for home consumption</td>
<td>Core business of the farm</td>
<td>No function, sometimes not present at all</td>
</tr>
<tr>
<td>Materialization of</td>
<td>Partly monoculture of wheat/soy or integration, partly forest and agro-ecological crops</td>
<td>Partly forest, mainly agro-ecological crops, sometimes organic, sometimes wheat and soy</td>
<td>Mainly monoculture of wheat/soy, small pieces of forest, agro-ecological crops insignificant</td>
</tr>
<tr>
<td>the production logic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technologies</td>
<td>Older technologies (tractors older than 1990, absence of no-tillage tools), or new technologies used for production for integrators</td>
<td>Older technologies (tractors older than 1990), new technologies to comply with food legislation for processed food</td>
<td>New technologies (recently bought combines and tractors, tools for no-tillage agriculture), fit for large-scale activities</td>
</tr>
<tr>
<td>Labor</td>
<td>Maximize labor use by diversification: labor-intensive milk and pig production, next to soy production</td>
<td>Maximize labor use by own marketing, ecological production, colonial products, pastry</td>
<td>Maximize labor use by scale enlargement</td>
</tr>
</tbody>
</table>

Figure 3. Monoculture. The field of an entrepreneur.
Source: the author.
moved to the city. This makes farm succession a big problem. The colonial farmers see their farm as a whole: an organic entity with different activities that must be present on the farm, such as soy, the forest and some colonial activities. About the forest, they said: ‘it is important, that’s a reason enough, you just have to preserve the forest’ (Interview, colonial farmer, Três de Maio, 19 May 2011). This gives the forest an unquestionable importance. After asking why it is important, a farmer responded ‘because it is, because you don’t need to deforest everything and it wouldn’t solve my problems anyway’ (Interview, colonial farmer, Três de Maio, 16 May 2011). Colonial products are important ‘because a good farmer produces his own food’ (Interview, colonial farmer, Londrina, 4 July 2011). This seems quite surprising, as the size of the farms ranged from 6 to 24 ha, which means that this group is having many different activities on a rather small plot of land, but this way of production is inherently linked with their farming style.

Colonial farmers produce soy in the same way as entrepreneurs do, but with smaller and less up-to-date technologies on much smaller cultivated surfaces. However, they use also no-tillage techniques, usually by hiring a contractor, as in most cases they do not own the appropriate machinery. They also carefully follow the advice of technical assistants and apply the same pesticides, varieties and inputs as the entrepreneurs.

The niche farmer

Unlike the colonial farmer and the entrepreneur, the niche farmer is characterized by farmers who try to search new markets for their products in order to escape the increasing input prices and decreasing output prices. They find them in short marketing chains such as farmers’ markets. They criticize other agricultural models and search actively for new ways to produce, based on alternative information channels. In this sense, the niche farmer is very innovative. This group has one thing in common: the amazing diversity in strategies to search for autonomy and to increase income.

In the case of the organic farmer, soy is but one of the many farm products that is sold directly to consumers. The soy variety grown is fit for direct human consumption; thus, it becomes part of a larger cluster of farming activities that integrate the production of colonial
as well as commodity products. Other niche farmers use conventional farming techniques, but focus strongly on direct sales. In Três de Maio, a group of farmers has organized a farmers’ market in order to get a better price for their products. Three major groups of products are sold here: (1) fresh products (fruits, vegetables), (2) processed products (honey, meat and cheese), and (3) bread and pastries. The fruit and vegetable producers (category 1) often also have conventional soy production, an additional activity that increases their income up to 20 percent. Their main activity is selling fresh products at farmers’ markets. The bread and pastry producers have a more conventional soy and wheat production. The wheat is used to make the bread and pastries. This specific niche farming style therefore has few differences from the colonial farmer style, but it makes it possible for these farmers to maintain their property and increase their income by seeking direct contact with consumers.

Most of them used to be traditional soy farmers, but they have moved towards other products (organic products, colonial products) or selling methods (farmers’ markets, farm shops). The farm scale of the niche farmers is comparable to the farm scale of the colonial farmers. And, like the colonial farmers, the niche farmer’s farm is seen as one organic entity, where the forest takes an important place, together with the colonial products. In this style, farm succession is also problematic, for the same reasons. We can conclude that the niche farmer, in contrast with the colonial farmer, gets his income especially from activities other than soy. Soy might be present, but the main source of income is derived from fresh products, processed products, bread and pastries or organic products (which can include organic soy as well).

