

# Brazil's agricultural policy developments<sup>1</sup>

Antonio Luiz Machado de Moraes<sup>2</sup>

**Abstract** – This study aims to review the main agricultural policy instruments in pace with the sector's development and propose new directions of agricultural policy. It concludes that, as compared to other sectors, Brazil's agricultural sector is better prepared to face economic crisis and sustain market supply, as long as it stays coherent with macro-economic policy and follows a market-oriented approach.

**Key words:** agricultural policy, rural credit, rural insurance, market support, agro energy.

## Evolução da política agrícola brasileira

**Resumo** – Este estudo tem por objetivo avaliar os principais instrumentos de política agrícola que acompanham o ritmo do desenvolvimento do setor agrícola brasileiro e propor caminhos para a política agrícola. O estudo conclui que, comparado com outros setores, o setor agrícola brasileiro está mais bem preparado para enfrentar a crise econômica e manter o abastecimento do mercado, desde que se mantenha coerente com as políticas macroeconômicas e siga uma abordagem orientada para o mercado.

**Palavras-chave:** política agrícola, crédito rural, seguro rural, apoio ao mercado, agroenergia.

## Introduction

Through the liberalization of trade and market deregulation, Brazil has undergone deep changes in its economic policy. This process, initiated in the early nineties, continued to be followed and included a thorough review of Brazil's agricultural policy, which was continuously adjusted to improve its efficiency in order to promote sustainable agricultural performance. Emphasis was placed on the invigoration of market mechanisms, on the participation of private initiative in agricultural financing, and on agricultural price support. The continuous effort

to modernize agricultural policy and consolidate its instruments allowed farmers to better adjust themselves to market uncertainty and to expand and solidify their inclusion into the international market.

Thanks to favorable climate, water and arable land availability, and growing agricultural productivity, along with sound agricultural and economic policies, the historical performance of Brazilian agriculture has been exceptional. This exceptional performance has led the country to the outstanding achievement of becoming one of the world's major agricultural producers and

<sup>1</sup> Original version received on March 13, 2014 and approved on April 24, 2014.

<sup>2</sup> Economist, master in economics by Vanderbilt University, USA, Coordinator-General of Economic Analyses at the Secretariat of Agricultural Policy of the Ministry of Agriculture, Livestock and Food Supply, Brasília, Brazil. E-mail: antonioluiz.moraes@agricultura.gov.br.

exporters. This is a privileged position that allows the agricultural sector to better absorb the negative effects of the world's economic and financial crisis and sustain its development, although at a slower pace.

Thanks to longstanding investments in agricultural research, the agricultural frontier expanded from Brazil's South to the Midwest and, more recently, to the North, but at a slow pace. Most of that expansion occurred in Brazil's Midwest under the leadership of soy and corn crops whose growth has accelerated in the last few years as evidenced by increasing prices, demand, and productivity.

In the last twenty years, Brazilian agriculture has faced economic and technological upheaval. Despite all this, the country has the most advanced tropical agricultural technology, thanks to longstanding economic reforms and heavy investments in agricultural research, sustaining the steady growth of farmers' production and income. Between 2001 and 2009, Brazil's total productivity growth was 4.04% compared to 3.34% for developing countries, and the agricultural output growth from 2000 to 2012 was 4.71%<sup>3</sup>. Such performance is based mainly on productivity as evidenced by the relative growth of grain production (222.7%) and cultivated land (40%).

Notwithstanding the occurrence of severe climate adversities in the Northern, Northeastern, and Southern states, with the latter two being important agricultural producers, Brazil's grain crop in the last two crops (2011-2012 and 2012-2013) achieved 166.1 and 186.8 million tons, respectively. The 2013-2014 grain production is expected to reach approximately 200 million tons and R\$ 450 billion of estimated gross value of agricultural production in 2014, against R\$ 421.5 billion in 2013.

The income of family farmers increased 52% in the last ten years, contributing to the addition of 3.7 million people in the middle class. This segment accounts for 4.3 million of rural

productive units. This translates into 84% of the sector's total and 33% of the agricultural Gross Domestic Product, employing 74% of the rural labor force.

## Agricultural policy

Brazil's agricultural policy relies mainly on rural credit, of which, approximately 80% is provided at below market interest rates, followed by market price support and rural insurance. The access to preferential rural credit and to the insurance premium subsidy requires compliance with agricultural zoning of climatic risk.

