

Biofuels: energy won't feed the hungry

Sergio Schlesinger

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Introduction

The beginning of the Twenty-First Century was marked by great expectations towards expansion of agricultural fuel production and consumption in several countries. High oil prices stimulated fossil fuel substitution programs, mainly in developed countries.

In Brazil, which is the world's biggest sugarcane producer, the federal government realized this scenario offered a great opportunity for transforming the country into the world's biggest ethanol producer and exporter. However several facts relating to global and national aspects reversed the tendency towards increase of domestic consumption and ethanol exports. The aspiration of becoming the world's biggest ethanol exporter was replaced by the need to import the product to supply domestic demand.

A combination of factors boosted ethanol consumption in the domestic market, such as the mandatory blending policies, establishing ethanol as an additive to be blended with pure gasoline, as well as the launching of flex fuel vehicles, which can be fuelled with any mix of ethanol or gasoline. Also worth of mention are the increase of the population's purchasing power, tax reduction and long-term car financing.

Brazilian production of agricultural fuels is based on two main monocultures: soy for the production of biodiesel; and sugarcane for the production of ethanol. There is a third monoculture which is the vast pasture lands because animal fat is the second main raw material for biodiesel production.

Among other known problems, monoculture production makes use of vast land extensions, which causes deforestation or displacement of other activities. The aforementioned cultures make intense use of agrochemicals, which threatens water and soil quality. It can also affect agricultural production and often the health of neighbouring populations.

We conducted field studies in the municipality of Mirassol d'Oeste in Mato Grosso, where people in land reform settlements and other family producers of diversified food seek to develop their activities in areas near extensive cattle raising and sugar cane and soy monocultures. This study makes an analysis of the impacts of these two monocultures and vast pasture areas on family food production and on these families lifestyles and, as such, it investigates whether know such coexistence is possible.

Agrofuels production in large scale

Currently, sugarcane occupies the third largest cultivated area in Brazil, after soy and corn. For the 2014/15 harvest, the official prediction is that this culture will occupy 9,1 million hectares.

Between 2000 and 2009, Brazilian ethanol production increased steadily, from 10,5 to 27,7 million cubic metres. Ethanol exports also increased exponentially, an upward trend that was interrupted by the global financial crisis, and the recession that came with it, as from 2008.

Soy cultivation occupies the largest agricultural area in Brazil. The official prediction for the 2013/14 harvest takes into account that the cultivated area in the country will be over 30 million hectares¹. Brazil is the world's second biggest producer: in the 2012/13 harvest, soy occupied over 52% of the total grain cultivated area. The official prediction is that it will take over 53% in 2013/14.

¹ CONAB. Acompanhamento de safra brasileira: grãos, V.1, Safra 2013-201 N.10 - Décimo Levantamento, julho de 2014. Companhia Nacional de Abastecimento. Brasília, 2014. Available in http://www.conab.gov.br/OlalaCMS/uploads/arquivos/14_07_09_09_36_57_10_levantamento_de_graos_julho_2014.pdf, accessed in July 24th 2014.

Launched in 2005, the National Program of Biodiesel Production and Use had among its goals the reduction of diesel oil consumption and income generation for family agriculture, which was to have a privileged position as a supplier of raw materials for the production of a new fuel. The program has succeeded with respect to the reduction of fossil fuel consumption. Until the end of 2014, the diesel oil produced in Brazil will have a 7% mix of biodiesel in its composition. However the participation of other oilseeds such as castor bean, dendê palm and jathropa did not go beyond 3,9% of the total in 2013, while soy was responsible for 73,3% and cattle fat for 20,5% of this total.

People do not raise cattle to produce animal fat, by the same token they do not cultivate soy to obtain oil. However, it can be said that the use of these two raw materials for biodiesel production increases soy and cattle raising profitability, which is an additional stimulus for producing them.

