Federative Republic of Brazil
State of Tocantins
Secretariat of Production (SEPRO -TO)
Secretariat of Planning and Environment (SEPLAN -TO)

Japan International
Cooperation Agency
(JICA)

ANNEX XIV

MARKETS AND TRADING STUDIES

Pacific Consultants International

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1. Summary

(1) Introduction

This report tries to evaluate the production conditions, markets and trading in the area-program, not just positioning in relationship to the State of Tocantins, but also in relation to the main national and international markets, in the perspective of the placement of the potential regional production. It is believed that this approach constitutes important element to guide decisions for the implantation of programs and projects in the extent of the Master Plan of Integrated Development of the Agriculture and Livestock of Tocantins State.

Statistics, analyses and projections related with the world financial balance are presented, Brazilian conditions, production costs, prices, trade flows and regional conditions of the production, tends as focus the regional competitiveness. The approached products are: rice, bean, corn, soy, cotton, fruits, extrativism (babaçu palm, native fruits and beekeeping) cut livestock and milk, swine and buffalo farming, besides the logistics of available transport for the regional agriculture.

The area-programs object of the present study understands the areas of planning Extreme-north (Bico do Papagaio) and North (Araguaína), involving 38 municipal districts, with surface of 37.052 km², that corresponds to 13,3% of the state area, and a population of 370.880 inhabitants, equivalent to 32,7% of the State population.

(2) General Panorama of the Agriculture

The evolution of the selected products were analyzed, inserting them in the context of the agriculture as a whole and of the Brazilian economy. The main used indicators were area, production, productivity, prices, real product, gross income, trade balance and production estimates and consumption. It is presupposed that the federal government's tax policy will continue rigid, with good part of the attributions of the promotion of the development being transferred for the states.

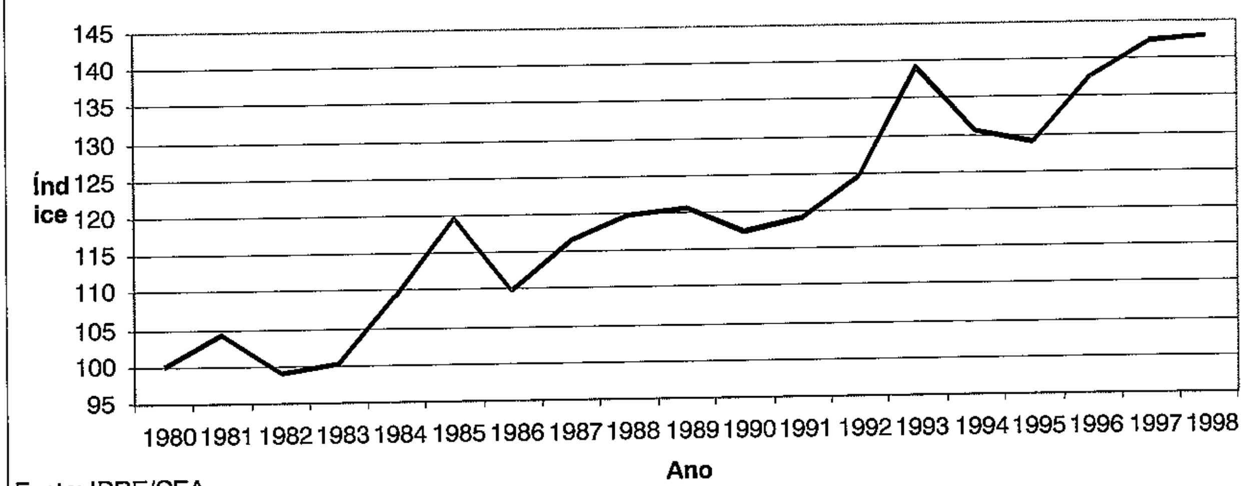
The real product (produced amounts meditated by constant prices) of the agriculture it developed in a very unstable way in the last two decades, without presenting direct relationship with the total real product of the economy. Like this, it acts a lot of times as anti-recessive factor, but it also presents variations that worsen the behavior of the economy.

Agricultural GDP has been growing much more than total GDP of the country (141% and 79%, respectively), passing from 12% to 17% of total GDP. In the same way, GDP of the livestock has if expanded a lot above GDP of the agriculture, passing from 1/3 to 2/3 of total agricultural GDP in the decade of 90, consequence of the high elasticity pays of the demand of meats (the consumers' larger preference in the expense of the additional income) conjugated with the growth of the income of the population starting from Real Plan.

In relation to the balance of the Brazilian trade balance, it is verified that, in the last ten years, it was on the section of the agronegócio almost the whole generation of superávites of exchange value for the financing of the average transactions of the country with the exterior, with prominence for the compound soy, coffee, sugar, orange juice and meats. It should be reminded, however, that you/they increased the imports of agricultural products a lot, as rice, corn, cotton, wheat and milky. Even so, the liquid superavit of exchange value has state in the house of the US$ 10 bilhões/ano.

In the period 1980-1998, the area of farmings fell 7% and the real product increased 43%, due to the productivity increase, consequence of the progress of the rural technology.

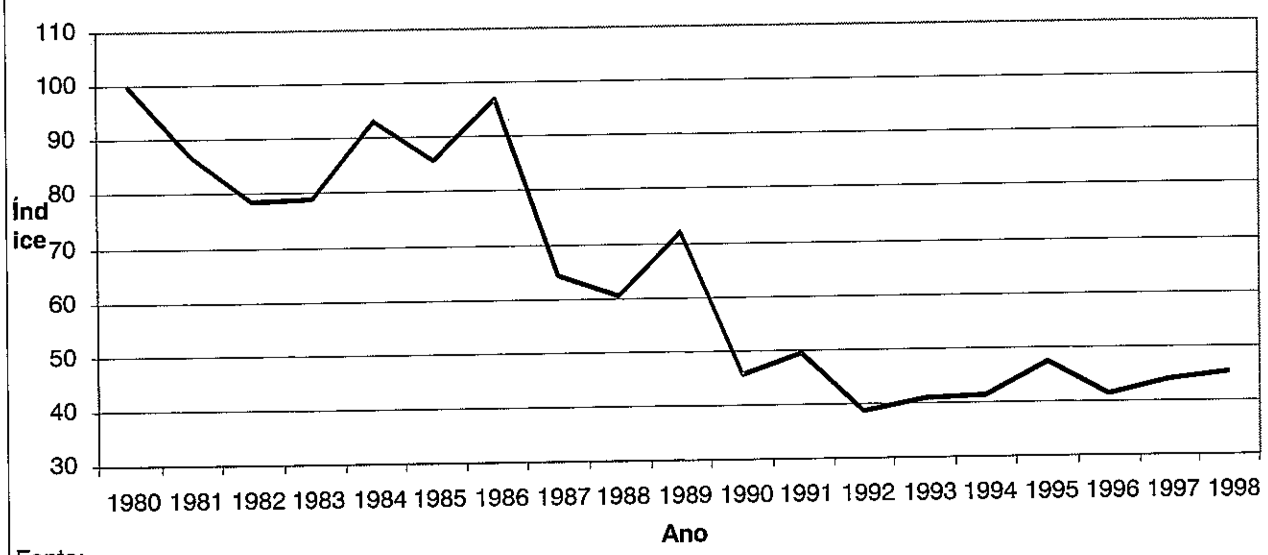
However, the agricultural gross income (or average value of the production) he/she was reduced in 40% in the same period, reaching all of the significant products, except the banana. It is worth to say that, besides accentuated her/it fall of prices, of the order of 60%, and increase of the competition interns and external, that the great efficiency earnings and productivity of the agriculture continue being transferred for the industry sectors.



Fonte: IBRE/CEA.

.Graph 1 - Brazil - Average yield - Index (1980=100)

Graph 2 - Medium Brazil-prices - Index (1980=100)



Fonte:

It is verified, like this, relative reduction of the areas destined to the farmings on behalf of the enlargement of the areas destined to the livestock, result of the increase of the demand for meats and fall of the prices of the main agricultural products, of the order of 50% in the international markets and 60% in the national prices in the last 20 years.

On the other hand, the agriculture was punished excessively with the economical stabilization, through high interest rates, exchange sobrevalorizado (reducing the imports and endearing the exports) and severe shortage of agricultural credit resources.

The current price stabilization in the international levels shows that the economical sustainability of the agriculture became much more dependent of the productivity earnings and business efficiency.

Nowadays, the aligned exchange and the interests in fall open effective possibilities of investments in the production for substitution of agricultural imports and increase of the exports. Also the measures that improve agricultural credit system, that facilitate the growth of the production.

It was defined importable products as those that present high and appealing deficits in the Brazilian trade balance, understanding: cotton, rice, corn, wheat, bean, tomato, garlic, oats and barley. These products have been presenting tendency of small increases of the cultivated area (20% between 1980 and 1998), production and productivity, but reduction in the gross income, fruit of the reduction of prices promoted by the international competition.

Among the importable products, the cotton offers the best opportunities: the country has almost been importing US$ 1 billion in fiber, crumb, oil and others derived. The rice also presents good alternative for the substitution of the imports, in face decrease of the working power of Rio Grande do Sul and of the development of sequeiro varieties (fine long type) for the area Centro Oeste preferred by the market. In demand terms for the Brazilian production, the rice presents a potential market of 2 Mt, 400 thousand hectares and US$590 milhões/ano (value of the imports).

In the same way, the bean imports signal a potential market of the order of US$ 140 milion/year and great instability in the offer, opening opportunities for the state and regional production. The potential demand for corn is also quite favorable, pressed by the expansion of the cattle bovine and, above all, swine and aviculture. As the prices of the corn have been presenting negative tendency, the expansion of the production requests commercial cultures, intensive technologies and competitive production costs. The experience of the growth of the production of grains in the Center-west has been showing the viability of this activity, deserving prominence the potential of the conjugation corn-soy, with the production of the "safrinha" in time between harvests period in Sul/Sudeste.

Production projections were elaborated, consumption, liquid exports and readiness interns until the year 2015, for rice, bean and corn. For cotton and wheat, the projected deficits were revealed very high, not remaining doubt on the great market potential for the domestic production. The picture below display the potential deficits, being observed a production need or import of the order of 7,2 Mt of these grains in 2005, for the country, and of, at least, 1,3 million for the Northeast, strategic market to Tocantins.

They were verified, also, significant potential deficits for fruits (mainly grape, mango, lemon and banana) and vegetables (tomato and onion, mainly).

Table 1-Rice, Bean and Corn: Estimates of potential deficits
Regional projections (in tons) *

Ano	**1997**	**2000**	**2005**	**2010**	**2015**
Rice					
Northeast	582.905	550.284	474.140	370.910	234.581
Other areas	2.321.677	2.336.592	2.305.260	2.211.128	2.034.944
Brazil	2.904.582	2.886.875	2.779.399	2.582.039	2.269.525
Bean					
Northeast	222.101	211.759	184.868	146.667	94.347
Other areas	640.424	705.811	813.591	922.225	1.029.097
Brazil	862.526	917.571	990.948	1.061.047	1.115.251
Corn					
Using the tax of 2,35% for projection of the consumption					
Northeast	655.428	644.323	650.033	645.389	627.455
Other areas	7.857.428	6.244.057	2.573.114	(2.647.258)	(9.878.410)
Brazil	8.512.856	6.908.473	3.426.257	(1.975.289)	(9.220.384)
Using the historical tax of growth of the consumption (5,26%)					
Northeast	931.076	1.261.308	2.016.398	3.050.034	4.452.262
Other areas	11.159.919	13.636.059	18.943.321	26.162.410	35.945.990
Brazil	12.090.995	14.917.460	20.982.829	29.239.024	40.428.823

Obs.: * Values between parentheses mean larger production than the consumption (superavit)
Source: basic Data: CONAB-pictures of Supply. Elaboração: CEA/IBRE/FGV, 1999.