### Rural credit

Rural credit has remained the main tool of support to farmers in the face of prevailing abnormal high market interest rates for more than a decade, although it has been attenuated in the last few years. The economy's basic interest rate has been progressively reduced from 13.75% in December 2009 to 7.25% in October 2012, allowing the downward review of the rate applied to agricultural financing. In mid-2012, the regular rural credit interest rate for working capital, commercialization, and investments directed at commercial farmers was reduced from 6.75% to 5.5%, while the rates for Medium Size Farmers Support Program (PRONAMP) and Low Carbon Agricultural Program (ABC) were reduced, respectively, from 6.25% to 5% and from 5.5% to 5% (BANCO CENTRAL DO BRASIL, 2012c, 2012d, 2012e). In mid-2013, at the launch of the Agricultural Plan 2013-2014, rural credit interest rates were further reduced for irrigation (3.5%) and for some investment programs such as PRONAMP (4.5%) and Agricultural Cooperatives Capitalization Program (PROCAP-AGRO) (6.5%). Two new programs called Technological Innovation Program (INOVAGRO) and PSI Cerealista carried the same rate of 3.5% in 2013. The rate for PSI "Cerealista", however, is being increased to 4.5% by December 2014.

<sup>3</sup> GASQUES, J. G.; BASTOS, E. T.; VALDES, C.; BACCHI, M. R. P. Agricultural productivity growth: global comparison. [S.l.]: Strategic Management Office, Agricultural Ministry, Apr. 2013. p. 2. Not published.

The National Treasury covers the difference between market interest rates and those applied to rural credit operations financed by resources from the National Economic and Social Development Bank (BNDES) and from rural savings at other Federal Official Banks (Banco do Brasil, Banco da Amazônia, and Banco do Nordeste do Brasil) and Cooperative Banks. These resources are called “equalized resources” due to the equalization of the aforementioned interest rates, and account for 48% of the preferential rural credit, which in turn accounts for 80% of the resources under the National System of Rural Credit. It is important to note, however, that equalization does not apply to mandatory resources from sight deposits. That means private and public banks receive no compensation for lending them to farmers at below market interest rates.

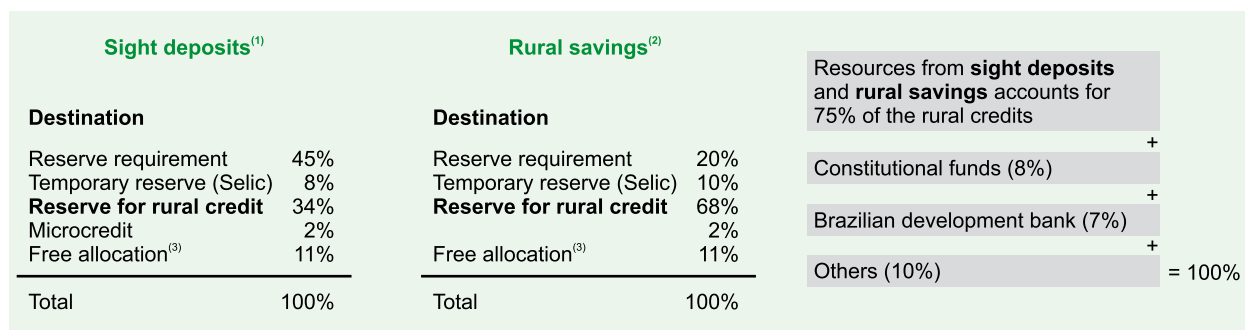
These resources are called “equalized resources” due to the equalization of interest rates and accounts for 48% of the preferential rural credit known as “recursos controlados” (controlled resources), which in turn accounts for 80% of the resources under the National System of Rural Credit. Equalization, however, does not apply to mandatory resources from sight deposits, which means that private and public banks receive no compensation for lending them to farmers at below market interest rates.

An increasing amount of resources at below market interest rate has been made available to finance the rural sector with emphasis on investments so as to further stimulate the modernization of agriculture.

The main sources of rural credit are the Resources from Sight Deposits and Rural Savings, compulsorily destined to agriculture, and from BNDES and the Constitutional Funds (Figure 1). The principal objective of the Constitutional Funds is to reduce regional income inequalities by promoting social and economic development through the financing of agriculture, agro-industry, and other sectors, in addition to infrastructure, innovation, and technology. These funds are available for the North, Northeast, and Midwest regions.