The entrepreneur

The entrepreneur farming style consists of specialized (larger scale) soy producers, who are intensely interlinked with the market. Their market-oriented discourse sees land as a capital factor, an input in their economic activity. In addition to soy and cereals, they also produce colonial products, but these are mostly seen as a relic from the past to be maintained, though without an economic function and only a small identity function, in the sense that colonial products are not a necessary condition to be a good farmer. In Londrina, there are farms (although only 20 percent) where the focus goes strictly to soy and cereal production without extra colonial activities, and where food is bought in the supermarket.

Focusing merely on soy and cereal production, the entrepreneur invests in new machines and tries to intensify this technology use in order to increase labor productivity. A good farmer uses state-of-the-art technology, which means modern tractors and planting and harvesting equipment. Most machinery is bought on credit, a necessary condition in order to increase his competitiveness vis-à-vis other farms. As machines allow him to cultivate more land, the modernization of the farm is accompanied with land acquisition (bought or rented) from farmers who have stopped farming or moved to town.

The entrepreneur’s attitude towards the forest is quite specific: the forest is not seen as an economic resource and is even perceived as an obstruction to farm development. He doesn’t pay special attention to the forest, as ‘a forest doesn’t give you an income’. Hence, very little forest is preserved in the landscape: ‘Why should we care about this? How much forest do you see in the city? Maybe they can oblige the people in the city to buy forests. We need to produce, and for this, we need land’ (Interview, entrepreneur, Londrina, 7 July 2011). A forest law is in force that requires farmers to keep 20 percent of their property forested. As a way around this law, some entrepreneurs buy plots of already-existing pristine forest that are disconnected from their farms.
Future aspirations and visions of good farming as values behind the materialization of practices

Future aspirations

In general, most colonial farmers talked quite positively about modernization processes such as mechanization and transgenic technology: ‘It’s much easier, we can produce more with less labor. Soy production used to be a very tough activity, because the seeds had to be planted by hand, in the sun. Yes, I’m glad’ (Interview, colonial farmer, Três de Maio, 13 May 2011). Still, they were complaining that it was harder to get the same income as before because of increasing costs. The recent need to use pesticides serves as an illustration. Up until a few years ago, farmers did not need to use pesticides, but the yield has been very low recently when no pesticides are used: ‘I don’t know what’s the cause, but the pressure from diseases is increasing. Maybe it’s because of the changing climate? Whatever the cause is, we need to use those expensive pesticides to save our crop’ (Interview, colonial farmer, Londrina, 8 July 2011). The increasing costs, together with the absence of farm succession, make these farmers continue farming like they used to do: maximizing production results by carefully listening to the technical advisors, while hoping that good results will overcome the profit squeeze: ‘You have to follow the latest evolutions! You have to increase your production, and thanks to the help of the extension workers, this is possible’ (Interview, colonial farmer, Três de Maio, 25 May 2011).

Most of the niche farmers are able to maintain their income in a better way than the colonial farmers. They are optimistic that farming will still be possible in the future, still with long working days, but with more options:

The adaptation towards the new system was quite difficult, but it’s better now, we have a better income. The consumers like our fresh and healthy food without pesticides. But it is still a risky business and we hope that the consumers will continue to buy our food.

(Interview, niche farmer, Três de Maio, 20 May 2011)

This is a very different attitude compared to that of the other farmers in this region. Three years ago, the Brazilian government started a special program for family farms (farms smaller than 80 ha), where, for example, a special credit provision for this farm type is arranged. Schools are obliged to buy at least 30 percent of the products for their school food from family farms. This has given an enormous boost to the family farms to produce colonial products, which makes them perceive the future more positively. However, the farmers in the niche farming style do not have farm successors either, because their children don’t believe in their production model:

They think that the farm is too small to continue, maybe it’s true, I don’t know. Farming is a hard job. They just want a job in the city with a good income, work from nine to five. I can’t force them to stay on the farm.

(Interview, niche farmer, Londrina, 7 July 2011)

Entrepreneurs perceive the future as successful and promising, because access to credit is much easier than in the past. During the period of hyperinflation, it was very expensive to invest in machines or land. The current access to credit enables them to invest in and improve their farm. The future for soy is also seen as promising: ‘Everybody needs soy, look at China. We will be able to keep on selling our soy’ (Interview, entrepreneur, Londrina, 13 July 2011). The future developments will bring an increasing upscaling, which is translated as a continuous investment in new technologies and obtaining new land. However,
sometimes the new environmental laws are seen as a threat for their future. For example, the forest regulations (which oblige the farmers to maintain 20 percent of their land as forest) curtail their development. The new demands are seen as unrealistic, and they propose a revision. This farming style has no problem with succession. This means that, in contrast with the other farming styles, the entrepreneur sees the continuation of his farm as guaranteed.

