

HOME

Revista ESPACIOS 🗸

ÍNDICES ✓

A LOS AUTORES 🗸

Vol. 38 (Nº 09) Año 2017. Pág. 30

Contribution of the brazilian government purchasing programs -PAA and PNAE – to strengthening family agriculture

Contribuição do governo brasileiro com programas -PAA e PNAE – para o fortalecimento da agricultura familiar

Alcione Lino de ARAÚJO 1; Maria Helene Giovanetti CANTERI 2; Juliana Vitória Messias BITTENCOUT 3; Bethânia Avila RODRIGUES 4

Recibido: 09/09/16 • Aprobado: 15/10/2016

Content

- 1. Introduction
- 2. Materials and methods
- 3. Results and discussion
- 4. Conclusion

Bibliographical references

ABSTRACT:

This article analyzes the contribution and benefits of Brazilian government programs PAA and PNAE in a Family Farmers Association, Parana. The integration of public policies with a focus on family farming can be an effective way to reduce social inequality in a region. Research shows that school feeding is a key determinant of family farming to support and this incentive is based on three aspects already present in PNAE legislation: respect for the farmer occupation and regional eating habits, purchases within the regional geographic boundaries and use of raw products, typical of local production.

Keywords: Family Agriculture; Federal Government Programs; Public Policies; Rural Development.

RESUMO:

Este artigo analisa a contribuição e benefícios dos programas de governo brasileiro PAA e PNAE em uma associação de agricultores de família, Paraná. A integração de políticas públicas com foco na agricultura familiar pode ser uma forma eficaz de reduzir a desigualdade social em uma região. Pesquisa mostra que a escola de alimentação é um determinante-chave da agricultura familiar para apoio e este incentivo é baseado em três aspectos já presentes na legislação PNAE: respeito para a profissão de agricultor e regional, hábitos alimentares, compras dentro dos limites geográficos regionais e uso de produtos crus, típicos da produção local.

Palavras-chave: Agricultura familiar; Programas do governo federal; Políticas públicas; Desenvolvimento rural.

1. Introduction

The contribution of the Food Acquisition Program (*Programa de Aquisição de Alimentos* - PAA) and the National School Feeding Program (*Programa Nacional de Alimentação Escolar* - PNAE) leans towards improving the supply of school feeding in Brazil in terms of quality and diversity, considering that these programs strengthen the family farm while object of political action, improving the quality of its products and increasing its aggregate value. At the same time, it is incentive for the production for self-consumption that preserves local eating habits. The possibility of considering the family agriculture as a producer of food potentially integrated to the institutional markets is also suggested. It is exactly here that we find the PAA's origins.

School feeding in Brazil started from civil society isolated initiatives and later through the effort of some states and cities, until the formation of a nationwide program, coordinated by the Federal Government. Since its origin, the preoccupation that motivated parents, teachers, employees, school principals and other private agents, and that founded the basic conception of the public program, was the malnutrition in children.

Since the first guidelines of national orientation about the theme in the 30s, even without application in practical bases, scholars and professionals involved with the subject were already defining adequate menus for the several regions of the country, recommending the use of regional food, which at first had the purpose of enriching the nutritional basis of the students, but it would also become the embryo of the support for the small, local production (FONSECA, 1953).

The PNAE was created in 1954, by the Ministry of Health, and formalized in 1955 by the Ministry of Education and Culture through the Decree no. 37,106/55, although it did not have, at the time, the central function of eradicating malnutrition or being a mechanism that promotes local development. Its main goals were, essentially, the reduction of malnutrition in schools and the improvement of eating habits.

The PNAE is the Federal Government's oldest program in the field of school feeding and food and nutrition security, being considered one of the biggest and most far-reaching programs in the world concerning the universal care of school children and ensuring the human right to adequate and healthy food. It is coordinated by the National Fund for Education Development (Fundo Nacional de Desenvolvimento da Educação - FNDE), an independent authority linked to the Ministry of Education (Provisional Measure no. 1,784, of 14 December 1998 and Law no. 9,649, of 27 May1998). This public policy, managed by the FNDE, reaches every student enrolled in basic education in public, federal, philanthropic, community and confessional schools of the country, according to the principles of the Human Right to Adequate Food and of the Food and Nutrition Security.