In prospective terms, it can be said that difficultly it will happen such difficult decade for the agriculture as the nineties, with widespread fall of agricultural income, reduction of cultivated area, fall of prices, prohibitive interests in the agricultural credit, accelerated growth of imports, severe credit restrictions and debt of the producers. However, the imports and the projections of potential deficits point good market opportunities for the agricultural production, with prominence for the rice, corn, cotton and horticulture.

The growth of the domestic markets and external of animal protein they open good perspectives for the cattle bovine, swine production and Brazilian aviculture, three activities with displacement tendency to the area Center-west, what means good perspectives for the state of Tocantins and for to it area-programs.

It was verified, still, that the increase of the competitiveness in the bovine livestock, resulting in tendency of concentration of the production in the largest properties and in the use of intensive technologies, conjugated with the social and economical importance of the small production in the area-program, that suggests the buffalos creation, given rusticity and productive potential in simplified production systems, it can be constituted in important regional alternative.

On the other hand, given the fiscal restrictions and macroeconomics, the financing of the public sector for the farming should continue insufficient. The section should look for new financing instruments (CPR´s, external credits, etc.).

For the increase of the efficiency of the Brazilian agricultural production and, mainly of Tocantins, it is indispensable there to be an improvement in the infrastructure conditions and logistics (reduction of the cost Brazil), without the one that the national products will be very little competitive, staying grievous and with tendency of exercising bear pressure in the internal prices.

(3) Production and Trading in th Area-Program: Field research

67 interviews were accomplished in 8 relevant municipal districts for to it area-programs, close to the main agents of the agricultural productive chain.

It was verified that there is great predominance of the cut livestock, above all in the North Area, with extensive creations, of low technological level, in the handling and use of inputs, but with good vaccinal covering (95%). The activity is developed mainly in big and averages properties, in planted pastures, but with significant degradation degree.

The preponderant agriculture is of subsistence and family, developed mainly in small properties, above all in the Extreme North area. More recently and still in an incipient way, they have if developed the vegetable crops activities, horticulture, livestock of milk, exploration of the Babauçu palm, of native fruits and apiculture.

The absolute predominance of the livestock in the area-program indicates aptitude inadequacy and business capacity for the agriculture, as consequence, it means that the development of the agriculture, above all of the production of grains, it should not abstract of the participation of producers of other areas with agricultural tradition, to example of the areas southeast and south of the country, just as having happened in the Center West starting from the decade of 70.

On the other hand, the great cattle farmers have restrictions to changes and better economic situation, while the small producers don't have technical conditions, cultural and infrastructure/capital for the development of the commercial farming. Like this, the base of the agricultural development of the area should happen through the medium farmer, more susceptible to changes and market incentives, and of professional farmers from other areas.

The state of degradation of the pastures, whose more economical and efficient recovery feels with the temporary cultivation of soy bean, it can mean an important factor of expansion of the culture of the soy in the area-program, above all in the North Area.

The ownership land structure of the area-program is quite concentrated: the properties from 0 to 320 there are represent 85% of the properties and 34% of the area. The small properties are 55% of the properties and they occupy 10% of the area, while the latifundia are 3% of the properties and 36% of the area. Like this, 66% of the area are concentrated in properties with more than 320 there are, being 36% in latifundia.

In the average, the prices of the lands in the Região Norte are higher than in the Região Extremo Norte and in the State, with medium differences of 50% and 20% respectively, for farming lands. At the same time, it is verified that the lands in Tocantins are 40% more faces than in Maranhão and 65% more faces than in Piauí, that you/they are competitive states of Tocantins in the market of this factor, what constitutes an inhibiting factor of the agricultural development of the State and of the area-program.

In a general way, the technological level of the livestock and of the regional agriculture they are plenty low, resulting in productivities below the state averages, that are also low in relation to the main areas producing of the country. The technological parameters presented to proceed portray this situation:

- only 6% of the producing of the area use fertilizers and corrective (15% in the State);
- only 6,5% of the producing of the area receive technical support (13% in the State);
- 64% of the producing of the area make some type of control of curses and diseases (81% in the State);
- only 11% of the properties of the area have electric power, being 76% of them dedicated to the livestock;
- only 8% of the producing of the area possess tractors (18% in the State);
- only 1% of the producers make soil conservation (2% in the State);
- only 1,25% of the producers use the irrigation;
- the vaccination against fever aftosa has been reaching 95% of the flock; the last case of the disease was verified in 1997; the State should be recognized as area free from the fever aftosa in 2001.

Although very low, the technological level is more significant in the livestock than in the agriculture.

The capacity of storage of the State is of 1,6 Mt, volume considerably superior to the state production of grains (of the order of 610 thousand tons), therefore, very sub-used. Four public grocery stores exist in the area-program, but all used for other ends that no the storage of grains. The private capacity of storage is quite reduced in the area-program. Although in the moment the storage capacity is not restrict to the state and regional agriculture, it should be concern object when it is had in mind the rural development of the State, in function of the great distances of the markets. The priority and the incentives for his/her expansion, however, it should relapse on the private initiative.

In relation to the offer of financial resources for the production, BASA and Bank of Brazil are the great backers of the agricultural and agriculture-industrial activities of the State and of the area-program, being specialized BASA in capital investment loans and Bank of Brazil in credits of agricultural costing. Of R$73,5 million applied the last year in the State, R$33,6 were liberated by Bank of Brazil and R$39,9 by BASA, in a total of 5.955 operations (3.180 and 2775, respectively). However, in the area-program, Bank of Brazil just applied R$4,0 million and BASA R$8,6 million, adding R$12,6 million, what corresponds to 17% of the applied resources in the State and 22% of the operations. The medium value of the loans in the area-program was of R$ 24 thousand, against R$ 32 thousand in the State. At the same time, it is verified that the covering of the agricultural credit is very reduced, just including about 2% of the cultivated area of the State. Any incentive program to the industrial development should have in the disponibilização of credits, in compatible conditions with the rural activities, one of their main foundations.

The industrialization and processing of agricultural products in the area-program, in the State, they are still very reduced. The prominence is for the improvement of rice, that answers for 15% of the number of the industries of the State. In the area-program if they highlight, also, the flour houses, with 245 units, and a significant number of home-made industries of pulps of fruits, all of very small load. The lack of raw materials is pointed as the main cause of the reduced regional agriculture-industrialization.

The main agribusinesses of the area-program, besides the one of rice and flour houses, are: limestone (1 unit in Xambioá and 1 in Philadelphia), babassu processing (1 palm heart unit in Araguaína, 1 in Tocantinópolis and 1 of óleo/torta/carvão in São Miguel of Araguaia); freezers (2 in Araguaína), dairy products (2 in Araguaína, 1 in Tocantinópolis, 1 in Augustinópolis and 9 in implantation inside of the state program of basins dairies, pulp (1 industrial unit in Araguaína), cassava processing (1 unit in Darcinópolis), animal ration (1 in Araguaína), tanning (1 in Araguaína). It is verified, like this, that Araguaína is the main agriculture-industrial pole of the area-program.

A summary evaluation of the average of prices now practiced in the area-program and of the medium production costs, it shows economical sustainability for the main products, except the milk, according to Table 2 to proceed:

Table 2. Comparison of costs and prices in the area-program

Product	Production cost médio(R$1)	Regional average price (R$1)
Rice (I take out)	12,06	17,24
Corn (I take out)	7,25	11,30
Soy (I take out)	11,96	16,20
Banana (kg)	0,12	0,21
Milk (l)	0,35	0,21
Fat ox (it enraptures)	24,00	30,00

Source: Data of the research

For the agricultural products, whose regional production is economically little significant, the main market is the own area-program, besides Imperatriz, that constitutes an important shopping center for the Extreme North Area. Almost the whole production is consumed in the own origin municipal districts, being the surplus destined to neighboring municipal districts in the area-program. The area is also supplied with products of other areas and states, once it is, in a general way, deficient in the agricultural production, mainly of vegetable crops and fruits, original almost always of Anápolis, Goiânia, Gurupi and Imperatriz. The main problem presented in the commercialization of the production of the area-program lives in the themes quality-amount-continuity, whose variability doesn't allow the necessary market credibility.

The production of milk in the area-program is also broadly consumed in the own area, but some dairy products export processed products (milk long life, cheese and butter) for capitals of the Northeast. It is relevant the consumption of raw milk sold to the final consumers directly by the own producers.

The production of the cut livestock, that it is the main economical base of the area, it is destined, mainly, for the provisioning of capitals of the northeast and for the southeast area of the country. To it area-programs exports cattle for these markets (about of half of the production it is going to the Northeast) and also meat processed in the own area (Araguaína and Colinas), destined, mainly, for the markets of the Southeast and Northeast.

The supply of agricultural inputs has origin in Imperatriz, São Luiz and Riachão (MA), Goiânia, Brasília, Minas Gerais and São Paulo.

The main products of the area-program are meat, milk, corn, rice, bean, cassava, horticulture, vegetable crops and extraction (Babaçu palm, native fruits and apiculture).

The rice cultivation of the area-program occupies 17% (17.030 there are) of the area of rice of the State and 13% of the production, what results in productivity 30% (1,27 t/ha) inferior to the state. The main centers producers are Araguatins, Babaçulândia, Esperantina, Wanderlândia and Palmeiras do Tocantins. The registered commercialization is of 6,6 thousand tons. In spite of being the second culture in area, the area receives rice of Formoso do Araguaia, Ilha da Confusão, Gurupi and Rio Grande do Sul. The regional provisioning with product of other areas/states indicates potentiality of growth of the production for the regional provisioning. Cerealistas and improvement units are dispersed for the whole area. The culture is practiced mainly through the family agriculture of subsistence, with low technology levels.

The bean is still a culture a little representative in the State (only 1,6% of the area), but to it area-programs is responsible for 60% of the cultivated state area and for 62% of the production. However, it can be found bean of other origins in the regional market, mainly of Brasília, indicating a market opportunity for the enlargement of the production. The technological level is low and the production is of family agriculture of subsistence.

The corn occupies the largest planted area of the area (17.820 ha), representing 31% of the state area and production corresponding to 21%, what results in productivity 33% (1,3 t/ha) inferior to the average of the State. The volume of registered commercialization is of 2,2 thousand tons. Araguaína and Araguatins are the main producing poles. The production also happens in the averages and great properties, beyond the subsistence production. The consumption is fundamentally regional and it is destined, above all, to the cut bovinocultura. The technological level is, in way general, low, with 40% of the area being explored with the system of stub country. The small offer of this grain limits improvements in the animal feeding and it doesn't allow the introduction, in a relevant way, of the swine production and commercial aviculture.

The culture of the soy still didn't grow in the area-program. Recently, it has been happening some isolated initiatives, in function of the implantation of demonstration units (Araguaína) for the Government of Estado/EMPRAPA. However, in the center-south area of the State the culture is in frank expansion, occupying 45 thousand there is already. The soy is a culture whose production system demands great contiguous extensions (great properties), what naturally limits his/her expansion in the area-program, mainly in the Extreme North Area. In spite of, in function of the demonstration units (that have been waking up significant interest among the producers), of the need of reform of pastures-whose process has in the culture of the soy the best economical alternative-and of the implantation of a warehouse of Cargill (100.000 t of storage capacity) in Porto Franco/MA, in the boundary with the area, it is waited that the culture tries a vigorous growth in the area-program.

The culture of the cassava is diffused in the whole area, with area (4.300 ha) that occupies 36% of the state area and production that it represents 31% of the production, with productivity of 1,27 t/ha. Araguaína, Darcinópolis, Araguatins and Pineapple are the main producing centers. The activity is of subsistence and with low technological level. Besides the regional consumption, the product and yours derived they are also marketed in other areas of the State, in Rondônia, Pará and Piauí, besides Imperatriz.