Monoculture in Mato Grosso state

Mato Grosso is the eighth biggest sugarcane producer in Brazil. According to Canasat-Inpe² data, in the State, for the 2013/2014 harvest, around 80% of all sugarcane (301,7 thousand hectares) are grown in municipalities located in the High Paraguay River Basin (238,7 thousand hectares).

The Cane Zoning³ prohibits cane plantation expansion and the building of new ethanol or sugar plants in Amazon, in the Pantanal wet lands or in High Paraguay River Basin.

The Midwest is Brazil's largest producing region. 13,9 million hectares will be cultivated by the 2014/2015 harvest. Mato Grosso alone accounts for 27,0 of the 86,3 million tons of soybean produced in the entire country in the 2013/2014 harvest, and 8,62 of the 30,11 million hectares cultivated in the country in the same period.

Main crops cultivated areas – Brazil and Mato Grosso state – in thousands of hectares 2013/2014 harvest

	Brazil	MT	% MT
Soy	30.110	8.616	28,6
Corn	15.746	3.273	20,8
Sugarcane	9.130	245	2,7
Beans	3.328	322	9,7
Wheat	2.628	-	-
Rice	2.396	176	7,3
Cotton	1.119	642	57,4

Source: Conab, 2014

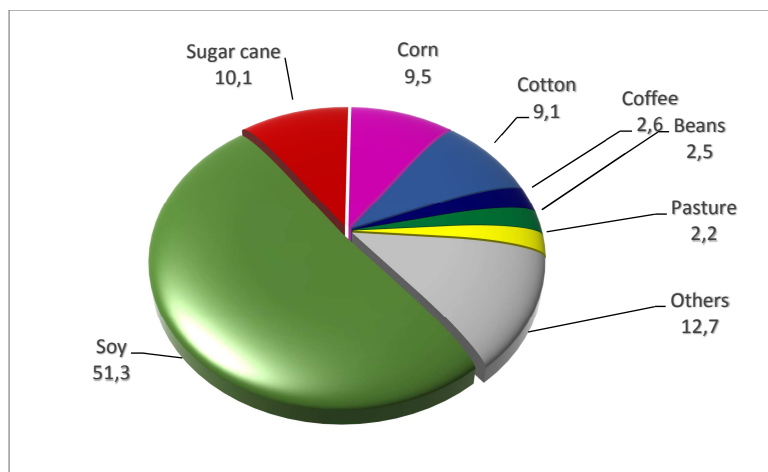
² <http://www.dsr.inpe.br/laf/canasat/cultivo.html>

³ The Presidential Decree No. 6.961/2009 established an Agroecological Zoning (ZAE) for sugarcane. The decree was subsequently sent to the National Congress for approval as a Law Project (PL 6.077/2009).

Water volume reduction caused by the deforestation brought about by these expanding large monocultures has also affected local populations. The problem is aggravated by water contamination by pesticides. Worse still, the populations are not the only ones affected. In the Cerrado (Brazilian savannah) are located the water springs flow into three important aquifers and six large hydrographic basins: Amazon's, Tocantins', Atlântico Norte-Nordeste's, São Francisco's, Atlântico Leste's, Paraguaçu-Pardo-Salinas-Jequitinhonha-Vaza Barris-Rio de Contas' and Paraná-Paraguay's. The conservation of the Pantanal, the largest wet land plains in the planet, depends on the latter⁴.

The large scale use of agrochemicals in crops such as soy, corn, sugar cane and cotton is another big problem that affects not only the food production but also the health of local population who live near the big plantations.

Percentage distribution of agrochemical consumption in Brazil in 2013



Source: Sindiveg

Intensive cultivation of sugarcane, combined with the rapid expansion of soy farming in the High Paraguay Basin region located in the State of Mato Grosso, has led us to choose the Mirassol d'Oeste municipality to carry out the field studies that provided us with the data for this text.