In 2014, the city of Castro, this paper's object of study, moved R\$ 822,916.00 from PNAE resources, benefiting 8,615 children enrolled in schools in the urban and rural area of the city, who had at least one meal a day (FNDE, 2015). That amounts to an invested value of R\$ 95.00/child/year – considering 200 school days, that means R\$ 0.48/good quality meal.

The PNAE is the biggest program of supplemental feeding in Latin America, considering its time of acting, its continuity, the constitutional commitment since 1988, its universal nature, the number of students reached and the volume of investments carried out. In 2014, the PNAE transferred the amount of R\$ 3.5 billion to states, cities and Federal District (FNDE, 2015). Its main purpose is "to satisfy the nutrition needs of the students during their time in the classroom and to form healthy eating habits, contributing to their growth, development, learning and performance at school" (Resolution FNDE/CD no. 32, of 10 August2006).

On the other hand, the policies of socioeconomic development have not been able to bring an end to the regional inequalities, perpetuating rural and urban poverty until today. The territorial focus of Local Development has been studied for 30 or 40 years, but only in the 90s did it enter the discussion about the formulation and application of public policies, in the municipal and

inter-municipal scope (BENKO, 1995).

In the formulation of the Local Development policy, the family farm is considered as a segment to be made dynamic. Although the family production is nowadays responsible for 38% of the gross value of the national agricultural production and despite the fact that it employs 77% of the farm-workers (MDA, 2014), many times these farmers have no access to the commercial networks, requiring the construction of "bridges" that may connect them to other social and economic agents. The so-called "institutional demand" is one of the elements that may be employed, coordinately with other actions, in order to ensure market for this production.

The Food Acquisition Program (PAA), created through the article 19 of Law no. 10,696, of 2 July2003 (BRASIL, 2003), represented the idea of an innovative mechanism of direct incentive to family farms, farmers settled from the land reform and small agribusinesses, through the purchase of their production.

Inserted in the context of the structuring policies of the Zero Hunger Program (INSTITUTO CIDADANIA, 2001), its main goal is to enable the sale, to the government, of agricultural products from family farmers that fit the National Program for Strengthening Family Farming (*Programa Nacional de Fortalecimento da Agricultura Familiar* - PRONAF). Also able to participate are the farmers settled from the land reform, the agro-extractivists, the quilombolas, the families displaced by dams, camped landless farm-workers (defined according to the Ordinance MDA no. 111, of 20 November2003), indigenous communities, artisanal fishermen, family fish farmers, and family producers in special conditions, provided that authorized by the National Supply Company (*Companhia Nacional de Abastecimento* – CONAB) (MDS, 2015).

The implementation of the PAA is done by a Management Group, coordinated by the Ministry of Social Development (*Ministério do Desenvolvimento Social* - MDS) and composed by the Ministry of Finance (*Ministério da Fazenda* - MF), Ministry of Agriculture, Livestock and Supply (*Ministério da Agricultura, Pecuária e Abastecimento* - MAPA), Ministry of Planning, Management and Budget (*Ministério do Planejamento, Gestão e Orçamento* - MPOG) and Ministry of Agrarian Development (Ministério do Desenvolvimento Agrário - MDA) (Law no. 10,696, 2 July 2003). Its attribution is to define the necessary measures to make the Program operational. The execution, in the federal scope, is carried out by the MDA, MDS and MAPA, the last one through the CONAB. Besides those, the Program works with the "Local Managers": Cooperatives and Associations of family farmers, municipal administrations, local Social Councils, and other local entities that help it operate in each city, giving support in logistics, planning, control and supervision. The resources come from the MDS, through the National Fund for the Eradication of Hunger and Poverty and through the MDA, integrated since 2003 (BRASIL, 2003).