The State is becoming an important pole of pineapple production in the country, cultivated mainly in the area center-south. The culture is growing in the area-program, mainly in Araguaína, Piraquê, Araguatins, São Bento do Tocantins and Wanderlândia. The area already stops 15% of the area and of the production state of pineapple. Given the development of the good image of the pineapple of Tocantins in the main Brazilian markets, it is waited that the state production continues to grow, what represents a market opportunity for to it area-programs.

The banana also comes if developing in the area-program, mainly in Xambioá, Araguaína and Araguatins. The production is destined to the regional consumption, but it is also marketed in the markets of Belém, São Luís and southeast area of the country. Given that the area and the State are still liquid importers of banana (arrivals mainly of Anápolis and Goiânia), there are market opportunities for the continuity of the expansion of the production in the area-program, now with investments in irrigation. In spite of, just as for mango and coconut, it suits to be attentive to the growth of this culture in Vale do São Francisco (North of Minas Gerais, Bahia, Sergipe and Alagoas)

Other fruit bowls come if developing reasonably in the area-program, with prominence for the cultivations of, coconut, acerola, passion fruit, papaya, melon watermelon and cashew, as well as native fruits. Most of the consumption is regional, being significant the activity of pulp production in home-made industries in the whole area. The production concentrates on small properties, with technological level still low.

.The market perspective for the regional horticulture is good, but seeking to the provisioning of the regional markets and of neighboring states. The development of a horticulture more professionalized and addressed for the most demanding markets of the south/south-west of the country and for the exterior, they demand great investments, infrastructure and specialized logistics, that are not available in the State and in the area-program, besides the competition of poles already consolidated in other areas of the country. Therefore, in the short and medium periods, the development of the horticulture in the area should aim at the state provisioning and of neighboring states. Araguaína and Xambioá will owe if it with the main horticullture poles of the area-program.

However, there is a regional market of little meaning for native fruits (in function of the tradition of consumption of the population), babaçu palm exploration and beekeeping. The growth of the regional market (area-program, State, Maranhão, Piauí and Pará) for the fruits native in natura it is esteemed like this: 42% cupuaçú 12,5% açaí, 12% biribá, 7,5% buriti, 4,5% cajá, 2% chestnut of Pará, murici and bacaba. For the pulps, the estimates of growth of the healthy market: 37,5% cupuaçú, 17% cajá, 12% açaí, 8% bacuri, 4,5% buriti and 2% muricí.

The babaçu palm exploration, that happens mainly in the Extreme North area, it has not been presenting good economical results for the producers. However, the presence of two industries in the area-program should guarantee the maintenance of the explorations.

The honey production have the relative importance in the Extreme North area, mainly in Axixá, where are registered 160 producing with the medium production of 200 litros/safra/produtor. They consumption is regional and destined to Imperatriz 's market. The technological level, however, it is very low.

The production of vegetables is relevant for the regional provisioning, being distributed in the main municipal districts of the area-program. The regional production is insufficient for the provisioning, happening imports of Anápolis, Goiânia, Imperatriz and Gurupi. The commercialization of original onion of Argentina was observed. Those imports indicate good opportunities for the expansion of the regional vegetable crops for the local and state provisioning. The main products are lettuce, tomato, green smell, pumpkin, bell pepper, pepper, collard greens and cucumber. The technological level of the activity is good.

To it area-programs is holder of 25% of the state flock of cut. Araguaína, Santa Fé of Araguaia, Pineapple and Araguatins appear as the main producing centers. The activity is more relevant and developed in the North Area than in Extreme North (195 cabeças/propriedade and 70 cabeças/propriedade, respectively). 90% of the regional flock are destined to the cut livestock, being to it area-programs more specialized in the fattening phase. The pastures of the area are significantly degraded, requesting recovery actions that can make possible the soy production together with the livestock. Four main freezers receive about 50% of the regional production: 2 in Araguaína and 2 in Hills. The processed products if they destine to the markets of the Southeast and of the Northeast. The remaining of the production, in the ox form in foot, it is destined to the Northeast, São Paulo, Minas Gerais and Rio de Janeiro.

The livestock is extensive, with predominance of the medium and big producers, but with low technological level, what results in low productivities, with an enjoyment tax esteemed in 13% (against 20% of national average, that he/she has as goal reaches 38%).

The control of the fever aftosa, the quality and the cost of the regional product, produced to pasture ("green ox"), they open good market opportunities, be for export or for the provisioning of national areas that will destine part of production for the exports.

The livestock of milk has developed more recently in the area-program, tends as main centers Augustinópolis, Ranch New, New Olinda and Nazareth. The activity is practiced in family units, with predominance of small and averages properties, with reduced technology levels and small medium amounts for producer (about 24 liters). The registered commercialization is of 40 thousand l/dia, but it is very important the informal trade, with door-in-door delivery. The regional production is destined, above all, for the provisioning of the own area, but processed products are marketed in capitals of the Northeast. 4 dairy products exist in the area-program, varied loads, but with sub-use of the installed capacity, being their main products the milks long life and pasteurized, cheeses and butter. Nine other dairy products of smaller load, are programmed for they be installed inside of the program of basins milk pans. The State and the area are deficient in the production milk pan, what constitutes a good opportunity of businesses for the producers tocantinenses. However, the competitiveness of the activity is conditioned to improvements in the indexes zootécnicos, still very low in the area-program. The significant idle capacity of the regional dairy products and Bacias Leiteira pans' Program are impelling the livestock milk pan, that should continue its expansion in the State.

The aviculture and the swine production, whose viability depends on the production scale and business capacity, are still inexpressive in the area-program, in consequence, above all, of the small corn production and of their costs in the area. Only 4% of the production of swine are accomplished attn commercial farms. The aviculture of small load i verified in Araguaína, where it i in installation process an incubatório of chicks of one day. The competitiveness and the expansion of these activities plows conditioned to the enlargement of the regional production of corn and soy, with reduction of their prices.

Grains

The general international picture of grains display slow growth of the production and demand and stagnation of the international trade during the decade of 90. However, projections of FAO indicate a more significant expansion in the next five years, due to the growth of the production of meats (animal feeding), of the fastest enlargement of the world income, mainly in the developing countries, of the negotiations in the extent of the World Organization of the Trade, that tend to reduce the commercial restrictions, as well as of the high costs of the European and American subsidies, difficult of be sustained. This perspective opens good opportunities for the production of the developing countries, whose costs are more competitive.

Rice

The Rice as the most important food of the world, only 4% of the production are marketed in the international markets. Asia is the most relevant area, with 90% of the production, 72% of the world exports and 50% of the imports. China, India, Indonesia, Pakistan and Thailand produce 70% of the world total. Thailand and Vietnam lead the exports.

The per capita global consumption, of 59 kg/ano, it should stay relatively constant up to 2005, with decline tendency in Asia and growth in the developing countries. The projected growth of the world production is from 1,4% a year, and of the international trade of 2,0% a year. Also the prices in the international market should try a discharge of 5% in the next five years (FAO).

The Brazilian harvest, of 11,54 Mt in 1999, is concentrated in Rio Grande do Sul, with 50% of the national production, in an area irrigated about 1 million hectares, with high productivities (5.000 kg/ha). However, the country has been an appellant importer of rice (850 thousand tons. / year) with origin subsidies, which, together with the growth of the sequeiro production, above all in the Center-west, with more reduced costs, it exercises bear pressure on the internal prices.

A national tendency is verified for the reduction of the per capita consumption (about 28 kg/year), what is not observed in the Northeast, that it presented small growth. The area and the Brazilian production have been presenting small variations. As general rule, the supermarkets are the main commercialization channel in the retail, while great cerealistas, mainly in CEASA´s, they dominate the wholesale.

The rice is the second more important culture in area of the State of Tocantins and the main in production surpluses. About 70% of production it is destined to the Northeast, at more competitive prices than the product of Rio Grande do Sul. The State is the fourth national producer, with 160 thousand cultivated hectares and 427,5 thousand ton produced. The relationship production priceXcost is favorable to the culture. In spite of, the production in the area-program is small and insufficient to assist to the regional demand, being driven in subsistence character, with low technological level.

Bean

The bean world production it is little significant in the general computation of the grains and it is stagnated. The main producers are India, Brazil, Mexico, USA and China, with 63% of the world total. Brazil, Japan and United Kingdom are the largest importers, while Myanmar, China, USA and Mexico lead the exports. Due to great variability of the markets and it reduced relative size, it is not had reliable estimates of tendencies.

The national production, characterized by the reduced technological level and predominance of the small production, it has been presenting fall tendency, as well as the planted area. However, the medium productivity has been increasing, in function, mainly, of the growth of the irrigated production, that it makes possible three annual harvests and it presents good expansion perspectives. As in the case of the rice, also the per capita consumption of the bean presents reduction tendency in Brazil.

The culture of the bean has wide dispersion in the country, being Paraná and Minas Gerais the main producers. In Tocantins, the culture is still of little economical importance, presenting tendency of area fall and production. It can, however, to be a good option of development of the irrigation in the area-program. The relationship production preçoXcusto is favorable to the product. The State is bean importer for domestic consumption.

Corn

USA, China and Brazil are the largest world producers, with 70% of the total. FAO esteems a growth tendency in the production of 20% up to 2005 (1,7% a year), concentrated, mainly, in the developing countries. The main importers are Japan, South Korea and Mexico, with tendency of growth of the import taxes. They lead the exports the USA, Argentina, Hungary and China, that will owe if it expands in 21% up to 2005.

Also the corn global consumption should expand to the dear tax from 1,4% to the year, due, above all, to the demand for animal feeding (birds and swine) resulting from the increase of the meat consumption in the developing countries. Like this, it is waited that also the international prices go up her/it a tax from 4,3% a year, in the next five years.

The corn is the main annual culture of the country, with harvest of the order of 32 Mt, but with fall of 4% the last five years, result of the fall of prices, increase of the costs of the inputs and competition of the imported product. The imports have been growing, pressed by the increase in production of birds and swine. The main states producers are Paraná, Rio Grande do Sul and Santa Catarina, with the last two losing space for the most competitive production of the Center-west.

The Northeast is liquid importer of corn, constituting important potential market for the production of Tocantins. However, the state production, although it occupies the largest area, it is small and it presents fall tendency, what does with that the State is corn importer, unlike their neighbors of the Center-west, very assets and competitive in this culture. It should be stood out that the presence of commercial production of birds and swine, today inexpressive in the State, it could be constituted in an important incentive to the corn culture.

Soy bean

The production and the global consumptions of oleaginous should stay stagnated up to 2005, in agreement with FAO. In this market, the soy suffers intransigent competition of the colza and derived products of palms. Holland, Japan, Germany and China are the largest importers, while USA, Argentina and Paraguay are the largest exporters. The competition among the several products points tendency of fall of the international prices.

In Brazil, tendency of growth of the area, production is verified (3,7% a year) and income, with strong tendency for the expansion of the culture in the states of the Center-west and west of the Northeast (Maranhão, Piauí and Bahia), what will motivate significantly the soy bean production in Tocantins. The competitiveness of this area would be significantly increased if the transport costs didn't burden the production so much. Like this, the corridor's transport multimodal viabilização, linking Tocantins to the port of Itaqui, it is extremely important for the State and for to it area-programs. Nowadays, the main states producers are Mato Grosso, Rio Grande do Sul, Goiás and Mato Grosso do Sul.

Most of the national production of soy oil is destined to the domestic market, however, it presents tendency of reduction of the per capita consumption. The crumb is destined, mainly, to the foreign market.

Tocantins still produces little soy. In the area-program, the culture be just introduced, having few producers and some demonstration units. However, the great dynamism of the Soy bean cultivation in almost all of the adjacent areas to the State indicate that the culture will owe, soon, to become an important activity for the economy of Tocantins.