The case of Mirassol d'Oeste municipality in Mato Grosso state

Mirassol d'Oeste is located in the High Paraguay Basin, and is among the 12 municipalities that make up the Jauru micro region. Sugarcane and soy cultivated area in 2000 was nil. In 2012, sugarcane cultivated areas stood at 4,4 thousand hectares, followed by soy, with two thousand hectares. On the other hand, the cultivated areas with crops like corn, beans, rice and banana have been drastically reduced in recent years, as shown in the same table. Others, such as coffee, cotton and orange, simply disappeared. Such reduction of the diversified food production can be explained by the opening of a sugarcane plant called Cooperb II in the area which was back in operation in 2006.



⁴ BOURSCHUIT, A. Produção e exportação de soja brasileira e o Cerrado. WWF, 2012. Available in http://d3nehc6y19qzo4.cloudfront.net/downloads/wwf_soja_cerrado_web.pdf, accessed in April 10th 2013.

Agricultural Production in Mirassol d'Oeste – cultivated area (in hectares)

	1990	2000	2007	2012
Sugarcane	2.181	-	3.500	4.435
Soy	-	-	1.350	1.965
Corn	2.500	1.950	260	920
Sorghum	-	-	-	220
Manioc	455	30	60	130
Rubber	52	88	-	110
Beans	2.200	1.100	120	60
Rice	1.500	1.110	150	50
Banana	913	60	20	20
Tomato	4	8	8	8
Cotton	5.500	200	-	-
Coffee	1.600	18	-	-
Orange	8	-	-	-

Source: IBGE

Roseli Nunes settlement

Roseli Nunes is the settlement with the biggest number of families in the municipality, with an area of approximately 10,5 thousand hectares. It was created in the early 2000s as a result of the struggle for land in the region which has been supported by the Landless Movement along the 1990s.

In addition to the strong presence of sugarcane, in the last years soy and teak have been occupying areas near the settlement, which aggravates the problems faced by Roseli Nunes dwellers. Deforestation and the silting-up of rivers, caused by expanding monoculture and pasturelands, have been reducing even further the water volume available in rivers, streams and wells.

The intensive use of agrochemicals has impacted the Family farming production. The desiccant, a type of herbicide used in soy and sugarcane plantations at the end of the harvest cycle to speed up the natural plant drydown process, has made impossible to grow beans in settlement plots near the monocultures.

Besides the desiccants, other herbicides and insecticides are used in the sugarcane and soy plantations that cripple the agricultural production of many settlers at the Roseli Nunes settlement. The spraying of insecticides on monoculture areas drives the surviving insects away, which then attack family farmers' food crop production and livestock area.

Massive use of agrochemicals can also cause the extinction of several plant and animal species in the region's rivers and streams of water. Even if they survive the direct effects of the substances, the herbivorous fish species cannot find food, as herbicides destroy the aquatic vegetation, which affects all life-sustaining ecosystem in the rivers.

Used as a fertilizer in cane cultivated area, the stillage causes pollution of both surface (water streams and springs) and ground water (aquifers) and gradually increases soil salinity. Frequent stillage leaks caused breaks in the pipelines installed for cane fertirrigation and were determinant factors for the prohibition of sugarcane expansion in the High Paraguay Basin.

Echoing the discourse that also predominates at the State and Federal levels, the municipality's government have embraced the commitment to simultaneously stimulate agribusiness production growth and family farming, in addition to the new possibilities for increasing municipal tax collection through mining activities.

However, reality shows a scenario in which there is a clear need to make choices by stimulating some activities on the one hand and inhibiting or regulating some on the other. What we can observe is that, in parallel with the growth of monocultures, diversified food production by family farming has decreased continuously.

The intensive use of agrochemicals harms not only family food production but the whole population as well. As a matter of fact, in addition to contaminating the water in Mirassol d'Oeste, the agrochemicals are carried by rivers and spread the contamination in areas far outside the municipality's limits. For this reason too, the planning of economic activities must take into account that the municipality is an integral part of the High Paraguay Basin, whose rivers are responsible for recharging the Guarani aquifer. Moreover, water contamination, combined with the deforestation that has been affecting the region, also jeopardizes the future of the wet lands of Pantanal in the Middlewest region.