Since June 2012, the share of mandatory resources for rural credit increased from 28% to 34% of the sight deposits and from 65% to 68% of the savings deposits. The latter rate was set to be reduced to 66% by May 2015 (BANCO CENTRAL DO BRASIL, 2012a, 2012b). Part of the mandatory resources from sight deposits and rural savings is required to be divided among cooperatives (20%), the Program to Strengthen Household Agriculture - PRONAF (10%), and PRONAMP (10%).

Starting in June 2012, the mandatory destination of a proportion of sight deposits to rural credit was extended to *Caixa Econômica Federal* - CEF,



**Figure 1.** Main sources of rural credit.

<sup>(1)</sup> Commercial public and private banks, except CEF and credit cooperatives.

<sup>(2)</sup> Official banks: Bank of Brazil, Bank of Northeast, Bank of Amazon, Sicredi and Bancoob.

<sup>(3)</sup> All sectors

Source: Banco Central do Brasil (2014a, 2014b) and Brasil (2011).

starting with a rate of 6%, increased yearly by seven percentage points until it reaches 34% in July 2016 (BANCO CENTRAL DO BRASIL, 2012a).

In the last three years, revisions to the rural credit manual were undertaken to improve its effectiveness and help farmers overcome the damage caused by severe climate adversities. These farmers and others hit by climate adversities, as in the case of poultry, pig, rice, orange and liquid milk farmers had their rural debt renegotiated. The limits of financing for working capital, investment, and commercialization were increased, and higher support was provided to those farmers, as well as to the co-operatives and medium-sized producers.

Rural credit investment programs play an important role in favor of modern and growing agriculture and have been reviewed and expanded by the creation of new ones. In 2009, the investment program PROCAP-AGRO was created to increase the capital of agricultural co-operatives by providing preferential credit for the acquisition of capital shares and for working capital. The ABC program incorporated investment programs launched to support the recovery of forests (PROFLORA) and the sustainable agricultural production (PRODUSA). The PRONAMP program was reinforced by raising the limits of financing and income used to classify farmers as medium size, thus increasing its coverage. The resources available for the ABC and PRONAMP programs have been substantially increased for the 2013-2014 crop, totaling US\$ 9.6 billion; that is, 30% more than the previous crop.

Besides the National System of Rural Credit, another important measure that increases producer support is the Program for the Sustainability of Investment (PSI). PSI was launched in 2009 and renewed in the following years with focus on capital goods, including agricultural machinery and equipment (Rural PSI). PSI is financed by the National Economic and Social Development Bank (BNDES), whose preferential interest rate of 3% for agriculture was raised to 3.5% from July to December 2013.

In the last few years, favored rural credit has accounted for about 37% of the resources required to finance a crop and increased the participation of free market sources of financing thanks to an environment of lower interest rates, which gives room to the use of support instruments more decoupled from production and cause less market distortion.

The increasing issue of bonds by agribusiness companies and by the banking system, pegged to commercial papers derived from agricultural transactions, improve lenders' liquidity and expand private rural credit at market interest rates. The stock of these bonds in registration units has increased from R\$ 4.6 billion in 2007 to R\$ 30.4 billion in 2012 (BRASIL, 2012) and is almost fully concentrated on Agribusiness Credit Bonds (Letras de Crédito do Agronegócio – LCA), which are free from income tax and the social contribution tax named PIS/PASEP.

### **Market support**

The market price support policy instruments follow a regional and market-oriented approach. These policy instruments were designed with a dual purpose: they were intended to reduce price instability and to contribute to the farmers' planting and trade decisions, which include providing farmers with information regarding expected futures market price behavior.

In order to support agricultural prices, the government buys surplus production, equalizes prices, finances storage, and offers public and private sales contract whenever market prices are below minimum prices, which are set for Summer and Winter regional crops. These operations ensure market supply, reduce price volatility, and work in favor of the producers' income.

Minimum prices are adjusted yearly and are assigned to thirty-three (33) different crops. These crops range from extractive products to the ones typical of some of Brazil's regions. Some of the typical products are jute, mallow, castor beans, Brazil nut, natural rubber, and "pequi, piaçava, babaçu, açaí, [and] guaraná."

The production of these regional crops is important for the environment and for the sustainable development of the North and Northeast regions because they benefit traditional communities and farmers alike.

Thanks to internal economic stability and favorable foreign market behavior, in the last three years, minimum prices have remained unchanged for most of the products, thus reducing the need for price support. Public resources available to borrowers under the price support policy have decreased from R\$ 3.5 billion in 2009 to R\$ 1.2 billion in 2012.