Cotton

Now, to world production it is led by China, USA and India. Brazil, that was already the second largest world producer, is today a great importer, in face of the international competition. However, that is the culture that presents the largest growth opportunities, with great investments foreseen for the textile industry and the possibility of substituting imports, that approach 1 billion dollars a year. Like this, the culture presents tendency of expansion of the production, above all in the area Center-west, that assumed the national leadership, with the state of Mato Grosso as the main producer.

The production tocantinense is, now, insignificant, but it will be able to if influenced by the boom of growth of the culture in the neighboring states, mainly Goiás and Mato Grosso. The State will be able to, by specific incentives, to enlarge the cotton production, since the product is shown quite appropriate for the savannah atmosphere. The main opportunity of businesses to Tocantins would be the commercialization of the production in the Northeast, holder of an important one and dynamics textile industry.

Horticulture

The section regional horticulture is characterized by the predominance of the small production, assisting to the local and lacking trade of appropriate logistics, except for in the case of the pineapple that takes advantage of the platform installed in centers of more businesses to the south of the State, like Miracema.

The consumption of fruits in Brazil and in the world it has been growing to you rate high. In Brazil, in the period 1994-1998, the increase was of 12% a.a. In the United States, market highly strategic for the Brazilian fruit, in reason of the volumes exportados/importados, according to data of USDA in the period 1989-1994 the annual growth rates for some fruits were the following ones: banana, 2,7%; orange, 1,5%; lemon, 2,4%, mango, 10,8% and sweet orange, 7,4%. These two consumption sceneries draw excellent opportunities for the Brazilian horticulture.

To world production of fruits it is of 502 Mt, with 40% of the concentrated production in four countries: China, 17%; Brazil, 8%; India, 8% and United States, 7%. China, that was the room put in the beginning of the decade of 90, became the largest world producer, with annual medium growth of 20%.

The world trade of fruits, where they are marketed 33 Mt annually, in the value of US$ 12,5 billion, it has been growing to average rates of 10% a.a. in the last years, and it presents the following characteristics:

- Mainly by fruits of temperate climate, and banana, that represent 95% of the marketed volume;
- The countries of Northern Hemisphere buy 95% of the total - the United States, with 11%, and Europe, with 60%, dominate the imports;
- trade in proximity markets is of 16 Mt, (49%);
- The sales for distant markets add 3,2 Mt, with lump sum of US$ 2 billion (10% of the total);
- trade of tropical fruits, 41% of the total, it is concentrated in the banana (12 Mt, US$ 3,6 billion, 37% of the total). The other fruits answer for only 4%.

The world preference is for fresh fruits, with acidity more accentuated, very used in the cookery. Projections of FAO signal for the increase of the importance of the trade and consumption of fresh fruits, mainly in the developing countries, like China, Mexico, Brazil and Argentina, with growth rates superior to the developed countries, on this decade. Besides, official studies indicate, for instance, that the world imports of pineapple, in spite of they register the smallest percentile growth, in relation to other products, they will have the largest demand led by the European Union (45%), USA (19%) and Japan (18%), still in 2000.

In the biennium 1997/98, the Brazilian exports of fresh fruits added 559.029t and US$ 227.113, while the imports were of 719.101 t, in the value of US$ 466.038. Therefore, a deficit of 160.072t and US$ 238.063. The products that more they contributed to the exports were, in amount terms: orange, melon, banana, mango, apple, pineapple, papaya and grape. As for the value, they were: mango, melon, orange, banana, apple, papaya, grape and pineapple, for the order. Beside the imports the main products were: pear, apple, grape, plum, kiwi, nectarine, peach and cherry.

The productive chain of fruits in Brazil includes about 2 million hectares, being responsible for 4 million jobs - 1,6 million in the agricultural base and 2,4 in the links agregadores of value - and a GDP of US$ 11 billion, according to data of IBRAF. The segment stands out for the global volume of generated jobs and for the skilled labor demand. The activity allows better incomes to the workers, the sustenance of the families inside of small properties, being adapted, still, to the perspectives of the great investment projects.

The main production areas, processing and fruit consumption in healthy Brazil:

- São Paulo: stands out in volume and in varieties of explored products; in the State they are located the great companies, participants or not of important national chains, as the one of orange juice.
- It is Vale do São Francisco: good area for the horticulture, that since the decade of 70 it receives great investments in the implantation of irrigated cultures. In 1998, the area in production was of 81 thousand hectares, in round numbers, shared by banana (23.500 there are), mango (22.000 there are), coconut (10.000 there are), grape, pine cone and guava (between 4.000 and 4.500 there is, each a), passion fruit (2.400 there are), papaya (2.300 there are) and other fruits (8.200 there are).
- Bahia, Pernambuco, Paraíba, Rio Grande do Norte and Ceará: they present new and diversified cultivation areas, the Northeast as the largest producing potential and exporter of fruits in natura of the Country. The Northeast, in the period 1994-98, was responsible for 45,36% of the value of the exported fresh fruits (US$ 220,1 million of a total of US$ 485,2 million)
- South area: grows the temperate horticulture, with the improvement of the you cultivate and planting systems and a wide effort of substitution of imports of it bears and the invigoration of the traditional grape chain and wine.
- Area Center-west: the horticulture is appearing slowly in the scenery, accompanying the regional growth of the demand generated by the proportionate population displacement by the recent development of the agricultural border in the savannahs.
- North area: Pará is important producing of several fruits, among them the pineapple and the passion fruit, sheltering processing industries and export of having flowed. The same situation is identified in Tocantins and Rondônia, that already take advantage better the climatic conditions and the exotic fruits of the Amazonian and that you/they appear as great export options and of diversification of the activity.

The Brazilian per capita consumption of fruits, of 57 kg/habitant/year, eqüivale to a third of the consumption of the European and of the North American (140 and 150 kg/person/year, respectively). The best news is that the national consumption, that in 1994 it was of 36 kg/person/year, it arrived, in 1998, to 57 kilos, with an annual growth of 12%, with the banana and the orange answering for 47%.

With a production of 32 Mt, what results in a liquid offer of 26 Mt, in reason of the high losses (20%), the Brazilian horticulture destines 13 Mt for orange juice, 1,6 million for wine and other industries, consuming 11 Mt of fresh fruits.

The horticulture in general comes if developing reasonably in the area-program, with prominence for banana's cultivations, pineapple, coconut, acerola, passion fruit, papaya, melon, watermelon and cashew. Most of the consumption is regional, being significant the activity of pulp production in home-made industries in the whole area. The production concentrates on small properties, with low technological level, but it is noticed the presence of professional producers that adopt appropriate techniques of production. The market perspective for the regional horticulture is good, should be addressed for the provisioning of the regional markets and of neighboring states. The development of the professionalized horticulture and addressed for demanding markets of the south/south-west of the Country and for the exterior it demands great investments in infrastructure and logistics, no available in the State and in the area-program, to do front to the competition of consolidated national poles. Therefore, in the short and medium periods, the project of the horticulture in the area should aim at the markets of Tocantins and of neighboring states, developing, starting from the incorporate experiences for those markets. Araguaína and Xambioá will owe if it with the main horticulture poles of the area-program.

In exploratory character, it can be ahead that the consolidation of the regional horticulture, mainly in the section of the tropical fruits, of frank market, it will be in the dependence of the consolidation of the basic infrastructure, installation of a professionalized productive base, a larger progress in the productive chain seeking to leave in the area the largest or a good part of the joined value. Therefore, the actions should have the following objectives:

- Qualification of the agricultural companies as for the administrative and business capacity;
- Organization of the producers seeking to potentiate the benefits of the production and solidary administration and of the increase of the power to negotiate in the productive chain;
- A line of diversified production and, at the same time, centered in fruits in that the area presents competitive advantages, as pineapple, for instance;
- Marketing strategies and commercial administration, as well as efficient logistics services in the movement, conservation and distribution of the products destined to mass markets and with high level of organization of the wholesale and retail nets;
- To organize and to implant the services of sanitary defense, equipped for the challenge of area constitution free from diseases and curses (or controlled area);
- To project, to disseminate and to manage systems and quality patterns, looking for the valorization of the product for the certified and guaranteed quality;
- To set up strategies of invigoration of origin mark;
- To conceive politics and programs of attraction of industries and complemental services.

Beef Cattle

Data of 1998 show that the world bovine population is concentrated in ten countries, with about 850 million heads, 80,30% of the flock. Brazil blunts with the largest commercial bovine flock, with 154,5 million heads. The ten larger producers world championship is responsible for about 36 Mt/ano, approximately 73% of the produced total volume. The largest producers are the United States, with about 12,0 Mt/ano (24,5%) and Brazil, with 7,0 Mt/ano (14,3%). In the scenery of the exports, nine countries answer for 93% of the world exports, about 6,4 Mt year. The prominences are for the European Union, with 2,2 Mt/ano (32,5%), Australia, with 1,3 million (19%) and the United States, with 985 thousand tons (14,4%). Brazil, although put between the 6o and the 7o place in the countries exporters' ranking during almost the whole decade of 90, is enlarging his/her participation substantially in the market. With the exchange depreciation in 1999 and the progress of the program of eradication of the fever aftosa, preliminary estimates indicate that Brazil should export between 550 and 600 thousand tons in the years 1999 and 2000, being put the goal of reaching 1 Mt a year in the short period. The country stops the smallest production cost of the world (US$0,99/kg, against US$1,30 of Argentina, US$1,60 of Australia and US$1,80 of the USA), besides the production correct ambientalmente to be considered, with the call "ox to I graze on", that it results in the "green meat", very appreciated now in the international markets.

Among the years from 1985 to 1995, in relation to the total of the Brazilian flock, the North area, where locates the study area, almost that it triplicated bovine flock, while in the areas Northeast, South and Southeast has been having a relative decrease of the cut flocks. The State of Tocantins possesses about 5,8 million heads (10 º put at the country), of which 1,5 million are in the area-program (26% of the total of the State), being the livestock the most relevant economic activity.

Besides the animals produced in the area, cattle farmers of the area acquire creators' animals and re creators of the center-south area of Tocantins and of States of Pará, Piauí and Ceará, mainly. After having put on weight in the area-program, it is considered that 50% are sold for the call trade of the "ox in foot" for discount out of the area, above all in the Brazilian Northeast. Close to it area-programs, the existence of 13 refrigerating units is verified, 3 of them equipped to assist to the export demands. All of them are capable to assist the domestic market in terms of quality of bovine meat and of alimentary safety. The processed meat if it destines, mainly, for the markets of the Southeast and Northeast area.

In the regional cattle production, it prevails the extensive and traditional system of the production and ending of bovine of cut, with index bass of productivity of the flocks (contemplated in the state tax of enjoyment, of only 13,2%) and, therefore, low profitabilities for the cattle farmers. Depending exclusively on the pastures for feeding of the animals, it is evident the low use of inputs, of machines and equipments, what restricts the development of the other links of the productive chain before the gate (production of inputs, machines and equipments), inside of the area-program.

The production, of the fat ox in the area-program, is destined, in more than 50%, for the consumer markets of the main capitals and cities of the Northeast. The transport of alive animals is made in special trucks, whose freight is made calculations tends as reference the price of the fuel: a liter of diesel oil for turned kilometer (round trip of the destiny).

Inside of the area-program and proximities, a good distribution of industrial units is observed for discount of bovine: Tocantins 4(1), Pará 4(1), Maranhão 5(1), Goiás 25(5). The number between parentheses means the number of capable establishments for exports.

Considering an exclusive production in the pasture, it is considered production costs varying of US$ 10,00/R$18,00 US$15,00/R$27,00 for at sign produced a year, depending on the technological level of the exploration (extensive, semi-extensive and intensive) and of the used production system (it creates, recria/engorda or cria/recria/engorda). Already the prices pagos to the producer has been showing a tendency, in the last 5 years, of maintaining in levels of US$16,00/R$29,00 US$20,00/R$36,00 for at sign.