From 2008 on, the PAA has gained more resources with the issue of Decree no. 6,447/087, which establishes the purchase of family farms' food with PNAE resources, transferred by the FNDE. Another decision was the inclusion of the Ministry of Education (MEC) in the PAA management group (CONSEA, 2015).

In this context, considering the historic link between the National School Feeding Program – PNAE and the Food Acquisition Program – PAA and the support to family agriculture, this paper intends to analyze the contribution and the benefits of these Federal Government programs to school feeding and to the Association of Family Farmers of the Colonies Iapó, Santa Clara and surrounding area, both in the city of Castro, state of Paraná.

2. Materials and methods

This work is classified as an applied research, with the purpose of generating knowledge directed to solving specific problems. It was based on quantitative and qualitative analysis procedures, since it translates the opinions and information into numbers for their classification and analysis, but also because the obtained data were analyzed using an inductive approach

(SILVA and MENEZES, 2005).

With respect to its goals, it may be classified as explanatory. The purpose is to identify the factors that determine or contribute to the occurrence of the phenomena. Concerning the technical procedures, this research is classified as a survey, since the study has focused on a situation, a particular phenomenon, related to the contribution of the Brazilian government purchasing programs – PAA and PNAE (GIL, 2002).

The scientific method employed was inductive, because it starts from particular data to attain a general truth not contained in the examined parts (MARCONI and LAKATOS, 2001).

The research comprised the population of 40 municipal schools: 26 in the Urban Area and 14 in the Rural Area, with a total of 8,615 enrolled students, in the city of Castro, Paraná. In 2014, the Municipal Department of Education acquired 47 raw and processed products from the Association of Family Farmers of the Colonies Iapó, Santa Clara and surrounding area, which are forwarded to the schools for the preparation of school meals for the students.

Concerning the data treatment in this research, the first step was carrying out a quantitative analysis based on spreadsheets [5] created by the Association of Family Farmers of the Colonies Iapó, Santa Clara and surrounding area.

After receiving the spreadsheets, the first stage consisted of separating and understanding the production in the years of 2012 and 2013. Regarding the processing, we studied the most adequate way of working with the information received. The data were charted in an electronic spreadsheet and the descriptive statistic analysis was carried out, aiming to identify relevant information, employing frequency distribution which, according to Triola (2008), has the purpose of organizing and summarizing the data, helping to understand the nature of the data distribution, as different results occur [6].

3. Results and discussion

The colonies Iapó, Santa Clara and surrounding area were colonized by Slav peoples (Poles, Ukrainians, Czechs and Albanians), escaping from the Russian invasion in their countries of origin. The foundation of the colonies was in 1920 and its core was composed, essentially, of farm-workers. The immigrants faced different difficulties in the process of adapting to Brazilian culture and climate, including the neglect of Brazilian authorities towards the formation of the colonies. In order to ensure survival, they united to open lots of 10 *alqueires* (approximately 24 hectares) to each family and they established a common area where they built the community center, the church and the school. The great difficulty related to roads and transportation from the colonies to the city of Castro promoted the growth of the subsistence system among the families of settlers and a diversification of activities. At the same time, this diversification met different needs of production and consumption, enabling the use of family workforce, of space, and of the natural and economic resources available.

The peasant way of life, inheritance of Europe's rural communities, partnered with the religious tradition and the historic process of formation of peasant settlements in the South of Brazil created a cultural heritage that valued collectivity very much, as Goltz (2012) states.

The families that compose the colonies started making use of the public policies since PRONAF's creation in 1996. However, in this period, not all of them were able to access this financing policy. Over the following years, the farmers improved technically and, by 2009, they were all able to register in the program, as shown in table 1.

YEAR	No. of apt farmers	No. of inapt farmers
1996	5%	95%

Table 1 – Apt and inapt farmers

2001	35%	65%
2003	45%	55%
2009	100%	0%

Source: The author: Araújo, A.L. de

That is owed to problems concerning the land documentation, unpaid taxes like the ITR (Territorial Rural Tax) and expired registration in the INCRA (National Institute of Colonization and Agrarian Reform). Moreover, the majority of farmers had no proper documentation to prove their occupation and the financial exigences were almost impossible of being met by family farmers until 2003.

