(11) Bovine

(11.1) World Balance

The world bovine population is concentrated in ten countries with about 850 million heads, 80,30% of the total flock. Brazil has the largest commercial bovine flock, (154,5 million heads) since India, for religious subjects, doesn't use his bovine flock for meat production. As for to world production, the ten countries larger producers are responsible for about 36 Mt year, approximately 73% of the produced total volume. The largest producers are the United States, with 11,5 to 12 Mt/ano (24,5%) and Brazil with 6,5 to 7,0 million (14,3%).

In the scenery of the exports, the nine striped countries in the Tabela III.106 answer for 93%, about 6,4 Mt year. The prominences are for the European Union with 32,5%, Australia with 19% and the United States with 14,4%. Brazil, although put between the 6th and 7th place in the ranking of the countries world exporters of bovine meat during the 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 this year. In case this happens, it will go to the 4th place, behind the European Union, Australia and United States. The goal of the national livestock is the export of 1 Mt of meat/year, in the short period. As for the imports, seven countries are responsible for 89% of the market (it Fixes III.106). These countries are in the block of the countries free from the fever aftosa, still imposing rigorous sanitary barriers to the meat originating from bovine countries subjects to the fever aftosa.

The productivity of the Brazilian flock, measured by the discount tax (heads existent abatidas/rebanho), it reaches levels from 20% a year, considered low if compared with countries of developed livestock: United States (37,7%), Australia (36,12%), Germany (30,86%), France (28,66%) and Argentina (24,88%). It can be affirmed that in Brazil exists available technology so that she can reach the levels of productivity of Argentina (24,88%) or of Australia (36,12%), country this with climate characteristics and soil very similar to Brazil. This lowers tax of discount of the Brazilian bovine flock is associated to a production system extensive consequence of a traditionalism of the production section and processing, with low technology job.

The global consumption of bovine meat has been influenced by subjects that are going from the consumers' concern with the health, with the conservation of the environment and, mainly, with the changes in the relative prices of competitive meats, the one of chicken. III.107 shows the total consumption of the main meats consumed in some areas. It is noticed that the increase of the consumption of meat of birds, it has been superior to the of the bovine meat, except Japan and South Korea. Like this, in the decade of 90, the growth of the consumption of meat of birds in the United States was of 27,73%, in Brazil, 59,63%, and in the European Union, 15,50%. In this period, the consumption of bovine meat stayed stable in the United States and European Union, in Brazil had a small growth (7,6%) and it increased a lot in Japan and South Korea (41,97%).

The largest growth of the per capita consumption of bovine meat has been observed in Asia. In some countries of the European Union a drastic fall has been observed in function of the several sanitary problems of the flocks (crazy cow, dioxin) and in the countries of the old Soviet Union the consumption fall is due to economical problems.