In relation to the external prices of export of bovine meat, average of the period 1995/99, was observed the following values: Brazil (US$ 23,14), Uruguay (US$ 24,38), Argentina (US$ 27,07) and United States (US$ 45,12).

To example of what happens in other areas of Brazil, also to it area-programs if it shows competitive for the production of bovine meat, tends in view a production to the pasture base, with low use of grains and rations. This competitiveness will still be able to be larger in the measure in that if it gets to increase the levels of productivity of the flocks through techniques of improvement of the pastures (integration agriculture x livestock), genetic improvement, alimentary suplementação of low cost during the drought and practices of correct handling of the flocks. Another important aspect is the promotion of better articulation among the links of the productive chain, involving the creators (majority of small producers), recriadores/terminadores and the own refrigerating industry. For the development of the activity, it is fundamental the continuity of the efforts for the eradication of the fever aftosa and other diseases (brucelose and rage).

Milk Cattle

Considering the production of milk in the main countries, it is observed that the United States presents absolute leadership, with 72,6 Mt, what corresponds to 19% of the world production. Brazil is the sixth producing largest, with 22,5 Mt. With annual index of growth of 7,5% a year, the Brazilian production answers for 61,4% of the production of South America and 5,8% of the world production.

Brazil is historically an importer of milk and flowed milky to supply the market. The imports in 1999 added 383,7 thousand tons, meaning a payment for the country of the order of 440 million dollars (FOB). The largest portion of acquisition of milky has origin in Argentina, and of all the import accomplished in 1999, 205,0 thousand tons came from that neighboring country, meaning 53,4% of the total. This volume represents the expenditure of 385,4 million dollars, in other words, 64,9% of the whole worn-out value with the imports. These numbers represent opportunities for the national producers.

Regarding States, practically comparative studies of the markets of milk don't exist and flowed. However, it is possible to evaluate the potential of market of the states with base in the readiness interns of milk (readiness = leite/população production). It is verified that that readiness in Tocantins is of 95 l/habitant/year, low index if compared to the of the country, that presented 114,7 l/habitant/year (that is also plenty for time low). It is noticed that the bordering states of Tocantins, like Piauí, Maranhão, Bahia and Pará, they present very low indexes, inferior to the of that state, respectively of 22,5, 25,8, 53,4 and 58,0 l/habitant/year. Already the State of Goiás has exportable surpluses, presenting a readiness interns of 390,5 l/habitant/year.

It is known that produced in Tocantins of the 104 million liters of milk, only 85,2 million were sold (81,9%) and the remaining (18,1%) it was consumed in the rural properties. In spite of the inexistence of statistics, it is of the general knowledge that most of the commercialization is informal and raw flowing milk is made available the final consumers directly, mainly in the small cities and periphery of the larger cities. Some part of the commercialization is accomplished through the four dairy products that operate in the area-program, producing milks long life and pasteurized, cheeses and butter. The parcels out of this production is destined to the Northeast and Belém, but most is for the regional and state consumption.

The production systems of milk they are in function of a subsistence exploration, accomplished in properties whose I aim at first is the cut livestock, seeking the regime basically of it creates for production of calves. They are flocks with great prevalence of blood of the races zebuínas, standing out the nelore, servants in more extensive systems, being used the pasture as basic feeding during the whole year. The milks is her accomplished manually; the productivity is very low (525 liters of milk/cow/year) and it is very small the production scale, of the order of 24 litros/propriedade/dia). It doesn't exist in the area-program the industry to amount of the productive chain (inputs, machines and equipments for the livestock), being the originating from supply Maranhão, Piauí, Goiás, Brasília, Minas Gerais and São Paulo. The jusante of the productive chain, the main units processadoras of milk are the dairy products Bianca and WING, located in the city of Araguaína; Comila, with thirst in Augustinópolis and Cooperleite, located in Empress in Maranhão (with reception point in Sítio Novo/TO), all presenting significant idle capacity. It is worth to mention that, in the area, they are not present the great dairy product industries (national or multinationals).

The prices of milk, cheese type Minas and butter received by the producers, in medium terms (considering the months of nov/99, dec/99, jan/00 and jun/00) they were R respectively $0,214/l, R$ 2,84/kg and R$ 3,30/kg. On the other hand, the total cost of production of milk is of R $0,308/l, being R$ 0,227 of variable costs and R$ 0,081 of fixed costs.

The price of a liter of milk received by the producers copper the variable costs, meaning a positive cash flow in the short period, but negative in the long period, what requests significant increases in the productivity, to reach the economical sustainability of the activity. Most of the time, the price is below the total cost of production, ending that it happens a decapitalization of the producer in the long period.

O Estado do Tocantins e a área-programa não possuem, atualmente, capacidade produtiva para concorrer no setor laticinista nacional, primordialmente por apresentar um insignificante volume de produção de leite. Entretanto, sabe-se que Tocantins e alguns estados vizinhos apresentam baixas disponibilidades internas de leite e estão distantes dos grandes centros produtores. Assim, pode-se inferir que laticínios e/ou cooperativas podem ser competitivos em nichos de mercado mais regionalizados. Assim, o setor leiteiro do Tocantins e da área-programa deve ser organizado objetivando o atendimento do mercado doméstico (auto-sustentado), ou mesmo visando o mercado de estados vizinhos, mais próximos às suas fronteiras, a exemplo do Maranhão e Piauí.

Now the State of Tocantins and to it area-programs don't possess, working power to compete in the national section of dairy products, primordialmente for presenting an insignificant volume of production of milk. However, it is known that Tocantins and some neighboring states present low internal readiness of milk and they are distant of the great producing centers. Like this, it can be inferred that dairy products and/or cooperatives can be competitive in niches of market in regional areas. Like this, the section milkman of Tocantins and of the area-program it should be organized aiming at the service of the domestic market (solemnity-sustained), or even seeking the market of neighboring states, closer to their borders, to example of Maranhão and Piauí.

Buffalos

Besides being the main activity of the State and of the area-program, the livestock is in such a way consolidated that it will continue to lead the economy of the area-program. In spite of, the activity is still practiced in an extensive way and with low technology levels. So much in the cut livestock as in the one of milk, but mainly in the one of milk, it is significant the participation of the small production, with use of rudimentary productive systems.

However it is every time larger the need of competitive integration of the economy of Tocantins to the global market, that appears for a concentration tendency in the largest properties in the case of the livestock, growing use of capital-intensive technologies and that request professionalization of the production and trade. For this activity type, the small producer doesn't present, usually, appropriate profile, nor technically, nor culturally and nor economically. Therefore, it should be looked for alternatives for the maintenance of this important segment of the regional economy.

The creation of buffalos comes as a good alternative for the sustainability of the small production linked to the livestock. In first place, for treating also of a cattle breeding business, relatively known in the area, (the North area of the country concentrates most of the flock Brazilian bubalino, of 2,5 million heads), not waking up, like this, cultural resistance in the producers. In second place, given the rusticity of the buffalos, productive acting (and economical) it is superior to the livestock in production systems with low technology use, handling and deficiency of pastures, as it is the case of the area-program. In third place, the market doesn't come as restriction, since it spares to the buffalo products the same treatment released to the bovine ones. Besides, the buffalos take advantage the degraded pastures, native plants and humid atmospheres better, meadows, swamps, etc., they are more precocious in the production of meats and more productive in the one of milk than the current flock of the area-program, being the milk 40% superior in industrial income. Like this, in relation to the bovine ones, the buffalos present the following characteristics: more rusticity and adaptability; larger longevity; better procreation; more precocity and milk and healthier meat.

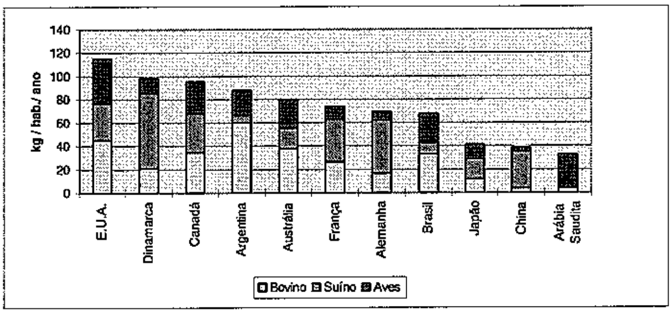
With those characteristics, the buffalos production is more competitive for the small production than the livestock, being considered the production system of low technological level, degraded pastures, bovine flock no specialized, little capital readiness and diffusion difficulties and assimilation of technologies, that prevail in the area-program.

Swine Production

Second rising of EMBRAPA (1998), the creation of swine is present in 46,5% of the 5,8 million existent rural properties in Brazil. In this accounting, they are considered the subsistence creations, holders of bass technical indexes of creations, and the creations that adopt the most modern handling techniques, nutrition and genetics jointly, could be compared easily with the best practices of the world.

In spite of the animal protein to be the more globally consumed, in Brazil the situation of the swine creation is very different. The production and consumption in national territory are quite inferior to the of the competitive meats and to the volume consumed by other countries (Illustration 1). The evolution of the numbers presented significant elevation in the last decade:% in registered volume of meat. The amount of abated animals increased 22% in the same period. That is, with a smaller increase in the number of abated animals, comes if getting to increase more than proportionally the total volume of produced meat. This demonstrates the preference of the industries in abating heavier animals.

Graph 3 - Per capita consumption of meats in the world in 1997



Source: FAO.

Due to the variability of the technological use in the production, same possessing the fourth largest world flock of swine, with approximately 36,5 million heads, Brazil just occupies the fifth position in the world productive ranking, with 1,680 Mt equivalent carcass (t.e.c.) produced in 1999. With a world offer of approximately 80 million t.e.c., Brazil participates with only 2% of this total one. In the exports, the

Brazilian participation is little more significant, representing 3% of the world trade, in spite of possessing decisive forts of comparative advantage, such as favorable climate, reduced prices of facilities, abundant labor and low production costs, owed mainly to the competitive prices of the grains.

Of the total produced in Brazil 95% has as destiny the domestic market and 5% the export. The exports added 87,3 thousand t.e.c, the markets were Hong Kong (46%) and Argentina (38,6%)

Regarding the 95% of the production consumed internally there are three destinies basic of the product: i) industrialized products (hams, salamis, salami, etc.); ii) cuts in natura; iii) pork for subsistence. That is considered the total depressed of swine under federal inspection in Brazil, 65% are destined to the processing. Certain concentration of the great agribusinesses exists in the states of the south of the country, mainly in the West of Santa Catarina. However, these same companies are in expansion with direction to the area Center-west of the country. Regarding the cuts in natura, the production is more decentralized. Practically all the small and medium dispersed freezers for the country abate swine for sale in carcass or already boned in cuts. Still with great representativeness throughout Brazil, but mainly in the areas North and Northeast, the creation of swine prevails for family provisioning or small sale of surpluses that are depressed without sanitary inspection. That is considered the secrecy in 10% in the south area the up to 90% in the north/northeast

Specifically in the State of Tocantins, the thecnical swine creation is still incipient. Recent rising on the swine production in this State (Adapec, 1999) it demonstrates expressionlessness of the activity. The State bill with 22 thecnical farms and with little more than 115 thousand animals, of the which only 3,67% are created in superior conditions. The remaining would be considered subsistence creation. Inside of the area-program, just Araguaína and Araguatins would be the municipal districts with farms of thecnical swine production, but with a small number of head offices in relation to the farms of the Southeast and Center-west. Still no there is in the area slaughterhouses of inspected swine.

Due to inexistence of a thecnical production significant tecnificada in the area, the analyses of competitiveness refer to simulations. The intention is it of determining the economical viability of the production of swine in the area-program, as well as to simulate his/her eventual national and international competitiveness. The exercises show that, in function of the structure of costs and effective prices now in the area, the activity didn't present economical sustainability for the producing of swine, mainly in function of the highest prices of the corn in the State. With this, the general competitiveness (simulated) of the swine production of the area in other markets, it is committed. Only the significant enlargement of the state production of corn and the reduction of their prices could make possible the industrial swine production in the area.