### **Rural insurance**

Rural insurance in Brazil is private, but the government subsidizes the insurance premium up to 70% of their value. This subsidy encompasses agriculture, livestock, forest, and fishery. Most of the resources allocated by Rural Insurance are directed to Brazil's southern region and to grain crops, mainly soy, covering an area of 5.24 million hectares in 2012, up from 1.56 million in 2006 and benefiting 43.538 producers. Subsidy resources available for rural insurance in the 2013-2014 crop increased 75%, making 10 million hectares eligible for subsidy.

In 2010, the government created a Catastrophe Fund for additional coverage of rural insurance in favor of re-insurance companies. This Catastrophe Fund, however, is still waiting statutory regulation. The same coverage provided by private insurance is provided by the government's Agricultural Livestock Guarantee Program (Proagro) under the payment of a premium fee and farmers' compliance with the agricultural zoning of climatic risk developed by the Ministry of Agriculture. Brazil's re-insurance market was monopolized by a state-owned company until 2007, when the government opened it to international re-insurers aiming at stimulating competition and at reducing premium values.

### **Agro energy**

Agro energy is another sector of steady growth, leading the country to the position of major exporter and second main producer of ethanol. Agro energy occupies an increasing share of the national energy matrix (30%) and contributes to agricultural sustainability by reducing the emission of greenhouse gases. At the 15th United Nations Climate Change Conference held in Copenhagen, Brazil committed itself to reduce emissions to between 36.1% and 38.9% by 2020.

Brazil's main sources of agricultural renewable energy are sugar cane (ethanol and biogas), planted forests (firewood and charcoal), and biodiesel. In 2012, Brazil produced 23.5 billion liters of ethanol and 2.7 billion liters of biodiesel, thus becoming the second major producer of ethanol. This accounts for 30% of the domestic energy supply and strongly contributes to the sustainability of the country's energy matrix. Even though a promising source of ethanol production is the sorghum "saccharine," produced in areas of sugar cane under recovery, Embrapa is continuously researching other potential energy crops of high productivity that can be adapted to different producing regions.

In 2005, Brazil introduced the compulsory mix of biodiesel with diesel oil and the mix of ethanol with gasoline, whose prevailing rates are 5% and 20%, respectively. The former has held steady since 2010, and the latter will be increased to 25% beginning May 2013. These measures, along with investments in research and support for the production of sugar cane, palm oil, and forests, have contributed in leading the country to the position of second major producer of ethanol and biodiesel, and the seventh in forest planted area.

The increase in the Brazilian production of ethanol contributed to the expansion of sugar production and to farmers' employment and income. Planted forests cover an area of 6.5 million hectares and contribute to a cleaner and more sustainable energy matrix by increasing the supply of wood to charcoal steel mills.



Biodiesel production support relies mainly on the Biodiesel Program, created in 2004, and on the mandatory 5% mix of biodiesel to fossil diesel since 2005, thus fostering the markets of vegetable oil and animal fat. Biodiesel production increased from 69 thousand m<sup>3</sup> in 2006 to 2.6 million m<sup>3</sup> in 2011.

Biofuel production and its subsidy have been questioned due to their alleged negative impact on food production, but this argument is questionable. This production is not driven solely by government subsidies, and its demand is influenced by crude oil prices. Furthermore, high food prices are not caused solely by increased biofuel demand. In the particular case of Brazil, biofuel production is not subsidized and does not compromise food production due to the ample availability of agricultural area because land used for sugar cane production for energy purposes accounts for only 8.0% (4.2 million ha) of the grain area.<sup>4</sup> Consequently, agro energy growth has no impact on food production and consequently, it has no impact on the price of food.

## Infrastructure

Brazil's main constraints to agricultural growth include poor transportation, inadequate storage facilities, high port costs, strong dependence on imported fertilizer, agricultural debt, and environmental pressures.

### 1. Transportation

More than 60% of the agricultural production is transported by trucks. The fact that only 12% of the country's road network is paved penalizes farmers, especially Midwest farmers whose share of total grain production is 42.8%. Most of the Midwest farmers are located more than one thousand kilometers away from ports and main consumer markets; this distance aggravates transportation costs. In the case of soybean, transportation costs account for about 25% to 30% of its export price, compared to 8% to 10%

in the USA (UNITED STATES INTERNATIONAL TRADE COMMISSION, 2012a).