Table III.106 - Main producing countries, exporters and importers of bovine meat

COUNTRIES	1991	1992	1993	1994	1995	1996	1997	1998	1999*	2000**
1-flocks (thousands of heads)										
Indian	288,056	290,392	291,973	293,922	296,462	299,802	303,030	306,967	312,572	319,724
Brazil	156,110	154,699	152,980	153,701	154,300	151,826	152,426	154,470	157,887	158,435
China	104,592	107,840	113,157	123,317	132,058	110,318	116,874	124,000	133,000	143,000
USE	97,566	99,176	100,974	102,785	103,548	101,656	99,744	98,522	96,595	96,477
Argentinean	55,299	55,577	54,875	54,207	53,569	51,696	49,238	49,437	49,342	49,412
Russia	54,677	52,226	48,914	43,296	39,700	35,800	31,500	28,600	26,600	24,815
Australia	25,857	25,182	25,758	25,736	26,500	26,780	26,710	25,833	25,900	26,300
Mexico	30,232	30,649	30,702	30,191	28,140	26,822	25,628	24,498	23,232	21,888
France	20,970	20,383	20,112	20,524	20,662	20,557	20,154	20,097	19,800	19,500
Germany	17,134	16,207	15,897	15,962	15,890	15,760	15,227	14,943	14,574	14,314
Other	260,787	255,150	244,261	229,953	221,038	215,400	211,814	208,321	206,673	205,759
TOTAL	1.111,28	1.107,48	1.099,60	1.093,59	1.091,867	1.056,41	1.052,34	1.055,688	1.066,175	1.079,62
2 - production (a thousand tons of equivalent carcass)										
USE	10,534	10,613	10,584	11,194	11,585	11,749	11,714	11,804	12,050	11,432
Brazil	5,812	6,196	6,011	6,021	6,467	6,863	6,411	6,501	6,522	7,322
China	1,536	1,803	2,337	3,270	4,154	3,557	4,150	4,288	4,360	4,560
Argentinean	2,650	2,520	2,550	2,600	2,600	2,580	2,975	2,600	2,800	2,760
Russia	3,989	3,632	3,359	3,240	2,734	2,570	2,326	2,090	1,910	1,800
Australia	1,735	1,838	1,806	1,829	1,717	1,736	1,942	1,987	1,880	1,860
Mexico	1,580	1,660	1,710	1,810	1,850	1,800	1,795	1,800	1,765	1,790
Indian	1,459	1,381	945	1,025	1,100	925	1,430	1,593	1,660	1,700
France	1,860	1,831	1,704	1,588	1,648	1,685	1,677	1,586	1,560	1,580
Germany	2,182	1,826	1,575	1,447	1,407	1,483	1,448	1,367	1,322	1,320
Other countries	18,313	17,574	15,688	14,541	13,789	13,443	13,613	13,416	13,178	13,033
TOTAL	51,650	50,874	48,269	48,565	49,051	48,391	49,481	49,032	49,007	49,157
3 - exports (a thousand tons of equivalent carcass)										
United States	539	601	578	731	826	851	969	985	1,071	1,027
European union	3,003	2,969	2,877	2,882	2,722	2,365	2,417	2,221	2,182	2,171
Australia	1,080	1,191	1,169	1,168	1,092	1,016	1,147	1,262	1,220	1,235
New Zealand	428	426	448	466	504	515	531	519	420	450
Argentinean	390	296	280	376	520	470	437	291	340	350
Brazil	335	442	451	376	287	280	287	370	541	600
Canada	109	159	191	220	219	286	360	416	465	480
China	222	75	155	74	95	79	36	66	40	45
Other countries	1196	1116	904	857	682	698	776	724	650	690
TOTAL	7,302	7,275	7,053	7,150	6,947	6,560	6,960	6,854	6,929	7,048
4 - import (a thousand tons of equivalent carcass)										
USA	1,091	1,107	1,089	1,075	954	940	1,063	1,198	1,272	1,368
Japan	508	591	731	842	927	899	924	951	972	985
Russia	1,296	734	409	542	614	604	628	492	505	505
Un. European	2,105	2,206	2,125	2,168	2,076	1,797	1,888	1,814	1,858	1,663
Canada	217	221	270	286	256	237	252	240	250	275
South Korea	176	183	132	165	194	191	199	107	180	240
Mexico	120	130	96	90	42	82	148	202	228	237
Other countries	621	662	692	700	714	677	703	613	597	494
TOTAL	6,134	5,834	5,544	5,868	5,777	5,427	5,805	5,617	5,862	5,767