Transport logistics

In the end of 1997, the main road net of the State of Tocantins reached an extension of 9.452 km, of the which, 16% were paved and 8% in paving, against 76% no paved. Among the paved passages and in paving (2.259 km), 59% were under state jurisdiction and 41% under federal jurisdiction. The road net of Tocantins represents 3,6% of the Brazilian net of federal and state highways, while the territorial area of the State eqüivale to 3,3% of the national territory. Just considering paved highways, Tocantins answers for 1,2% of the paved national net. The paving tax is of 23,9% and the density of 5,35 km/1.000 km² of territorial area, what corresponds to 1/3 of the Brazilian medium density. The existent secondary highways, in the effective conditions, they have been constituting in inhibiting factor of the development of the agricultural activities, of mining and industrial in different areas of the State.

The highway Belém-Brasília (BR 153 and BR 226), that it crosses the State in the sense north-south, it is the main artery paved existent, and it works as axis articulador of the still precarious net road of Tocantins. In spite of relevance for the own national road system, this extensive longitudinal axis presents several segments needing recovery services and of maintenance in compatible levels with road functionality and with the volumes of traffic that now use it.

A rising of the conditions of the pavement of the highway Belém-Brasília in Tocantins, accomplished in 1997 by DNER, through the measurement of the International Index of Irregularity (IRI), it showed that 74,5% of the extension of this highway were in regular state, 12% in bad state and, just, 13,5% in good shape. Aiming at the recovery of the highways, the federal government included the highway Belém-Brasília in the Program of Restoration and Decentralization of Federal Highways, with forecast at the beginning of the works still in the year 2000.

The appropriate articulation of the road net of Tocantins goes by the implantation of structural axes road, in the sense east-west, to example of the following connections: i) the axis formed by the highway BR 242, interconnecting the plain of the Beautiful rivers and Javaés with the fertile areas of the Southeast of the State and of the West from Bahia; ii) the axis based on the highway BR 235, with beginning in Conceição do Araguaia (SHOVEL) and reaching the south of Maranhão and of Piauí and the important road crossing point of Petrolina (PE)/Juazeiro (BA); iii) the interligação, crossing to area-program, of Marabá (PA) with Carolina (MA), going by the poles microrregionais of Xambioá, Wanderlândia, Araguaína and Philadelphia and articulating that whole immense area with the Northeastern markets.

Emphasizing the diagnosis that it recommends an intense effort of improvement of the road net of the State, recent report of the Grupo Interministerial Agricultura-Transports (published in October of 1999) it indicated a series of priority interventions in 1.672 km of highways, besides in local highways, totaling investments around R$ 88,6 million, the they be executed in the horizons of short, medium and long periods. It i important to register that none of the interventions i located in the area-program, being distributed by areas where the agribusiness is better structured.

Nowadays, rail infrastructure doesn't exist in Tocantins. However, projected the Ferrovia Norte-Sul, crossing it longitudinally. The first stage of implantation of that rail axis already one find ended, in the neighbor Maranhão, with 226 km of lines, from the city of Strait (right margin of the river Tocantins) even Açailândia-where it is made the connection with the Estrada Carajás.

The rail terminal of Strait (MA) starts to have fundamental importance for the functionality of the system of transport of Tocantins, allowing through operation of rake-rail change, the integration of different producing areas, or with agricultural production potential, with the transport corridor formed by the railroads North-south and Carajás, that gives access to Porto of Itaqui, in São Luís (MA).

The line of the Açailândia-Imperatriz-Estreito passage, of the Ferrovia Norte-Sul is simple, in gage it releases (1,60 m), with maximum ramp of 0,6% in the two senses and minimum ray of 344 m. In Açailândia (MA) it is made the connection with the Estrada Carajás (EFC), also in simple line and gage releases, with minimum ray of 860 m and maximum ramp of 0,4%, in the export sense, and of 1,0%, in the contrary sense. The passage Açailândia-Porto of Itaqui has extension of 514 km.

Concerning the interior navigation, the State of Tocantins is served by the water transportation of the rivers Tocantins-Araguaia, the one which, however, it still doesn't present full conditions of navigability to be capable to make possible intense flows of transport with minimized costs. To revert that situation they are several necessary interventions, involving balizamento works, derrocagem, dams and signalling for warranty of appropriate conditions of navigability in the rivers: i) Araguaia (even Xambioá, extension of 1.230 km); ii) Tocantins (of Miracema to the terminal hidroviário to be built in Porto Franco-MA, in an extension of 440 km); iii) I laugh at the Deaths (from New Xavantina-MT to his/her confluence with the river Araguaia, in an extension of 580 km).

In the short period (while there is not navigation continuity, starting from Xambioá, towards the ports of the area of Belém-PA), the water transportation Tocantins-Araguaia it will be being operated in connection intermodal. In southern portion, the connections of the areas producing with the change points in the water transportation will be made by local highways. To the north, close to it area-programs, the water tranportation of Araguaia will be interlinked for railroad to the port terminals of São Luís (MA), being used, as interface, the road passages that, starting from Xambioá (TO), they give access to the rail terminals of Marabá (PA) or of Estreito (MA). The superior passage of the hidrovia of Tocantins has the north extremity now in Estreito (MA), where they are made the connections bus station (BR 010/BR 226) and rail (Ferrovia Norte-Sul).

The located port compound in São Marcos' stall, close to the capital from Maranhão, it is formed by the public port of Itaqui, administered by the Companhia Docas of Maranhão (CODOMAR), and for the private terminals of Ponta da Madeira and of Alumar.

That complex one is interlinked with the national road system through the highway BR 135, that it interconnects it to the highways BR 222 (to 95 km of Itaqui) and BR 316. The rail access is made by the lines of Co. Rail of the Northeast, in metric gage, and for Estrada Carajás's lines, in gage it releases.

The ports of São Marcos' Stall are characterized by the great depths, extensive access channel, entirely, wide fundeadouro areas, basin of calm evolution, protected of the winds and currents and, mainly, by the largest proximity of Europe, United States and Japan (in that case, through Panama canal).

The port of Itaqui has 1.616 meters of wharf acostável, with depth varying between 10,5 m and 20 m, used for the navigations of long course and of coastal traffic. A part of the wharf, with extension of 280 meters, is leased to Co. Vale do Rio Doce (CVRD), being used in operations of embarkment of ores and agricultural grains.

The harbor facilities of Itaqui still understand a grocery store of general load with capacity of 6.000 tons and area of 7.500m2; four patios for uncovered storage, totaling 42.200m2; and, located in the retroárea, two vertical silos and a horizontal one, used for agricultural barns, with total static capacity of 28.000 t, besides 28 tanks for deposit of fuel, perfazendo a total of 81.000 t of capacity. In the year of 1999, Itaqui was responsible for 18% of the total movement of loads in the port compound of São Marcos' Stall.

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Ponta da Madeira is a private port terminal, specialized in the export of solid barns, built and operated by CVRD in the area of the organized port of Itaqui. It is located in the margin east of São Marcos' Stall, opposite to the harbor facilities of Itaqui. Operand 24 hours a day, during everyday of the week, Tip of the Wood has two píeres-Píer 1, with 490 meters in length and quiet of 23 meters, it is capable to receive ships of up to 420 thousand TPB and it presents capacity of embarkment of 16.000 t/h for ores; Píer 2, with smaller extension (280 meters) and quiet of 18 meters, it supports ships of up to 155 thousand TPB and it has embarkment capacity differentiated, according to the load type: 8.000 t/h for ores, 2000 t/h for iron-cast iron and 1.500 t/h for soy.

Ponta da Areia understands a terminal retroportuário equipped with two cables of wagons, two empilhadeiras, patios of stockpiling of ores and cast iron (125.000 m2), peneiramento plant, besides two recuperadoras and belts carriers that feed two loaders of ships. It disposes, still, of own silos (22.500 t), or in partnership with third (Ceval and Cargill, both with capacity of 50.000 t), totaling a capacity of storage of agricultural grains of the order of 122,5 thousand tons. In the last years, the movement of loads in Ponta da Areia she have been maintaining close to 38 Mt / year.

In the current conditions, limiting to the modal road, the transport cost, in broken up with distances of the order of 2000 km, until the ports of Vitória, Santos or Paranaguá, it makes unfeasible the competitiveness of the export of agricultural grains that come to be produced in the area-program. Therefore, Transporte Center-north's Corridor's Multimodal complete implantation (vide following picture-summary), involving the modal ones road, rail and hidroviário, starts to be of fundamental importance to make possible the regional agricultural competitiveness.

In the short and medium period, until that the interventions are ended of it sets up programmed for water tranport of Tocantins-Araguaia, the operations rake-rail intermodais, based on the rail system formed by EFC and Ferrovia Norte-Sul, they should carry out a relevant function in the logistics of drainage of agricultural loads of the area-program.

For service to the producing of agricultural grains of the south of Maranhão and of the State of Tocantins, it is had a logistics system integrated that it involves the change of the modal road for the railway man, until then in Imperatriz's terminal (MA) and from now on in the new terminal of Estreito (MA), and the embarkment of the loads in ships moored in the port terminal of Tip of the Wood. That system is being used for the soy export produced in the south of the states of Maranhão and Piauí and in Tocantins, with transport costs minimized in relation to other Brazilian corridors of export

With base in trees of minimum roads, starting from the minimization of the widespread cost of transport, of the poles selected as origin of the flows in the area-program to the main commercialization centers and or I consummate, it was possible to generate the head office of minimum distances in kilometers for the equal different origin/destiny. The values of freights presented in the following tables don't include imposed and safe and they correspond to the price collected by the transporters for the movement of the analyzed agricultural loads, in the current conditions of production, commercialization and transport.

Soy bean

Now, the still incipient production of soy of the area-program is marketed and destined to the storage in Pedro Afonso's poles (Cooperative) and Rafts (Ceval and Cargill), being transported by the modal road. To leave of those two poles, the soy is exported, being embarked in the port terminals of São Luís (MA)-Itaqui or Ponta da Madeira.

In the following picture, they are presented, for the different ones broken road the respective transport freights for truck, the rail freight between Strait and São Luís (including change cost), the port cost incurred the movement in the terminal of Ponta da Madeira and the marine freight in the route São Luís-Rotterdan.

The reached results allow to determine total costs of transport for the export of soy of the area (including the international transport), in the current conditions, considering three access alternatives to the port terminal: (a) access rake-rail direct: R$ 68,75/t.; (b) access rake-rail he/she saw Rafts: R$ 90,60/t. and (c) access rake-rail he/she saw Pedro Afonso: R$ 97,87.

Rice

The drainage of the production of rice is made by the modal road, so much in the supply of the industry beneficiadora as in the commercial distribution flows. The medium distance of transport is of the order of 135,9 km, with medium freight of R$ 8,22/t, what means medium unit costs of R$ 0,0589 / t/km, in the effective conditions.

Pineapple

Araguatins is pole producing of pineapple in the area-program. The drainage of that production, that is destined to the middlemen that operate in Miracema, is made in trucks trucados, loaded with 10 tons (around 6.500 fruits). In that supply flow, with 534,7 km of course, the freight is of the order of R$ 18,71/t, with a consequent medium unit cost of transport of R$ 0,035 / t/km. In the current conditions, that freight is a cost of the buyer of the merchandise.