Because of the poor logistics in the transportation of agricultural products to ports of export in the North and Northeast regions of Brazil, the Federal Government has made large investments on highways by creating a new harvest corridor. This network of highways includes the following highways: BR-010, BR-158, and BR-163. Besides these three highways, this new harvest corridor also includes a North-South railroad, which integrates into other railroads.

Brazil's 28,000 km of river network is longer than that of the US, but it is under-utilized, accounting for 13% of cargo transported in the country (UNITED STATES INTERNATIONAL TRADE COMMISSION, 2012b). The completion of the Tucuruí sluice in the Tocantins waterway will allow navigation in the high waters between the cities of Estreito, in the State of Tocantins, and the city of Belém, in the State of Pará, where important port facilities are under construction. It will significantly increase the country's ability to export grains over the next six years.

Highway BR-163, an important corridor for soybeans and other grains from the Midwest, has just been partially privatized. This privatization is a 30-year contract, which covers 847.2 kilometers and includes a 5-year highway duplication project plus long-term maintenance. Given the small size of Brazil's railroad system, this privatization effort is particularly meaningful. Brazil's current railroad system is equivalent to one-seventh the size of that of the US, and it consists of several short-line railroads with different gauge sizes.

### 2. Storage facilities

Brazilian public and private storage capacity of 145 million tons is not aligned with production growth and the changes in geographical distribution of production. The Food and Agriculture Organization (FAO) recommends that grain storage capacity should correspond to 120% of production, but this figure for Brazil will be 80%

<sup>4</sup> Brazil ethanol production relies almost fully on sugar cane.

in the crop season 2013-2014 (DÉFICIT..., 2013). Moreover, only 15% of the country's storage capacity is located on farms, as compared to Argentina (40%) and the USA (65%) (GALLARDO et al., 2014). Moreover, the deficit of storage capacity is close to 30% and concerns mainly the Midwest, where grain production increased substantially, surpassing the South as the main producer. Storage issues could be much worse if Brazil had better irrigation. The present irrigated area is only 4.45 million hectares; that is, 7.5% of the cultivated area, accounting for about 20% of grain production. With better irrigation, Brazil has the potential of cultivating 30 million hectares.

To help address the storage crisis, the government created two new programs: the Program for the Construction of Warehouses (PCA) and the PSI Cerealista. These two programs provide R\$ 25 billion over a period of five years for investments on the construction and expansion of private warehouses. These two new programs are in addition to the Incentive Program for Irrigation and Storage (MODERINFRA), which provides a 3.5% interest rate on credit for irrigation. The terms of financing under these new programs provide (a) that credit be limited to the project value, (b) payback be made within 15 years, (c) a 3-year grace period, and (d) an interest rate of 3.5%. In 2014, however, the interest rate for the PSI "Cerealista" was increased to 4.5% while the irrigation interest rate remains at 3.5%.

### *3. Fertilizer supply*

Fertilizer accounts for an important share of agricultural production costs, and farmers are severely affected by fertilizer price hikes and volatility, which can be attenuated by increasing its domestic production.

Unfortunately, Brazilian agriculture depends on the foreign supply of fertilizer. Brazil's production of fertilizer accounts for only 2% of the world's production, while its consumption garners Brazil the position of the world's fourth largest consumer of fertilizer (NPK); this consumption is equivalent to 6.6% of global consumption, behind China

(28.6%), India (15.8%), and the United States (11.6) (ROQUETTI FILHO, 2014). To supply its internal market, Brazil imports 75% of the nitrogen, 51% of the phosphorus, and 91% of the potassium needed, but it is committed to overcome this dependence in order to alleviate the negative effects on agricultural production costs.

To tackle the challenge of reducing the country's dependence on the import of fertilizer feedstock, Brazil must increase domestic production until the end of this decade. To facilitate this increase in domestic production of fertilizer, Brazil aims to approve a National Fertilizer Plan. This plan expects the government to invest in the identification and prospection of mineral deposits, thus identifying potential reserves. The plan also intends to modify mining regulatory procedures to increase prospection and exploration activities. The strategy encompasses an incentive to search for new deposits and the use of phosphate and potassium deposits already known and evaluated. For that, there are three bills. The first one deals with the general legal framework for mineral prospection, exploration, and production; the second alters the financial compensation for the exploitation of mineral resources; and, the third one envisages the creation of a National Mining Agency.