The modifications put into action in the second year of the mandate of President Luís Inácio "Lula" da Silva enabled the inclusion of farmers that were out of the agricultural line of credit until then. The creation of the PAA [7] in 2003 was the beginning of the inclusion of producers in the credit process, because at the same time the Declaration of Aptitude to PRONAF (DAP) was also created, a document that identified the family agriculture and enabled the family farmer to participate in this and other programs directed to this segment of agriculture. Initially, not all DAP categories enabled the access to different PAA lines. The DAP type B or social DAP, despite covering the farmers' situation, did not allow them access to credit.

In 2004, the first PAA project with the participation of the colonies' farmers was developed, with the help of techniques in domestic economy from the CTP (Training Center for Farmers), an entity that orients small producers in Castro. Through the courses offered by the SENAR (National Service of Rural Learning), the farmers adapted their crops to organic farming and in 2008 they attained the certification of their products through the Participatory Certification, forming the Group 4S of the Maurício Burmester do Amaral Nucleus in the ECOVIDA Network, in Curitiba. In 2009, the colonies' family farmers formed an association to coordinate the PAA projects, as well as PNAE-related projects, named Association of Family Farmers of the Colonies Iapó, Santa Clara and surrounding area, which started organizing the producers. By the end of 2009, 100% of the farmers were apt to participate in the institutional programs offered to family agriculture.

With the creation of the National School Feeding Program (PNAE) in 2009, family agriculture gained a new market. That happened due to the incentive of Law no. 11,947/2009, which determines that 30% of the resources moved by the National Fund for Education Development (FNDE) for meals in Brazilian schools must be directed to the purchase of family farms' products.

The Association of Family Farmers of the Colonies Iapó, Santa Clara and surrounding area, through the contribution of the Federal Government programs PAA and PNAE, has distributed fruits, processed products (baked goods), and vegetables. They were organized in tables for better understanding.

These products are part of school meals in urban and rural areas of Castro. They are family farm products (raw and processed) that compose the school menus. The menus aim to ensure adequate and healthy meals that meet the students' nutritional needs during the school year and to act as a pedagogical element, being an important action of food and nutrition education.

Table 2 present the fruit consumption in 2014 in relation to the amount of enrolled students. The menu of school meals prioritizes serving one fruit in every meal offered, as frequently as possible. The fruits that had the biggest consumption were: banana with 211,203 units, orange with 200,582 units and apple with 199,953 units. It is assumed that those were the most eaten fruits because they are already a part of the students' day-to-day eating habits, as well as being more acceptable. The other fruits were: persimmon with 36,800 units, kiwifruit with

16,780 units, *lima* orange with 4,390 units, *pêra* orange with 13,618 units, strawberry with 60,745 units and tangerine with 9,725 units.

Table 2 - Consumption of each student versus fruit in 2014

Fruit	Amount of fruits	Amount of fruits eaten by student in units
Banana	211,203	24.51
Orange	200,582	23.28
Apple	199,953	23.20
Strawberry	60,745	7.05
Persimmon	36,800	4.27
Kiwifruit	16,780	1.94
Pêra orange	13,618	1.58
Tangerine	9,725	1.12
Lima orange	4,390	0.50

Source: The author: Araújo, A.L. de

Table 3 present the processed products (baked goods) that had the highest consumption in school feeding at the schools of the rural and urban areas of Castro - PR.These products are processed by the women of the Association of Family Farmers of the Colonies Iapó, Santa Clara and surrounding area. They are baked goods made in the community kitchens, and the women earn their income by selling them. All products listed in the table and graph are sold in kilograms, except the gingerbread, which is sold by unit and for that reason was not included in the graph and table. In 2014, the amount of gingerbread was 76,636 units, or 8.89 units eaten by each child.