* Preliminary * * Forecast
SOURCE: ANUALPEC/2000

Table III.107-Per capita consumption of meats in some countries and areas

Year	United States				European union				Brazil				Japan + South Korea			
	Bird	Bov	Swine	Total	Bird	Bov	Swine	Total	Bird	Bov	Swine	Total	Bird	Bov	Swine	Total
1991	-	43,8	29,4	-	-	21,00	39,6	-	-	38,0	7,3	-	-	8,1	15,6	-
1992	33,9	43,6	31,0	108,5	14,2	20,50	41,4	76,1	16,1	39,4	7,5	63,0	13,2	8,4	16,7	38,3
1993	35,6	42,7	30,6	108,9	14,1	19,9	47,1	81,1	17,6	37,2	7,8	62,6	11,0	8,8	17,0	36,8
1994	36,4	44,2	31,0	111,6	14,7	20,0	42,6	77,3	18,5	37,5	7,9	63,9	10,9	10,0	17,4	38,3
1995	35,9	44,6	30,6	111,1	14,8	19,7	43,1	77,6	22,2	40,7	8,7	71,6	11,2	10,7	17,6	28,3
1996	37,0	44,8	28,7	110,5	15,6	18,8	43,4	77,8	21,1	42,8	9,4	73,3	11,4	10,5	18,0	39,9
1997	38,0	43,9	28,5	110,4	16,0	19,1	41,7	76,8	22,7	39,2	8,9	70,8	11,0	11,1	17,7	39,8
1998	38,3	44,6	30,7	113,6	16,2	19,3	44,3	79,8	22,9	38,5	9,3	70,7	10,5	10,5	18,5	39,5
1999	41,1	45,0	31,3	117,4	16,2	19,6	45,4	81,2	24,4	36,9	9,6	70,9	10,8	11,1	18,7	40,6
2000	43,3	42,8	30,2	116,0	16,4	20,2	45,7	82,3	25,7	40,9	10,1	76,7	10,9	11,5	18,8	41,2
%	27,73	Est.	Est.	-	15,5	Est.	15,40	-	59,63	7,6	38,36	-	Neg.	41,97	20,51	-

FONTE: ANUALPEC 2000

The Tabela III.108 shows the prices of the at sign of the fat ox practiced in Brazil (base São Paulo), in Argentina, Uruguay and United States. These prices are nominal, expressed in dollars north American,

being therefore affected for changes in the exchange rates, as the one that it happened in Brazil the starting from 1999.

Table III.108-Prices in the World Market of Cattle
(US$/arroba of fat ox)

Countries	1995	1996	1997	1998	1999	Média
Brasil	26,19	22,79	24,40	23,77	18,57	23,14
Argentina	24,72	25,95	28,11	31,75	24,80	27,07
Uruguai	24,44	23,93	24,58	26,31	22,65	24,38
Estados Unidos	45,75	44,60	45,38	43,24	46,62	45,12

Source: ANUALPEC/2000 (FNP. Consultoria e Comércio)
OBSERVATION;
(1) for calculations, 62% of carcass income were considered for the United States and 52% for Argentina, Uruguay and Brazil. (2) Brazil: Cash price in São Paulo. (3) an at sign = 15 carcass kg

It is observed that these prices are smaller in Brazil, Argentina and Uruguay where the system of predominant feeding is based on pastures. In the United States, where the predominant feeding is based on grains (confinement), the prices pagos to the producers were, in the the five year-old average (1995/99), about 95% larger than in Brazil and 67% than in Argentina.

The trade of bovine meat depends on the comparative advantages in terms of production costs, that are directly related with the earth readiness, good pastures, of grains and favorable climatic conditions. In this context, the position of Brazil has if more and more as exporter. And the progress of the control program and eradication of the fever aftosa is giving a new incentive to the exports.

The Brazilian exports of industrialized meat and in natura, for countries or destiny areas, in the years 96-99, they are shown in the Tabelas III.109 and III.110. The countries of the European Union (United Kingdom, Netherlands, Italy, Germany and Spain) they are the main countries of destiny of the exports of Brazil, as much of meat in natura as of industrialized meat.