Table 3 - Corridor Multimodal of Transport Center-North

Quadro-sumário: Características Atuais e Adquiridas

Sistema	Rota	Características Atuais	Obras Previstas	Custo (R$ 10^6)	Meio de Transporte	Benefícios
Hidroviário ("Tocantins-Araguaia")	Aruanã (GO) / Xambioá (TO)	Navegação regional durante todo o ano; restrições a jusante de Couto de Magalhães (TO), na estiagem.	Balizamento e sinalização; dragagem e derrocamento; enrocamento, canal lateral e pequena eclusa.	44,6	Comboio de 16 x 110 m, calado de 1,5 m e capacidade de 2.000 t. de carga.	Melhorar a ligação da área de influência dos sistemas modais ao porto de Itaqui (MA).
	Nova Xavantina (MT) / São Felix do Araguaia (MT)	Navegação regional durante todo o ano.	Balizamento e sinalização; dragagem e derrocamento; aprofundamento.	6,8		
	Miracema (TO) / Estreito (MA)	Navegação regional durante todo o ano.	Balizamento e sinalização; dragagem e derrocamento.	11,5		
Ferroviário ("Norte-Sul")	Imperatriz (MA) / Estreito (MA)	Ramal em operação.	Obras concluídas	103,0	Composição de tração diesel-elétrica, com vagões graneleiros de 89,5 t. cada um. Bitola de 1,6 m.	
	Xambioá (TO) / Araguaína (TO) / Estreito (MA)	Estudo em elaboração.	A definir	A definir		
Rodoviário ("Belém-Brasília")	Divisa GO/TO / Araguaína (TO) / Estreito (MA)	Vários segmentos em condições inadequadas de tráfego, requerendo serviços de recuperação e manutenção rodoviária.	Obras de restauração e conservação incluídas no Programa de Restauração e Descentralização de Rodovias Federais.	Sem informação	Caminhão de 2, 3 e mais de 3 eixos.	Melhorar as condições de tráfego nas ligações internas e com outros estados brasileiros, inclusive articulando outros modais do corredor.

The produced pineapple or marketed in the area of Miracema, the largest producing of the State, is destined so much to the domestic market as for the of other Brazilian states. In the external flows of pineapple, original in Miracema and destined to capitals of the Southeast and Center-west, the considered medium freight is of R$ 56,56 / t, for a medium distance of transport of 1.414 km, what produces a moment of transport of R$ 0,04 / t/km.

Tabela 4 - Custo de Transporte de Soja

SOJA		CUSTO DE TRANSPORTE						
Área produtora: ARAGUAÍNA								
Transporte de Soja para Exportação	Origem	Araguaína			Balsas	P. Afonso	Estreito	São Luís
	Destino	Balsas	P. Afonso	Estreito	Estreito		São Luís	Rotterdan
Extensão	Km	262,9	265,7	124,9	260,	390,7	74	
Transp. Rodoviário	R$ / t.km	0,054	0,054	0,054	0,054	0,054		
	R$ / t.	14,4	14,5	6,8	14,2	21,4		
Transp. Ferroviário	R$ / t.km						0,026	
	R$ / t.						19,3	
Custo Portuário (*)	R$ / t.							12,8
Frete Marítimo (*)	R$ / t.							29,7
Custo total de transporte, inclui transporte marinho	Acesso ao porto de Ponta da Madeira	Rodo-ferroviário Direto (R$ /						68,7
		Rodo-ferroviário via Balsas (R$ /						90,6
		Rodo-ferroviário via Pedro Afonso (R$ /						97,8

(*) Câmbio: US$ 1,00 = R$

Banana

The production of banana prata in the area-program is concentrated in the poles of Araguaína and Xambioá and it is destined to the domestic markets of other states. The destined flows the other states go to the wholesale trading installed in CEASAs of Belém and São Luís and of Rio de Janeiro, Belo Horizonte and Brasília.

In the destined flows the those capitals, with a medium distance of transport of 1.479 km, he/she is practiced a considered medium freight of the order of R$ 71,00/t, what implicates in a medium moment of transport of R$ 0,048 / t/km.

Coconut (Coco-anão)

The still small coco-anão production is concentrated in the poles of Araguaína and Tocantinópolis and it is destined to the domestic market (neighboring areas and Palmas) and to the market of Goiânia. The movement is made with the fruits deposited in the truck of the truck, without any packing type. With a medium distance of transport of 578 km, the medium freight is of the order of R$ 22,15/t, what produces a medium moment of transport of R$ 0,0383 / t/km.

Melancia

In the area of Araguaína a small watermelon production exists, marketed in Imperatriz (MA), generating a transport flow with 250 km of course. The freight practiced in that transport, done in trucks of 2 axes, with 8 tons of load, it is of the order of R$ 18,74 t., what means the practice of a moment of transport of R$ 0,0751 / t/km.

Table 5 - I Cost of Transport of Rice

ARROZ **CUSTO DE TRANSPORTE**

Áreas produtoras: ARAGUAÍNA,

Produto	Fluxo		Rota Ótima	Veículo			Frete		
	Origem	Destino	(km	Tipo	Eixo	Carga	Viagem(R	R$ / t.km	R$ / t
Arroz	Araguaína	Tocantinópolis	147,	Caminhão	3	1	112,00	0,0541	8,00
		Xambioá	108,	Caminhão	3	1	112,00	0,0741	8,00
	Tocantinópoli	Araguaína	147,	Caminhão	3	1	112,00	0,0541	8,00
		Xambioá	152,	Caminhão	3	1	112,00	0,0526	8,00
	Xambioá	Araguaína	108,	Caminhão	3	1	112,00	0,0741	8,00
		Tocantinópolis	152,	Caminhão	3	1	112,00	0,0526	8,00
	Distância e Custo Médio:		**135,9**				**112,00**	**0,0589**	**8,00**

Fonte: ajuste da pesquisa de 1997, balizado pelo

Cattle Bovine and refrigerating meat

In the area-program, the cut bovine generates two main categories of transport flow: i) of the cattle in foot, of the creative areas for the freezers, located in Araguaína and in Hills of Tocantins, or of the creative areas for the areas of it recreates and fattening (transport of calves); ii) of the refrigerating meat, of the discount centers for the consuming areas-acted by Northeastern capitals and for the markets of Rio de Janeiro and São Paulo. The transport of the ox-in-foot is made by the road way, in truck-cowboys ("cage") that transport up to 20 oxen or from 35 to 40 calves, what represents a medium load of 6 tons for vehicle.

The calf transport in foot, destined to it recreates her and fattening in the area of Araguaína, presents medium distance of course of 270 km and a medium freight of R$ 76,48/t, with a consequent moment of transport of R$ 0,2835 / t/km.

Tabela 6 - Custo de Transporte de Banana, Coco-Anão e Melancia

ABACAXI, BANANA, CÔCO-ANÃO E MELANCIA — **CUSTO DE TRANSPORTE**

Áreas produtoras: ARAGUAÍNA, ARAGUATINS, TOCANTINÓPOLIS e

Produt	Flux		Rota (km)	Veícul			Fret		
	Orige	Destin		Tipo	Eixo	Carga	Viagem(R	R$ /	R$ / t
Abaca	Araguati	Miracem	534,	Caminhã	3	10	187,1	0,035	18,7
	Miracem	Anápoli	875,	Caminhã	3	10	350,1	0,040	35,0
		Belo	1.713,	Caminhã	3	10	685,2	0,040	68,5
		Brasíli	1.018,	Caminhã	3	10	407,1	0,040	40,7
		Goiâni	943,	Caminhã	3	10	377,5	0,040	37,7
		Rio de	2.156,	Caminhã	3	10	862,5	0,040	86,2
		Salvado	1.374,	Caminhã	3	10	549,8	0,040	54,9
		São	1.817,	Caminhã	3	10	727,0	0,040	72,7
	Distância e Custo Médio - p/		**534,**				**187,1**	**0,035**	**18,7**
	Distância e Custo Médio - p/		**1.414,**				**565,6**	**0,040**	**56,5**
Banan	Araguaín	Belé	784,	Caminhã	3	12	720,0	0,076	60,0
		Belo	1.969,	Caminhã	3	12	900,0	0,038	75,0
		Brasíli	1.274,	Caminhã	3	12	720,0	0,047	60,0
		Rio de	2.413,	Caminhã	3	12	1.080,0	0,037	90,0
		São	829,	Caminhã	3	12	840,0	0,084	70,0
	Xambio	Belé	676,	Caminhã	3	12	720,0	0,088	60,0
		Belo	2.077,	Caminhã	3	12	900,0	0,036	75,0
		Brasíli	1.382,	Caminhã	3	12	720,0	0,043	60,0
		Rio de	2.521,	Caminhã	3	12	1.080,0	0,035	90,0
		São	862,	Caminhã	3	12	840,0	0,081	70,0
	Distância e Custo		**1.479,**				**852,0**	**0,048**	**71,0**
Melanci	Araguaín	Imperatri	249,	Caminhã	2	8	149,9	0,075	18,7
	Distância e Custo		**249,**				**149,9**	**0,075**	**18,7**
Côco-	Araguaín	Goiâni	1.200,	Cam.	3	12	576,3	0,040	48,0
		Palma	385,	Cam.	3	12	168,0	0,036	14,0
	Tocantinópo	Araguaín	147,	Cam.	3	12	53,2	0,030	4,43
	Distância e Custo		**578,**				**265,**	**0,038**	**22,1**

Fonte: pesquisa de campo e ajuste da pesquisa

In the internal flows of ox in foot, with medium distance of transport of 275 km, it is practiced a medium freight of R$ 45,78 / t, what means an in kilometers unit cost of R$ 0,3333 / t/km. In the external flows, the medium distance of transport reaches 1.236 km and he/she is practiced a medium freight of R$ 329,50 / t, resulting in a moment of transport of R$ 0,2667 / t/km.

The original meat of the slaughterhouses of Araguaína is destined to the Northeast and the markets of Rio de Janeiro and São Paulo, being transported in refrigerating vehicles (truck or cart) in courses with medium extension of 1.868 km. In the transport for truck (loaded with 12 tons), the medium freight is of the order of R$ 167,48 / t, which is reduced for R$ 134,64 in the case of the transport in carts (load of 24 tons). Those practiced medium values produce moments of transport of the order of R$ 0,0896 / t/km and R$ 0,0721 / t/km, respectively.

Milk and flowed

Concerning the transport of milk long life, produced in the area of Araguaína, the destinies correspond to the Northeastern market (Fortaleza, Recife and São Luís), to Federal district, to the markets of the Southeast (São Paulo, Rio de Janeiro and Belo Horizonte), besides the own state market (acted by the pole of Hills). For those flows, with medium distance around 1.480 km, they are practiced medium freights of R$ 87,75 / t, in the transport for truck, and of R$ 45,50 / t, in the transport in carts, what results in medium moments of transport of R$ 0,0593 / t/km and R$ 0,0307 / t/km, respectively.

The flows of pasteurized milk and cheeses, with medium distance of transport of the order of 1.367 km, have for origin the poles of Araguaína, Augustinópolis and Imperatriz (municipal district from Maranhão where the milk is benefitted captured in the basin of Rio Novo). They are practiced medium freights of R$ 81,03 / t, in the transport in truck trucado, and of R$ 42,02 / t, in the case of transport for cart, what results in medium moments of transport of R$ 0,0593 / t/km and R$ 0,0307 / t/km, respectively.