The Brazilian Petroleum Company (PETROBRAS), whose major shareholder is the government, announced investments of US\$ 13.8 billion in gas and energy, out of which 42% will be allocated for fertilizer production, covering several projects, some of them already underway. The first two of these projects foresees the annual production of 1.2 million tons of urea, 70 thousand tons of ammonia, and 303 thousand tons of ammonia sulfates (PETRONOTÍCIAS, 2012). In addition, the Brazilian industry foresees investments of US\$ 18.9 billion in the production of fertilizer (NPK) between 2012 and 2017, achieving a production of 9.3 million tons in 2017, as announced in the second Brazilian Fertilizer Convention held in August 2012, promoted by the Brazilian National Fertilizer Association (ANDA) (ASSOCIAÇÃO NACIONAL

PARA DIFUSÃO DE ADUBOS E CORRETIVOS AGRÍCOLAS, 2012).

Public-private partnership, undertaken under the Growth Acceleration Plan (PAC) launched in 2007, has been an important instrument of promoting investments in basic infrastructure needed for agricultural development. Notwithstanding this initiative, many producers have successfully circumvented infrastructure deficiencies. Farmers from the Midwest (Mato Grosso) have built roads linking farms to federal and state highways; and, farmers from the Northeast (Bahia) have been using plastic silo bags to solve storage problems.

### **Agro-environmental policy measures**

Strict environmental rules on agricultural land use include requirements that farms set aside large areas as preservation land, ranging from 20% to 80% of a farm's total area, depending on the region. These rules are now being enforced, placing further restrictions on farmers, as indicated by the review of Brazil's forests. This requirement is aimed at better regulating land use, reducing deforestation in the Amazon and strengthening reforestation efforts.

As mentioned earlier, Brazil has voluntarily committed to reduce its greenhouse gas emissions by between 36.1% and 38.9% until 2020. To this end, the government has launched a program named Low Carbon Agriculture, which promotes the recovery of pasture areas that have suffered soil degradation and puts into place a system of integrated production of crop, livestock, and forestry.

Notwithstanding the increased availability of domestic resources for agricultural investments, Brazil has relied on foreign investment in agriculture, following an open approach. Foreign investment has been an important resource, strengthening agricultural growth and contributing to the expansion of grain and oilseed production through infrastructure improvements and processing facilities. Furthermore, as the result of a 2004 interpretation by Brazil's Attorney General of real estate law, purchase of land by

foreign companies and producers has led to the opening of new land in the Midwest. This interpretation states that companies under the control of foreign capital have the same rights as the ones under the control of Brazilian capital. In 2010, however, this same authority re-interpreted the law amid concerns over property speculation by overseas investors and large purchases of land, while Brazilian companies, under the control of foreign capital, have limited access to purchase land.

### **New directions in agricultural policy**

To move into a new direction, Brazilian agricultural policy should consider the role played by the macro-economic environment, the link between agriculture and agro industry, the organization of agricultural producers as a political group, and the participation of these producers in the process of agricultural policy formulation.

Macro-economic policy may contribute to strengthen or neutralize efforts to promote agricultural production, exports, and income. Brazil's interest rates have been extremely high for quite a long time, damaging the country's competitiveness and imposing an agricultural policy based mainly on preferential credit, which supplies approximately 37% of the sector's financial needs for working capital. In addition, Brazil's national currency has been strongly over-valued, reducing the country's export competitiveness without any compensatory measure.

Agro industry is important for agricultural development by increasing agricultural demand, especially when it has an integrated relationship with farmers, providing them credit and technical assistance, and ensuring the acquisition of their production by them.

Brazil's agriculture is facing new challenges and new opportunities that need to be duly taken into account in the policy making process. These challenges lie mainly on the supply side and include the institutional environment with emphasis on regulatory framework and investments in public goods. As for the opportunities, they



include more space for lower market interventions favored by higher agricultural prices and the financial constraints imposed on governments by the economic and financial crisis.

There is a general understanding that the transformation process of the agricultural structuring in all countries should pursue the strengthening of market forces by reducing government intervention through non-distorting agricultural policies. However, developing countries face institutional and market constraints that lead to second best policies such as input subsidies and market price support. Similar constraints are faced in rural extension, infrastructure, and risk management. Public-private partnership and foreign direct investments can contribute in overcoming such constraints.

At the same time, it is important to increase the efficiency of public expenditure by promoting private sources of financing and of farm income from outside the rural sector and by making a distinction between social and economic policies in assisting small farmers. Otherwise, there might be inefficient allocation of resources and inconsistency of policy objectives whenever their competitive integration into the market is not feasible.