Table III.109 - Brazilian Exports of Industrialized Bovine Meat *, for destiny

Países	1996			1997			1998			1999		
	m US$	Ton.	US$/t	m US$	Ton.	US$/t	m US$	Ton.	US$/t	m US$	Ton.	US$/t
Estados Unidos	52,776	19,351	2,727	63,451	22,041	2,879	95,683	31,178	3,069	110,335	47,108	2,342
Reino Unido	81,210	32,459	2,502	91,524	36,081	2,537	102,325	39,495	2,591	107,770	50,384	2,139
Itália	18,087	4,333	4,175	5,153	1,420	3,629	13,629	3,135	4,348	12,906	3,473	3,716
Alemanha	14,863	4,308	3,450	13,283	4,031	3,296	14,746	4,521	3,262	12,676	4,265	2,972
França	9,338	2,623	3,560	7,024	2,960	2,373	8,560	3,100	2,761	11,312	3,825	2,957
Jamaica	4,427	1,834	2,414	8,067	3,294	2,449	8,956	3,641	2,460	9,104	4,227	2,154
Porto Rico	6,825	2,826	2,415	6,593	2,606	2,530	8,701	3,413	2,550	8,328	4,171	1,997
Países Baixos	11,440	4,507	2,538	5,629	2,287	2,461	7,985	2,839	2,813	8,012	3,174	2,524
Canadá	4,604	1,889	2,438	6,393	2,554	2,503	3,693	1,479	2,498	6,052	2,957	2,046
Japão	2,680	905	2,961	1,869	677	2,761	1,786	625	2,858	2,748	1,061	2,591
Bélgica	83	28	2,978	136	42	3,200	994	337	2,954	2,653	789	3,363
Outros	29,991	12,588	2,383	22,694	9,602	2,363	29,175	12,288	2,374	26,208	12,575	2,084
Total Proces.	236,323	87,650	2,696	231,816	87,596	2,646	296,233	106,050	2,793	318,106	138,008	2,305
Total Eq. Carc**	219,125			218,989			265,124			345,021		

- A partir de 1996 inclui preparações alimentícias e conservas bovinas
** - Para a conversão em equivalente carcaça, o total processado foi multiplicado pelo fator 2,5

Table III.110 - Brazilian Exports of Meat Bovine in natura, for destiny

Países	1996			1997			1998			1999		
	m US$	Ton.	US$/t	m US$	Ton.	US$/t	m US$	Ton.	US$/t	m US$	Ton.	US$/t
Resfri s/osso	**41,828**	**6,486**	**6,449**	**48,534**	**7,935**	**6,116**	**57,262**	**10,839**	**5,283**	**117,422**	**31,083**	**3,778**
Países Baixos	13,351	1,870	7,140	16,979	2,397	7,083	24,257	3,643	6,658	31,855	6,049	5,266
Reino Unido	9,140	1,478	6,185	15,489	2,401	6,451	8,688	1,414	6,146	17,688	3,637	4,863
Alemanha	6,235	777	8,026	3,596	508	7,086	2,718	402	6,762	11,549	2,598	4,445
Espanha	1,122	215	5,224	1,387	303	4,582	2,824	621	4,550	9,242	1,937	4,771
Suíça	4,369	813	5,377	4,096	750	5,463	5,791	1,073	5,395	7,602	1,438	5,287
Outros	7,611	1,334	5,706	6,987	1,577	4,429	12,984	3,687	3,522	39,486	15,424	2,560
Cong. s/osso	**152,469**	**40,166**	**3,796**	**147,712**	**44,476**	**3,321**	**219,176**	**69,876**	**3,137**	**326,145**	**119,471**	**2,730**
Países Baixos	45,319	9,968	4,546	45,391	11,306	4,015	63,081	15,886	3,971	85,400	23,320	3,662
Itália	39,127	10,168	3,848	42,964	11,606	3,702	51,419	13,935	3,690	56,780	19,079	2,976
Espanha	22,626	6,208	3,645	13,425	4,505	2,980	21,314	6,924	3,079	40,801	11,059	3,689
Hong Kong	6,472	2,648	2,444	5,635	2,559	2,202	7,858	3,332	2,358	26,496	12,643	2,096
Reino Unido	10,033	2,487	4,033	9,769	2,881	3,391	8,898	3,492	2,548	18,502	8,984	2,059
Alemanha	8,131	1,638	4,963	4,397	1,042	4,221	8,711	2,088	4,173	17,124	4,674	3,664
Chile				614	370	1,660	3,434	1,672	2,054	12,320	8,794	1,401
Israel	3,239	1,701	1,904	8,810	4,134	2,131	15,093	7,112	2,122	10,356	5,704	1,816
Outros	17,522	5,347	3,277	16,707	6,073	2,751	39,367	15,435	2,550	58,367	25,215	2,315
Total Original	**194,297**	**46,657**	**4,165**	**196,295**	**52,441**	**3,743**	**276,595**	**80,850**	**3,421**	**443,835**	**150,740**	**2,944**
Total Eq. Carc*			**60,648**			**68,134**			**105,105**			**195,720**

- Eq. Carcaça = Carne sem osso x 1,3
FONTE: ANUALPEC/2000

The United States stands out as the largest importer of industrialized meat.