Conclusions & Recommendations

Here, we present conclusions and recommendations given to face the problems dealt with throughout the present study, which reflect the opinions issued by interviewees and social organizations in the High Paraguay Basin region.

- Establish a moratorium on soybean cultivation as well as other monocultures throughout the High Paraguay Basin, based on the same criteria adopted in the decree that prohibits sugarcane expansion in the Basin.
- Eradicate embankment of wetlands and basins in cultivation and pasture lands.
- Prohibit the spraying of agrochemicals by planes to protect the population, their agricultural production and hydric resources near monoculture and pasture land. Also prohibit the use of agrochemicals that have been banned in other countries for causing proven damage to health or environment.
- Revoke Decree number 1.651 from March 11th 2013 from the State of Mato Grosso Government, with a view to keeping in force the State Decree – MT Number 2.283/2009, in order to restore the minimal distances for spraying agrochemicals in relation to settlements, cities, villages, neighbourhoods, water sources, isolated households, groups of animals and springs.
- Promote regulation and rigorous supervision of the sales and use of agrochemicals and GMO seeds, as a measure to protect family farming territories that adopt the transition cycle for agroecological production of food.
- Demand the making of systematic studies of river and well water quality in areas where agrochemicals and stillage are used.
- Conduct studies on the occurrence of diseases related to exposition to agrochemicals by comparing the obtained results in these areas with those from areas where monoculture is not present.
- Establish a compensation for family farmers for loss of production caused by the use of agrochemicals in nearby areas, payable by those responsible for the spraying.
- Punish intimidating practices related to communication and reporting of disease caused by agrochemicals in workers living in the region, as well as other health conditions deriving from exposition to risks in the work place, mostly in monocultivation and slaughterhouse areas. Demand compensation to the victims.
- Conduct studies to determine the minimal distances allowed for the spraying of stillage as a fertilizer in sugarcane cultivation areas by protecting specially riverheads and basins.
- Implement the programmes foreseen for collection and adequate treatment of sanitary sewage, by preventing untreated sewage dumping in river and stream waters.

- Systematically overseeing by public authorities of mining activities, whether licensed or not.
- Guarantee that the threatened and affected populations have a right to direct consultation, consent and veto power on mining projects.
- Guarantee the right to delimiting the areas liberated for mining activities in family farming territories, as those in traditional communities and settlements that prove to have diversified food production. Prevent the possibility of individual negotiation for assignment of land tenancy between settlers and mining companies that is carried out without the knowledge of their community organizations.
- Value agroecological products by means of preferential acquisitions by official food acquisition programmes.
- Adopt state regulatory measures that guarantee the implementation of official food acquisition programmes. Promote the effective functioning in the region of current official programs that stimulate production and preferential acquisition of family farming food, as the National Agroecology and Organic Production Plan (Planapo), the Food Acquisition Program (PAA) and the National School Feeding Program (PNAE).
- Provide support to the setting up of public fairs with a view to effecting direct commercialization between producers and consumers.
- Provide technical and financial support to self-processing of milk production, fruit pulp as well as other food items, whose processing aggregates value to family production.
- Set up integrated zoning of all agricultural and livestock activities that prevent the implementation of monocultures in areas that are crucial for the protection of ecosystem and in strategically important regions for diversified food production.
- Monitor law projects following procedural steps that can result in impacts on the region, such as the new Mining Code, the State Zoning and the Pantanal Law.
- Guarantee the concerted participation of local civil society organizations in state and national committees and councils, whose resolutions can secure rights and positively influence on these populations' and the environment living conditions.

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By Sergio Schlesinger

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ActionAid Brazil

Rua Moraes e Vale, 111 / 5º andar

200061-260 – Rio de Janeiro – RJ

Brazil

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