**Vision of a good farm**

When the colonial farmers were asked about the qualities of a good farmer, they responded that the colonial activities and the forest form an inherent part of their farming activities; it is an expression of their identity of a colonial farmer. The farmer should also be familiar with the current evolution and be prepared for new technologies in order to be able to continue his farm: ‘If you don’t evolve, you will lose’ (Interview, colonial farmer, Três de Maio, 16 May 2011). It is seen as important that a farmer should try to produce more on the same amount of land. This is done by choosing the right technologies and the right varieties. When talking about the production of soy and cereals, the colonial farmer is moving towards an entrepreneurial model, i.e., increasing production by intensifying technology use. For this reason, the no-tillage techniques provided by the extension workers were rapidly adapted in the region – because ‘a good farmer needs to take care of the soil by using no-tillage techniques to avoid erosion and to apply fertilizers in the right manner’ (Interview, colonial farmer, Três de Maio, 25 May 2011).

Niche farmers say that a good farmer should have different activities, be able to manage the farm and be willing to work hard: ‘If you don’t love the work, you will never be able to be a good farmer’ (Interview, niche farmer, Três de Maio, 23 May 2011). It became clear that these niche farmers, when asked about their property, automatically referred to their forest, as was the case for the colonial farmers. The niche farmer also views the forest as an integrated part of their farm. The organic farmers strongly stress the ecological production of food as an important aspect of good farming practice: ‘A farmer should care about the environment, produce crops without damaging the ecosystem and without poisoning our neighbors. The consumers have the right to have healthy food and that’s what our task is’ (Interview, niche farmer, Três de Maio, 20 May 2011).

The entrepreneur’s description of a good farmer seems to come very close to that of the colonial farmer: you have to be a good manager, have good technologies, follow the current evolution, choose the best products with the help of technical advisors and avoid soil erosion. The big difference between the entrepreneur and the colonial farmer is in the attitude towards colonial products and the forest. While the colonial farmer focuses on production results for the production of soy and cereal crops, he sees how colonial production and forestry are also necessary to fulfill the image of a good farmer. Entrepreneurs pay much less attention to these side activities. Several entrepreneurs also focus on having a clean farm: preventive elimination of weeds, in order to have a clean field without weeds – even when these plants would not harm the crops: ‘Cleaning the weeds off my property, that’s my free-time activity. It’s nice to have a clean farm’ (Interview, entrepreneur, Londrina, 30 June 2011). This reflects a strict separation between nature and agriculture.

**Different farming styles and their perspectives on soy production and its accompanying technologies**

In this section, we explore how soy production and the accompanying technological package are approached in the different farming styles. Soy production is strongly
institutionalized, and is embedded in a network of the cooperatives, knowledge institutions and technologies that are intensively linked with the crop. However, the increasing use of technology in soy cultivation (no-tillage, GMOs, pesticides), as facilitated by the accompanying institutions, has consequences for the different farming styles.

The relation between the attitudes, worldviews and ways of production, and the relation with the forest, allowed us to distinguish three soy farming styles. In all three farming styles, however, the practices of soy production itself were surprisingly homogenous. Even in farms where organic soy was produced, the production of conventional or even transgenic soy was also a part of the farming activity. Although this appears contradictory at first glance, it can be explained by the maximization of the production of premium products (such as vegetables, fruits, processed food, organic products) because farmers use their scarce labor for these products which use less land. The rest of the land is used for labor-extensive cultivation of soy and cereals. Moreover, most soy farmers will keep producing soy, because of its cultural embeddedness:

Soy is a tradition, my father used to grow it; it’s easy to grow and the soil and the climate are suitable for it. It’s like an inherent activity connected with my farm. I wouldn’t know what else to produce.

(Interview, colonial farmer, Três de Maio, 23 May 2011)

Some even use soy as a local exchange unit: farmers use soy to pay for inputs, like pesticides or contract work, or even machines and land.

However, some farmers have left soy production: ‘Soy production is for the bigger producers, I’m just too small. It is too complicated’ (Interview, niche farmer, Três de Maio, 20 May 2011). In these cases, they shifted from soy to milk or pig production, which made it possible to earn an income on a smaller plot of land. Others were thinking of leaving soy production, but only on the condition that there would be a feasible alternative to soy.