Even with the growth in the meat volume exported by Brazil in the last years, a fall of the prices was verified. For industrialized meat this fall was comparatively of 21,17% in 1999 to 1998, and for meat in natura it was still larger-41,5% in the period of 1996/1999.

According to ANUALPEC/2000, starting from 1999 the global consumption of bovine meat seems to have given their first signs of growth retaking. Everything indicates that in 2000 the growth will return, steep for the economic recovery of Asia, exactly where still potential exists for growth of the consumption of bovine meat, once in Europe and in America practically no longer there is space, and in Africa there is no income. As the United States, now the great importer and exporter of bovine meat, they should reduce their sales significantly and probably to increase their imports, due to strong reduction of his/her flock in the last years, for the first time raisin to exist concrete foundations to believe that the international prices of bovine meat return the recover, especially benefitting the countries exporters that he/she has low production costs as it is the case of Brazil, Argentina, Uruguay, Australia and New Zealand.

(11.2) National Panorama of Bovine

The Tabela III.111 shows the ten larger Brazilian states producing of bovine meat, with 82,1% of the flock and 80,8% of the annual production. In some states the low discount tax, like Minas Gerais (14,21%) and Mato Grosso do Sul (15,89%) it indicates that these States are exporters of alive animals for discount in other states that, for his/her time, they present high enjoyment taxes. This is the case of São Paulo (35,84%), thankfully importer of fat ox for discount, of Mato Grosso do Sul, Minas Gerais and Goiás. Bahia (29,74% of discount tax) it imports fat ox of Minas Gerais and Goiás mainly. When compared with the countries of bovine livestock more developed, the low incomes of the activity, of almost all of States, expressed for the discount tax, the is associated a system of extensive exploration, with problems in the feeding of the animals, especially to the pastures, to the genetic improvement, to the sanity and handling of the flock.

Table III.111-Main Estados Brasileiros Producing of Bovine Meat - 1999

State	Effective (a thousand cab.)	Discount (thousand. cab)	Tax Abates (%)	Production (t)	Price - US$ / @	
					1999	1998
Mato Grosso do Sul	20.033	3.184	15,89	648.218	17,7	21,00
Minas Gerais	19.778	2.810	14,21	556.389	17,6	22,00
Goiás	16.556	3.015	18,21	612.424	16,6	21,00
Mato Grosso	15.540	2.644	17,01	540.495	16,7	20,80
Rio Grande do Sul	13.482	2.767	20,52	565.520	17,2	21,80
São Paulo	12.700	4.552	35,84	995.154	18,7	24,42
Paraná	9.813	2.294	23,38	479.519	17,8	22,20
Bahia	9.086	2.702	29,74	547.416	16,9	22,40
Pará	6.458	901	13,95	185.247	15,9	20,30
Tocantins	5.452	669	12,27	139.096	16,1	20,60
TOTAL	128.898	25.538	19,82	5.269.478	xxx	xxx
BRASIL	156.986	31.622	20,14	6.522.345	xxx	xxx
%	82,11	80,76	xxx	80,80	xxx	xxx

Fonte: ANUALPEC/2000 (FNP. Consultoria e Comércio Ltda.)

It is observed that a more intensive production of the cut bovine presents space also for productivity increase and of meat production in the regional level. In the specific case of Tocantins, with the same existent bovine flock, of 5,5 million heads, the elevation of the tax of discount of the current ones 16,1% for 24-25%, it acts in an increase of production of meat of 125%, passing of the current 140 thousand t/year for 315 thousand t/year.

The Tabela III.112 allows to end that, inside of the evolution of the Brazilian bovine flocks, the participation of the areas Northeast, South and Southeast is decreasing, at the same time in that it is increasing the participations of the Center-west and North area that, for being area of later occupation, had bovine flock almost that triplicated (it increased from 4,2% to 11,3%) among the years from 1985 to 1995, in relation to the total of the Brazilian flock.