Table 7 - I Cost of Transport of Ox in foot and Bovine Meat

BOI EM PÉ E CARNE BOVINA — **CUSTO DE TRANSPORTE**

Áreas produtoras: ARAGUAÍNA, TOCANTINÓPOLIS e XAMBIOÁ

Produto	Fluxo		Rota Ótima (km)	Veículo			Frete		
	Origem	Destino		Tipo	Eixos	Carga (t)	Viagem(R$)	R$ / t.km	R$ / t
Bezerro em Pé	Balsas	Araguaína	262,9	Cam. Boiadeiro	3	6	420,67	0,2667	70,11
	Estreito		125,0	Cam. Boiadeiro	3	6	249,90	0,3333	41,65
	Gurupi		543,2	Cam. Boiadeiro	3	6	869,24	0,2667	144,87
	Tocantinópolis		147,8	Cam. Boiadeiro	3	6	295,62	0,3333	49,27
	Distância e Custo Médio:		**205,4**				**358,15**	**0,2907**	**59,69**
Boi em Pé	Araguaína	Colinas	98,0	Cam. Boiadeiro	3	6	196,00	0,3333	32,67
		Fortaleza	1.293,3	Cam. Boiadeiro	3	6	2.069,30	0,2667	344,88
		Recife	1.692,2	Cam. Boiadeiro	3	6	2.707,55	0,2667	451,26
		São Luís	829,2	Cam. Boiadeiro	3	6	1.326,72	0,2667	221,12
		Sobral	1.071,2	Cam. Boiadeiro	3	6	1.713,94	0,2667	285,66
	Tocantinópolis	Fortaleza	1.149,5	Cam. Boiadeiro	3	6	1.839,14	0,2667	306,52
		Recife	1.729,2	Cam. Boiadeiro	3	6	2.766,78	0,2667	461,13
		Salvador	1.713,3	Cam. Boiadeiro	3	6	2.741,20	0,2667	456,87
		São Luís	685,4	Cam. Boiadeiro	3	6	1.096,56	0,2667	182,76
	Xambioá	Araguaína	108,0	Cam. Boiadeiro	3	6	216,00	0,3333	36,00
		Belém	676,5	Cam. Boiadeiro	3	6	1.082,43	0,2667	180,41
		Colinas	206,0	Cam. Boiadeiro	3	6	412,00	0,3333	68,67
		Fortaleza	1.326,5	Cam. Boiadeiro	3	6	2.122,40	0,2667	353,73
		Recife	1.800,2	Cam. Boiadeiro	3	6	2.880,35	0,2667	480,06
		São Luís	862,4	Cam. Boiadeiro	3	6	1.379,82	0,2667	229,97
	Distância e Custo Médio - Fluxos Internos:		**137,3**				**274,67**	**0,3333**	**45,78**
	Distância e Custo Médio - Fluxos Externos:		**1.235,7**				**1.977,2**	**0,2667**	**329,5**
Carne Frigorificada	Araguaína	Fortaleza	1.293,3	Cam. Frigorífico	3	12	1.440,00	0,0928	120,00
		Recife	1.692,2	Cam. Frigorífico	3	12	1.440,00	0,0709	120,00
		Rio de Janeiro	2.413,1	Cam. Frigorífico	3	12	2.774,10	0,0958	231,17
		São Paulo	2.074,5	Cam. Frigorífico	3	12	2.384,88	0,0958	198,74
		Fortaleza	1.293,3	Cam. Frigorífico	5	24	2.160,00	0,0696	90,00
		Recife	1.692,2	Cam. Frigorífico	5	24	2.160,00	0,0532	90,00
		Rio de Janeiro	2.413,1	Cam. Frigorífico	5	24	4.627,36	0,0799	192,81
		São Paulo	2.074,5	Cam. Frigorífico	5	24	3.978,12	0,0799	165,75
	Distância e Custo Médio - Caminhão		**1.883,4**				**1.912,44**	**0,0846**	**159,37**
	Distância e Custo Médio - Carreta						**3.069,06**	**0,0679**	**127,88**

Fonte: pesquisa junto a transportadores atuantes na região

Table 8 - Cost of Transport of Milk and Dairy products

LEITE E LATICÍNIOS — **CUSTO DE TRANSPORTE**

Áreas produtoras: ARAGUAÍNA, TOCANTINÓPOLIS e XAMBIOÁ

Produto	Fluxo		Rota Ótima (km)	Veículo			Frete		
	Origem	Destino		Tipo	Eixos	Carga (t)	Viagem(R$)	R$ / t.km	R$ / t
Leite in natura	Filadélfia	Araguaína	93,5	Caminhão	2	4	120,00	0,3210	30,00
	Muricilândia	Araguaína	12,0	Caminhão	2	4	120,00	2,5000	30,00
	Araguatins	Augustinópolis	44,0	Caminhão	2	4	120,00	0,6818	30,00
	Buriti	Augustinópolis	38,0	Caminhão	2	4	120,00	0,7895	30,00
	Sampaio	Augustinópolis	8,0	Caminhão	2	4	120,00	3,7500	30,00
	Araguaína	Colinas	98,0	Caminhão	2	4	120,00	0,3061	30,00
	Filadélfia	Colinas	191,5	Caminhão	2	4	120,00	0,1567	30,00
	Muricilândia	Colinas	110,0	Caminhão	2	4	120,00	0,2727	30,00
	Distância e Custo Médio:		74,4				120,00	0,4034	30,00
Leite resfriado	Sítio Novo	Imperatriz	24,0	Cam. Frigorífico	3	14	111,98	0,3344	8,00
	Sítio Novo	Imperatriz	24,0	Cam. Frigorífico	5	27	215,97	0,3344	8,00
	Distância e Custo Médio:		24,0				163,98	0,3333	8,00
Leite longa vida	Araguaína	Belo Horizonte	1.969,9	Caminhão	3	14	1.635,02	0,0593	116,79
		Brasília	1.274,8	Caminhão	3	14	1.058,08	0,0593	75,58
		Colinas	98,0	Caminhão	3	14	81,34	0,0593	5,81
		Fortaleza	1.293,3	Caminhão	3	14	1.073,45	0,0593	76,67
		Recife	1.692,2	Caminhão	3	14	1.404,54	0,0593	100,32
		Rio de Janeiro	2.413,1	Caminhão	3	14	2.002,87	0,0593	143,06
		Salvador	1.676,2	Caminhão	3	14	1.391,27	0,0593	99,38
		São Luís	829,2	Caminhão	3	14	688,24	0,0593	49,16
		São Paulo	2.074,5	Caminhão	3	14	1.721,86	0,0593	122,99
		Belo Horizonte	1.969,9	Carreta	5	27	1.635,02	0,0307	60,56
		Brasília	1.274,8	Carreta	5	27	1.058,08	0,0307	39,19
		Colinas	98,0	Carreta	5	27	81,34	0,0307	3,01
		Fortaleza	1.293,3	Carreta	5	27	1.073,45	0,0307	39,76
		Recife	1.692,2	Carreta	5	27	1.404,54	0,0307	52,02
		Rio de Janeiro	2.413,1	Carreta	5	27	2.002,87	0,0307	74,18
		Salvador	1.676,2	Carreta	5	27	1.391,27	0,0307	51,53
		São Luís	829,2	Carreta	5	27	688,24	0,0307	25,49
		São Paulo	2.074,5	Carreta	5	27	1.721,86	0,0307	63,77
	Distância e Custo Médio - Caminhão:		1.480,1				1.391,27	0,0593	87,75
	Distância e Custo Médio - Carreta:							0,0307	45,50
	Araguaína	Belo Horizonte	1.969,9	Cam. Frigorífico	3	14	1.635,02	0,0593	116,79
		Brasília	1.274,8	Cam. Frigorífico	3	14	1.058,08	0,0593	75,58
		Colinas	98,0	Cam. Frigorífico	3	14	81,34	0,0593	5,81
		Fortaleza	1.293,3	Cam. Frigorífico	3	14	1.073,45	0,0593	76,67
		Recife	1.692,2	Cam. Frigorífico	3	14	1.404,54	0,0593	100,32
		Rio de Janeiro	2.413,1	Cam. Frigorífico	3	14	2.002,87	0,0593	143,06
		Salvador	1.676,2	Cam. Frigorífico	3	14	1.391,27	0,0593	99,38
		São Luís	829,2	Cam. Frigorífico	3	14	688,24	0,0593	49,16
		São Paulo	2.074,5	Cam. Frigorífico	3	14	1.721,86	0,0593	122,99
		Belo Horizonte	1.969,9	Cam. Frigorífico	5	27	1.635,02	0,0307	60,56
		Brasília	1.274,8	Cam. Frigorífico	5	27	1.058,08	0,0307	39,19
		Colinas	98,0	Cam. Frigorífico	5	27	81,34	0,0307	3,01
		Fortaleza	1.293,3	Cam. Frigorífico	5	27	1.073,45	0,0307	39,76
		Recife	1.692,2	Cam. Frigorífico	5	27	1.404,54	0,0307	52,02
		Rio de Janeiro	2.413,1	Cam. Frigorífico	5	27	2.002,87	0,0307	74,18
		Salvador	1.676,2	Cam. Frigorífico	5	27	1.391,27	0,0307	51,53
		São Luís	829,2	Cam. Frigorífico	5	27	688,24	0,0307	25,49

Competitiveness

Besides the qualitative evaluations of the agricultural production of the area-program, the present work measured the competitiveness of presses of several products, through the decomposition of their presses in the destiny markets to the regional price, as details presented in the ENCLOSURE.

If the decomposed final price, in other words, deduced the costs intermediation (it freights, port costs, remuneration of services, etc.), it goes larger than the price in the origin area (area-program), it can be concluded by the competitiveness of the product, once that difference, denominated margin of competitiveness, it is an incentive, in the form of additional remuneration to the producer and/or to the intermediate/mercahnt that acquire the product in the area-program.

For the rice of Tocantins and of the area-program, it was verified that, if it assists to the demands of quality of the markets, it presents competitiveness of prices in the international markets and national, with margin of competitiveness of 20% and 33%, respectively.

In the case of the bean, as the international trade it is insignificant, it was just calculated the competitiveness in the national market, having been verified that the production of the area-program is quite competitive, with margin of competitiveness of 46%.

For the corn produced in Tocantins, the data show that, in the current conditions, there is no competitiveness of prices in the international markets and national, this last one burdened excessively by the costs of the road transport.

The soy tocantinense presents competitiveness of prices in the international market, with margin of competitiveness of the order of 30%. However, in the national market, it is not competitive, in function of the high transport costs to the main markets.

The cotton produced in Tocantins presented small margin of competitiveness in the international market, of 7%. However, it doesn't present competitiveness in the markets of the areas South and Southeast, in function of the transport costs. As the national market presents good opportunities for this product, it is necessary just not to improve the regional productivities, but to address the production for the market of the Northeast, where there is a dynamics textile industry.

For the pineapple, the margin of international competitiveness was of 177%. However, the complex export logistics and conquest of foreign markets, the scale of requested production, as well as the own competition of the national market for the production pineapple tocantinense indicates that the domestic market should continue being the priority of the regional production. The competitiveness in the national market presented margin of 150%.

In the case of the banana, it was concluded by the lack of international and national competitiveness, with negative margins of competitiveness in both markets. Like this, the production owes if it returns for the service of the regional demand and of specific markets of the Northeast.

For the mango, the competitiveness were not evaluated, once the regional production is insignificant. However, it is known that the time between harvests production has good opportunities in the domestic market for who can accomplish her.

The evaluation of the competitiveness of the meat production in Tocantins, verified a margin of international competitiveness of 45%, at the same time in that it is known that the Brazilian costs are the smallests of the international market. In the same way, it was ended that, also in the domestic market, the livestock of cut tocantinense presents competitiveness of prices, with margin of competitiveness of 20%.

For the production of milk, it was verified that the activity doesn't present economical sustainability of long period, once the production costs in the area-program are superior to the prices received by the producers. Like this, the production survives as subsistence activity and by-product of the creation of calves for cut. Its priority market, therefore, it is the regional. The improvement of the creation indexes, through the technology diffusion, is fundamental.

It was evaluated, still, the competitiveness of the cattle bovine as alternative for the small regional cattle production, being ended that this activity, for the rusticity and productivity of the buffalos in production systems of low technological level and in atmosphere of degraded pastures, it is more competitive than the cut livestock and milk practiced in subsistence character.

In the case of the swine production, the data show that it doesn't also present economical sustainability of long period, in the current circumstances, once the production costs would overcome the incomes, fundamentally in function of the high prices of the corn practiced in the area. As the activity is inexpressive in the area-program, the calculations were made with base in hypothetical production, obeying the regional reality.