Table 3 - Consumption of each student versus processed products (baked goods) in 2014

Products	Amount of processed products	Amount of processed products eaten by student in kilograms
Cookies	13,430.00	1.55
Homemade bread	4,527.00	0.52
Wholewheat bread	4,424.50	0.51
Crumble cake	2,750.00	0.31
Enriched bread	2,379.40	0.27

Rye bread	1,744.20	0.2
Milk bread	1,129.00	0.13
Seed bread	1,006.20	0.11
Cornbread	478.00	0.05

Source: The author: Araújo, A.L. de

Table 4 show the raw products, that is, organic products from family farms in the Association of Family Farmers of the Colonies Iapó, Santa Clara and surrounding area such as legumes, leaves and tubers. However, among the raw products are eggs, of animal origin, with a total of 62,712 units. That is to say that each child ate 7.27 eggs in the year. This product was not shown in the graph or table due to the difference of measure units – all the others are listed in kilograms. Along this line, Graph 3 presents the raw products - legumes, leaves and tubers - that had the highest demand at the schools. Despite most of them being legumes, leaves and tubers, these products are distributed by kilogram and thus they stand out in this graph. The products which stood out the most were: tomato, carrot, cucumber, potato and beet.

Table 4 – Consumption of each student versus raw products in 2014

	Table 4 Consumption of each student versus raw products in 2011		
Products	Amount of raw products	Amount of raw products eaten by student in kilograms	
Tomato	4,938.90	0.57	
Carrot	4,096.60	0.47	
Cucumber	3,471.50	0.40	
Potato	3,410.00	0.39	
Beet	2,733.60	0.31	
Chayote	2,122.00	0.24	
Cabbage	2,097.50	0.24	
Green Beans	1,984.60	0.23	
Zucchini	1,871.50	0.21	
Broccoli	1,565.00	0.18	
Chard	1,240.00	0.14	
Lettuce	881.10	0.10	
Kale	742.00	0.08	

Cauliflower	607.50	0.07
Cassava	590.00	0.06
American Lettuce	462.80	0.05
English Potato	400.00	0.04
Common Potato	222.50	0.02
Sweet Potato	193.50	0.02
Pumpkin	157.30	0.01

Source: The author: Araújo, A.L. de

4. Conclusion

One of the main points in the contribution of the Federal Government programs – PAA and PNAE – to the Association of Family Farmers of the Colonies Iapó, Santa Clara and surrounding area in Castro – PR was the integration between the community and the several governmental and social segments.

The contribution and benefits offered by these programs to the Association refer to the strengthening of the local economy through maintaining the capital spent by City Hall in the region. That is to say that it refers to the funds directed to food purchase: at least 30% of the total resources coming from the National Fund for Education Development (FNDE) must be directed towards food purchase, preferentially organic products produced by local, regional or national family farms. That way, there is an increase and diversification of the production, institutional strengthening, reduction of rural exodus through the renewed energy of small producers, especially with the PAA, opening of new markets after the start of sales to City Hall, investments in the production, certainty of income for both men and women of the association and improvements in their life quality, and increase in the formalization of family farmers through registration and joining in Programs, Cooperatives or Associations.

Such results derived from a series of actions and programs implemented or supported by the Castro City Hall, the Federal Government and other local or regional entities – from the demand of school meals and the complying with their legislation.

With the advent of the PAA in 2003, food may be acquired straight from family farms and their organizations, with no bidding, to be donated to social institutions (hospitals, assistance entities, schools) and to people in situation of food and nutrition insecurity.

Thus, the Federal Government fulfills its responsibility of assuring the right of school feeding through the transfer of financial resources, of complementary nature, to the states, cities and Federal District, carried out by the FNDE.

The PAA has contributed and advanced in the sense of the transversality of the actions and interaction between the ministries, government levels and institutions. It has also promoted the increase of resources allocated to school meals and the improvement of food quality with the use of more varieties of vegetables, fruits and organic/agroecological products. From the family farmers' perspective, the program has allowed a boost in their families' income, benefits in the management and technical organization of the family production, an increase in the diversity of products with the opening of markets and autonomy, and an increase in awareness about the goal of sustainable development in a social and environmental perspective, through the growth

of organic and agroecological farming.