New developments under consideration in Brazil are the inclusion of fishery under the coverage of minimum price policy and risk mitigation instruments, and the expansion of market price support policy to cover a higher share of the agricultural production. Along the same line, the government is studying ways to foster private sources of risk management by strengthening the futures and options markets so as to increase the number of products and farmers that have assets in the stock market.

The decline of Brazil's Interbank Rate and the preferential interest rate of rural credit allow the introduction of new directions of agricultural policy based on more decoupled support instruments. Private sources of financing at free market interest rates must be reinforced by reviewing agricultural bonds regulation, and the law of rural credit must be revised, as well, so as to reduce

operational costs and facilitate access to credit. Further developments must occur through the reduction of taxes in the food chain and through the creation of a rural credit risk center.

The target of improving rural credit policy will rely on the criteria of (a) strengthening free market, (b) increasing efficiency on the allocation of public resources, (c) requiring higher transparency on the rural indebtedness and on debtors' payment capacity, and (d) increasing access to rural credit. The idea is also to stimulate futures market, increase the scope of rural insurance, and increase participation of private sources for agricultural financing.

## Conclusion

Brazilian agriculture, as well as the country's economy, is better prepared today to face economic crisis and overcome them as currently observed, restoring consumers' and investor's confidence than it has ever been. This performance relies on structural advantages inherent to agriculture in relation to other sectors and on macro-economic and agricultural policies already implemented.

One of the lessons from the effects of the world economic crisis on agriculture is the importance of keeping coherence between macro-economic and agricultural policies, and making sure that these policies follow a market-oriented approach. Thus, protectionism loses its appeal as a solution.

In spite of constraints, long-term policies must be preserved because they contribute to the efficiency of short-term measures and are important to revitalize the economy. Likewise, the priority and strategic investments for agricultural development should be preserved, as in the case of infrastructure and fertilizer production.

The internal and external performance of Brazilian agriculture demonstrates that the agricultural sector is better equipped than other sectors to face economic crisis and to sustain domestic market supply, thus contributing to

the reduction of inflationary pressures. Not only that, but the agricultural sector is an important contributor to the increase of exports and foreign exchange, in addition to producing clean energy and maintaining farmers' incomes.

These elements, together with the aforementioned sound macro-economic and agricultural policies, the due account of required investments in infrastructure, and the progress already achieved by agribusiness, will further contribute to strengthen and sustain agricultural performance, thus recovering the historical pace of Brazil's economic development.