Despite this homogeneity in soy production practices, the different farming styles point to the farmers’ attitudes towards integration of their production within the environment; the forest and colonial products (i.e., products grown without pesticides) are important aspects for the colonial farmers and the niche farmers. The functional integration of these diversified agricultural practices principles causes these two groups to have a co-evolving attitude with the ecological environment. In other words, agriculture and nature are not mutually exclusive in these farming styles, but are constitutive of each other. This is entirely different for the entrepreneurs, who do not see the forest and colonial activities as conditions necessary for farming. The entrepreneurs treat forest and colonial activities as separate from farming. To comply with the forest regulations, their best option is to buy existing forests without any relation to, or integration into, their farms.

Technology and knowledge

Technology is very important for all of the farmers because ‘You need to move forward, or you lose’ (Interview, colonial farmer, Três de Maio, 17 May 2011). This coincides with the market-oriented attitude of the colonial farmers and entrepreneurs regarding cereal, soy and milk production. For these commodity activities, the farmers stress the importance of following the new trends. Technical assistants have a very important role regarding this issue. Most colonial farmers and entrepreneurs told us that a good farmer follows the advice of the technicians, and listens carefully to the advice of the extension services in order to be able to
follow the latest trends. This gives the extension services a powerful position. Most of the soy buyers (agropequarias), who are also tied to agrochemical factories, also give technical advice. Due to their very biased advice, the colonial farmers were not introduced to the new marketing possibilities such as farmers’ markets and the school food program. This voluntary withholding of information causes a discrepancy between the view of the colonial farmers about the consumers (‘consumers only want clean products without any spot’ (Interview, colonial farmer, Três de Maio, 25 May 2011)) and an existing, real demand from the consumers at the farmers’ markets (‘I buy here because I want healthy food without pesticides; it’s more natural, it’s healthier, it’s fresh, it’s cheaper, it’s family agriculture’ (Interview, consumers, Três de Maio, 20 May 2011)).

The colonial farmers in general see technology as useful, as it reduces the workload. It is good as long as it improves the production results. However, the cost/price squeeze brings colonial farmers into an inconvenient position, as the technologies needed to maintain their production and to cope with the lack of labor force are too expensive for these smaller farms. For the colonial activities, almost no external technologies are used. The colonial farmers rely strongly on the extension services for information to improve their production results. This information is strongly focused on technical results, which keeps them uninformed about alternative farming strategies. In case of diversification, the processors are still working on milk quality:

Thanks to the technical assistants from the processors, my milk quality has improved a lot. The occurrence of mastitis decreased drastically, just by applying some simple techniques. But I have to, because the processors oblige me to improve the results continuously. But it’s worth the effort as they pay a lot of money.

(Interview, colonial farmer, Três de Maio, 16 May 2011)

The niche farmers in general perceive that technology is helpful. The technologies used to produce colonial products for the farmers’ markets were fit for the scale of the activities and conform to the legislation. However, in the case of the organic farmers, the technologies were hard to access and, also, organic varieties of several crops were harder to find. Niche farmers are mostly searching for information in an autonomous way because the relevant information, owned by the mainstream extension services, is generally difficult to access. Information about organic farming was lacking. However, in the case of Três de Maio, one technical assistant gave advice to the farmers in the niche farming style about specific issues concerning direct selling strategies and compliance with the regulations.

The entrepreneurs use technologies that are appropriate for their farm size and make it possible to scale up production. The technologies induce further scale enlargement; they are mostly over-dimensional. The farmers in this group were very proud of their modern machines. The entrepreneurs are tightly linked with the extension services. Given their dependency on a single crop, market or production risks might have a higher impact on their farm results compared to the other styles. This makes them highly dependent on the extension services for advice, whenever an event occurs that could threaten yields.

**Soy and the different farming styles – final remarks**

Our analysis has shown that the farming styles, as defined by van der Ploeg (1993), do not lead to different soy production techniques. The homogeneity of production techniques is a result of the strong exogenous character of the soy, where most of the knowledge, technologies and markets are neither locally produced nor created. Soy production has always been
strongly embedded within an institutional environment that fits within the Green Revolution paradigm and that provides the necessary technological package to the farmers. The soy production system is indeed embedded in a global food regime that is reorganizing the practices of soy production in a homogenous way. However, our results clearly show that despite the implication that all soy production systems are homogenous, the farms where the soy is produced do have important differences. The discovery of different farming styles behind an apparently homogenous soy production has major repercussions on several levels: it affects the accompanying institutions, the NGOs and the scientific community.