This paper has had the purpose of assessing the contributions and benefits of the National School Feeding Program as a tool of Local Development, through the strengthening of family agriculture, as well as its importance in the assurance of Food and Nutrition Security for the benefited students.

When there is a collective work, in which the interests are negotiated and City Hall has vision and political will, believing that such actions have the purpose of wealth distribution and bolstering the local economy, it is possible to carry out projects with positive results.

Bibliographical references

BENKO, G (1995). **Economia, Espaço e Globalização na Aurora do Século XXI**. 3ª ed. São Paulo: Editora Hucitec: (Annablume, 2002), 1995.

CATELLI, A. Controladoria: uma abordagem da gestão econômica - GECON. São Paulo: Atlas, 2001.

BRASIL. Lei nº 11.326, de 24 de julho de 2006. Brasília, 2006. Disponível em: http://www.planalto.gov.br/ccivil 03/ ato2004-2006/2006/lei/l11326.htm>. Acessado em abril de 2015. _. Lei nº 10.696 de 02 de julho de 2003. Brasília, 2003. Disponível em: http://www.planalto.gov.br/ccivil 03/leis/2003/l10.696.htm>. Acessado em abril de 2015. Lei nº 12.512 de 14 de outubro de 2011. Brasília, 2011. Disponível em: http://www.planalto.gov.br/ccivil 03/ Ato2011-2014/2011/Lei/L12512.htm#art33>. Acessado em abril de 2015. _. 2009. Ministério do Desenvolvimento Social. Programa de Aquisição de Alimentos – PAA. Disponível em: http://www.mds.gov.br/falemds/perguntas- frequentes/seguranca-alimentar-e-nutricional/aguisicao-de-alimentos/distribuicao-dealimentos-a-grupos-especificos/distribuicao-de-alimentos-a-grupos-especifico>. Acessado em abril de 2015. _. Portal Brasil. Merenda escolar utiliza cada vez mais produtos da agricultura familiar. Brasília, 2013. Disponível em: http://www.brasil.gov.br/governo/2013/07/merenda-escolar-utiliza-cada-vez-mais-produtos- da-agricultura-familiar>. Acessado em abril de 2015. __. Constituição (1988). Constituição da República Federativa do Brasil. Brasília, DF, 1988. Acessado em abril de 2015.

Secretaria de Educação à Distância. **Programa Nacional de Alimentação Escolar**. Programa Nacional de Formação Continuada a Distância nas Ações do FNDE. 4ª ed. Brasília: MEC, FNDE, 2011.

. Lei nº. 10.696, de 02/07/2003 -

Acessado em abril de 2015.

http://www.planalto.gov.br/ccivil_03/leis/2003/L10.696.htm - acessado em agosto de 2015. Acessado em abril de 2015.

____. Lei n. 11.947 de 16 de junho de 2009. **Diário Oficial da União**. Brasília, 2009.

. Ministério da Educação. Fundo Nacional de Desenvolvimento da Educação (FNDE).

CONAB. Manual de Operação da Conab-MOC. Disponível em:

http://www.conab.gov.br/conabweb. Acesso em 28/06/2015.

CONSEA. **Programa ganha parceria de mais um ministério**. 2008. Disponível em: < http://www.planalto.gov.br/Consea/exec/noticias.cfm?cod=20432>. Acesso em 28/06/2015.

FONSECA, W. S. Da. Bases da Alimentação do Escolar. **Coleção Ensaio e Debate Alimentar**, Rio de Janeiro, Vol. 1, Série Gigante, SAPS, 1953.