## References

- ASSOCIAÇÃO NACIONAL PARA DIFUSÃO DE ADUBOS E CORRETIVOS AGRÍCOLAS (Brasil). **Indústria nacional de matérias-primas para fertilizantes: investimentos: 2012-2017**. [S.l.: s.n.], 2012. Trabalho apresentado no II Congresso Brasileiro de Fertilizantes, São Paulo, 27 ago. 2012.
- BANCO CENTRAL DO BRASIL. **Depósitos compulsórios: com informações até março de 2014**. [Brasília, DF, 2014a]. Available at: <<http://www4.bcb.gov.br/pec/gci/port/focus/faq%2012-dep%C3%B3sitos%20compuls%C3%B3rios.pdf>>. Access: Oct. 7, 2014.
- BANCO CENTRAL DO BRASIL. **Manual de Crédito Rural**. [Brasília, DF, 2014b]. Available at: <<http://www3.bcb.gov.br/mcr/>>. Access: Oct. 7, 2014b.
- BANCO CENTRAL DO BRASIL. Resolução nº 4.000, de 25 de agosto de 2011. Altera e consolida as normas que dispõem sobre a realização de operações de micro-crédito destinadas à população de baixa renda e a microempreendedores. **Diário Oficial [da] República Federativa do Brasil**, Brasília, DF, 26 ago. 2011. Seção 1, p. 10-11.
- BANCO CENTRAL DO BRASIL. Resolução nº 4.096, de 28 de junho de 2012. Altera o percentual de direcionamento da exigibilidade de aplicação dos recursos obrigatórios em operações de crédito rural, previsto na Seção 6-2 do Manual de Crédito Rural (MCR). **Diário Oficial [da] República Federativa do Brasil**, Brasília, DF, 29 jun. 2012a. Seção 1, p. 28.
- BANCO CENTRAL DO BRASIL. Resolução nº 4.097, de 28 de junho de 2012. Altera os percentuais de direcionamento da exigibilidade, da subexigibilidade e da faculdade de aplicação dos recursos da poupança rural, bem como do encaixe obrigatório do Banco Central do Brasil, previstos na Seção 6-4 do Manual de Crédito Rural (MCR). **Diário Oficial [da] República Federativa do Brasil**, Brasília, DF, 29 jun. 2012b. Seção 1, p. 28.
- BANCO CENTRAL DO BRASIL. Resolução nº 4.100, de 28 de junho de 2012. Altera as normas do Programa Nacional de Apoio ao Médio Produtor Rural (PRONAMP). **Diário Oficial [da] República Federativa do Brasil**, Brasília, DF, 2 jul. 2012d. Seção 1, p. 17-18.
- BANCO CENTRAL DO BRASIL. Resolução nº 4.105, de 28 de junho de 2012. Promove ajustes nas normas dos programas de investimento agropecuários amparados por recursos do Banco Nacional de Desenvolvimento Econômico e Social (BNDES). **Diário Oficial [da] República Federativa do Brasil**, Brasília, DF, 2 jul. 2012e. Seção 1, p. 18-19.
- BANCO CENTRAL DO BRASIL. Resolução nº 4.106, de 28 de junho de 2012. Altera disposições do Manual de Crédito Rural (MCR). **Diário Oficial [da] República Federativa do Brasil**, Brasília, DF, 2 jul. 2012c. Seção 1, p. 19-25.
- BRASIL. Ministério da Agricultura, Pecuária e Abastecimento. **Plano Agrícola e Pecuário 2012/2013**. Brasília, DF: Mapa, 2012. 106 p.
- DÉFICIT de estocagem se agrava com safra cheia. **Valor Econômico**, São Paulo, 7 fev. 2013. p. B16. Available at: <[http://www.valor.com.br/empresas/2998706/deficit-de-estocagem-se-agrava-com-safra-cheia?utm\\_source=newsletter\\_tarde&utm\\_medium=07022013&utm\\_term=deficit+de+estocagem+se+agrava+com+safra+cheia&utm\\_campaign=informativo&NewsNid=2998002](http://www.valor.com.br/empresas/2998706/deficit-de-estocagem-se-agrava-com-safra-cheia?utm_source=newsletter_tarde&utm_medium=07022013&utm_term=deficit+de+estocagem+se+agrava+com+safra+cheia&utm_campaign=informativo&NewsNid=2998002)>. Access: Mar. 3<sup>rd</sup>, 2014.
- GALLARDO, A. P.; STUPELLO, B.; GOLDBERG, D. J. K.; CARDOSO, J. S. L.; OLIVEIRA PINTO, M. M. de. **Avaliação da capacidade da infra-estrutura de armazenagem para os grãos agrícolas produzidos no Centro-Oeste brasileiro**. Available at: <[http://www.ipen.org.br/downloads/XXI/166\\_P\\_Gallardo\\_Alfonso.pdf](http://www.ipen.org.br/downloads/XXI/166_P_Gallardo_Alfonso.pdf)>. Access: Mar. 3<sup>rd</sup>, 2014.
- PETRONOTÍCIAS. **Fertilizantes vão responder por 42% dos investimentos da Petrobrás em gás e energia**. 2012. Available at: <<http://www.petronoticias.com.br/archives/13139>>. Access: Mar. 6<sup>th</sup>, 2014.
- ROQUETTI FILHO, D. **Potencial de produção de grãos brasileiros via fertilização e impactos nas emissões de CO<sub>2</sub>e**. 2014. 198 f. Dissertação (Mestrado em Agronegócio) – Escola de Economia de São Paulo, Fundação Getúlio Vargas, São Paulo.
- UNITED STATES INTERNATIONAL TRADE COMMISSION. **Brazil: Competitive Factors in Brazil Affecting U.S. and Brazilian Agricultural Sales in Selected Third Country Markets**. Washington, D.C.: USITC, 2012a. p. xxiv. (USITC. Publication 4310). Investigation n. 332-524.
- UNITED STATES INTERNATIONAL TRADE COMMISSION. **Brazil: Competitive Factors in Brazil Affecting U.S. and Brazilian Agricultural Sales in Selected Third Country Markets**. Washington, D.C.: USITC, 2012b. p. 3-19 (USITC. Publication 4310). Investigation n. 332-524.