Soy and cereal production is embedded in the current third food regime, which is exemplified by modern technology, such as tractors, agrochemicals, improved seeds, transgenic crops and the accompanying knowledge coming from the extension workers. The colonial activities are rather disconnected from this technology and research-driven practices, as they are based on traditional varieties without treatments using agrochemicals. This disconnection from the food regime is simultaneously a connection with their own endogenous resources and territorial capital, as these products are ‘not for the market, but for us, and they are not toxic’ (Interview, colonial farmer, Três de Maio, 25 May 2011). Because the local breeds are endogenous, they are adapted to the local conditions and resistant to local pests.

The institutional environment of the global food regime provides the same technological package to the entrepreneurs and the colonial farmers: farming practices such as no-tillage combined with GM soybeans and the use of pesticides. This results in several frictions between the different farming styles and the surrounding institutions. Although the focus remains on improving production results, the question remains whether the increasing influence of technology on soy production really brings solutions fit for the colonial farmers. Most of the new soy-related technologies induce scale enlargement, which drives the colonial farmers towards an entrepreneurial farming style. This will affect the position of the colonial products and the forest within their production system, as these are especially related to owned land, and much less to rented land. Consumers show increasing interest in colonial products, which could give colonial farmers new opportunities to maintain their farming style. However, knowledge is structured in such a way that a large portion of the colonial farmers are not informed about other promising alternatives. The niche farmers still feel a lack of interest in their farming style from the surrounding institutions. In this sense, soy production is strongly embedded and linked with the global food regime, with its dominant technology-driven paradigm that leads to upscaling, while alternative agricultural activities are largely ignored by the main actors and institutions within this regime. This causes an ongoing process of concentration accompanied by vertical integration. The concentration can be subtly recognized in the different dynamics in farm succession between the entrepreneur farming style and the two other farming styles. The entrepreneurs’ better access to technical assistance that is fit for their farm dimensions lends an extra impulse for the entrepreneur farming style. We can therefore expect a further tendency of scale enlargement in the region, at the cost of the other farming styles. This further concentration will also increase dependency on technical assistance, which will drive the entrepreneur farms further in the direction of the input industry. This increasingly blurs the boundary between independent farmers and vertical integration. Our findings therefore support the conclusions of many articles about the increasing concentration and vertical integration of the soy crop.

But the entrepreneur farmers are not the only ones cultivating soy in Brazil. The colonial farmer and the niche farmer both produce soy but they have a totally different relation
to their natural environment. It seems that they are more adaptable and resistant than usually assumed by authors who state that large scale will make small scale disappear. Apparently, many farmers still see soy production as an important aspect of their farm, so we can assume that they will continue to produce it. However these farming styles are mainly neglected by the institutional environment. Despite the fact that Brazil started a program especially designed for family farms (Programa Nacional de Fortalecimento da Agricultura Familiar (PRONAF)), it seems that the institutions do not follow this recognition. The fact that small-scale soy producers are largely neglected by the NGOs is a pity. The NGOs’ framing of large-scale soy production as unsustainable should therefore be nuanced, especially if they consider the colonial farmers and the niche farmers to be important potential partners for the strengthening of family farming and agro-ecology. By addressing soy production as inherently unsustainable, the discourse of international NGOs is not likely to touch these farmers. In this sense, we should move the discussion from a monolithic perception of soy production as a homogenous activity towards a model that embraces the discussion of farming styles. Each crop can be produced by a different farming style, which will ultimately affect the sustainability of an agricultural production system.

Wield, Chataway and Bolo (2010) suggested that we need to take the stratification of the soy producers into account. In this study, we can convincingly argue that this is indeed a necessary condition to understand the reality of the soy farmers. Our findings may nuance Woodhouse (2010), who treats the sustainability problem by questioning whether large- or small-scale farmers produce more per hectare. Instead, we should shift the question toward which set of values behind farming practices actually results in sustainable agricultural production? Even in the case that the homogenous soy crop, as such, heavily affects the environment, farmers can dramatically influence how this environmental degradation might occur. This research raises new questions: can there be sustainable production of soy in a diversified way, and how might this be organized? What is the potential of the colonial farmer and the niche farmer to avert the process of increasing concentration and vertical integration? Can a change in the organization of the accompanying institutions construct another soy production system with the help of the colonial farmers? Or should the colonial farmer try to valorize his colonial products instead of producing soy? These questions have the power to shift and extend the debate about sustainable agriculture.

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