- FNDE. **Alimentação Escolar**, s/d. Disponível em: http://www.fnde.gov.br. Acesso em 28/06/2015.
- GIL, A. C, (2002). Como elaborar projetos de pesquisa. 4 ed. São Paulo: Atlas.
- GOLTZ, Thangreíse Vieira. A Economia Solidária, os programas Institucionais e as transformações ocorridas entre as mulheres das Colônias Iapó e Santa Clara no município de Castro Paraná. Trabalho de Conclusão de Curso UEPG. 2012.
- GRISA, C., SCHMITT, C.J., MATTEI, L.F., MALUF, R.S. e LEITE, S.P. **Contribuições do Programa de Aquisição de Alimentos à segurança alimentar e nutricional e à criação de mercados para a agricultura familiar**. Agriculturas, 8: 1-8. 2011
- INSTITUTO CIDADANIA. Fome Zero Uma proposta de política de segurança alimentar para o Brasil. São Paulo, 2001.
- IBGE http://www.ibge.gov.br/home/ 2016 Acessado em fevereiro de 2016.
- MARCONI, M. de A.; LAKATOS, E. M, (2001). **Fundamentos de metodologia científica.** 4.ed. São Paulo: Atlas.
- MDA. **Apresentação Crédito**. 2014. Disponível em: http://www.mda.gov.br/saf/ index. php?sccid= 811>. Acesso em 28/06/2015.
- MDS. **Programa de Aquisição de Alimentos PAA**. Compra direta local da agricultura familiar CDLAF: manual de orientação ao proponente. Brasília-DF, 2015. http://www.mds.gov.br/. Acesso em 28/06/2015.
- PERACI, A.S. and BITTENCOURT, G.A. **Family Farming and Price Guarantee Programs in Brazil: the Food Acquisition Program (PAA)**. In Fome Zero: The Brazilian Experience, eds J.G. da Silva, C.G. de França and M.E. Del Grossi, 193–224. Brasilia: MDA/FAO. 2011.
- SEAB Secretaria de Estado da Agricultura e do Abastecimento http://www.agricultura.pr.gov.br/arquivos/File/deral/Prognosticos/olericultura_2013_14.pdf Acessado em janeiro 2016.
- SILVA, E. L. da; MENEZES, E. M, (2005). **Metodologia da pesquisa e elaboração de dissertação.** 4 ed. Florianópolis: UFSC.
- SIDANER, E., D. BALABAN and L. BURLANDY. **The Brazilian School Feeding Programme: an Example of na Integrated Programme in Support of Food and Nutrition Security**. *Public Health Nutrition*, 16 (6): 989–94. 2013.
- TRIOLA, M. F. Introdução à Estatística. 9 ed. Rio de Janeiro: LTC, 2008.
- WITTMAN, Hannah and BLESH, Jennifer. Food Sovereignty and Fome Zero: Connecting Public Food Procurement Programmes to Sustainable Rural Development in Brazil. Journal of Agrarian Change, 11 SEP 2015. doi: 10.1111/joac.12131.
- 1. Doctoral Candidate in Production Engineering Federal University of Technology (Paraná) UTFPR Campus Ponta Grossa Ponta Grossa Brazil alcionelino@gmail.com
- 2. Doctor of Food Technology Professor of Post-Graduation in Production Engineering at the Federal University Of Technology (Paraná) UTFPR Campus Ponta Grossa Ponta Grossa Brazil canteri.mhg@gmail.com
- 3. Doctor of Molecular Genetics Professor of Post-Graduation in Production Engineering at the Federal University Of Technology (Paraná) UTFPR Campus Ponta Grossa Ponta Grossa Brazil Email: julianavitoria@utfpr.edu.br
- 4. Masters candidate of Production Engineering Federal University of Technology Paraná Campus Ponta Grossa rodriguesbethania@yahoo.com
- 5. The original spreadsheets can be requested via e-mail to the author.
- 6. The original spreadsheets can be requested via e-mail to the author.
- 7. The PAA is inserted in the context of the structuring public policies of the Zero Hunger Program (INSTITUTO CIDADANIA, 2001).

[Índice]

[En caso de encontrar algún error en este website favor enviar email a webmaster]

©2017. revistaESPACIOS.com • Derechos Reservados