The Table 9 display the distribution of the discount units of bovine in Brazil. In the sequence to the discount, the packing house/building or refrigerating industries make the sale to wholesale distributors that conclude the commercialization of the bovine meat to the meat/supermarket butcher shop/consuming. It is considered that the distribution of the bovine meat for the final consumer, according to the commercialization channels is distributed like this:

Supermarkets/hipermercados/restaurants/hotels/industrial meals – 65%;

Butcher shops-30%;

Boutiques of meats (special cuts)-5%.

Table III.112-Evolution of the Brazilian Flock of Bovine for Areas
(in 1000 heads)

Região	1940	1960	1980	1985	1995
Nordeste	7.665	11.566	21.506	22.287	22.842
Centro Oeste	5.112	10.533	33.261	39.595	50.766
Sul	8.664	11.678	24.495	24.742	26.219
Sudeste	11.597	20.840	34.835	35.661	35.954
Norte	999	1.235	3.989	5.359	17.274
TOTAL	34.387	55.841	118.086	127.643	153.055

FONTE: CNA/SEBRAE, (dados não publicados).

The analysis of the demand of the bovine meat uses the chicken meat and the swine meat as products substitutes, showing that the reduction in the prices of any of those meats reduces the demand of bovine meat. The data show that in Brazil during the whole decade of 90, while the bovine meat presented a growth of 7,6%, the consumption of meat suína increased 38,36% and the one of meat of chicken 59,63%. Study accomplished by CNA/SEBRAE projected the consumption of bovine meat in Brazil for three sceneries, in the period 1999-2010: low growth (annual GDP growing, on average 2%); medium growth (annual GDP increasing 4% on average); and high growth (annual GDP increasing 6% on average). The results show the expressive amount of bovine meat that will be necessary to satisfy the domestic consumption in 2010: 7,4 Mt, in the scenery of low growth; 8,3 Mt, in case of medium growth; and 9,3 Mt, for high growth of the income.

Table III.113 - Distribution of the Industrial Units of Bovine Discount
Industrial park of Discount of Bovine Cattle with Federal Inspection

Estado	Estabelecimentos				
	Grupo 1	Grupo 2	Grupo 3	Grupo 4	Total
Minas Gerais	2	7(4)	15(2)	5	29(8)
Espírito Santo	0	1 (1)	4	0	5(1)
Rio de Janeiro	0	0	5	0	5
São Paulo	13(8)	11(5)	17(2)	12(1)	53(16)
Total Sudeste	15(10)	19(10)	41(4)	17(1)	92(25)
Goiás	4(2)	4(1)	13(2)	4	25(5)
Distrito Federal	0	0	2	0	2
Mato Grosso	2(2)	7(2)	7(3)	0	16(7)
M. Grosso. do Sul	8(4)	12(2)	9(2)	0	29(8)
Total C. Oeste	14(8)	23(5)	31(7)	4	72(20)
Maranhão	0	1(1)	4	0	5(1)
Piauí	0	0	1	0	1
Ceará	0	0	0	0	0
Rio Grande do Norte	0	0	0	0	0
Paraíba	0	0	1	0	1
Pernambuco	0	1	3	0	4
Alagoas	0	0	1	0	1
Sergipe	0	0	0	0	0
Bahia	0	1	5(1)	0	6(1)
Total Nordeste	0	3(1)	15(1)	0	18(2)
Tocantins	2(1)	0	2	0	4(1)
Rondônia	0	0	2	0	2
Acre	0	0	1	0	1
Amazonas	0	0	1	0	1
Roraima	0	0	1	0	1
Pará	1(1)	2	0	1	4(1)
Amapá	0	0	0	0	0
Total Norte	3(2)	2	7	1	13(2)
Paraná	2(1)	7	20(3)	8(1)	37(5)
Santa Catarina	0	0	3(1)	5	8(1)
Rio Grande do Sul	3(3)	4(3)	13(7)	14(1)	34(14)
Total Sul	5(4)	11(3)	36(11)	27(2)	79(20)
Total Brasil	37(24)	58(19)	130(23)	49(3)	274(69)

Group 1 = it Abates annual above 100.000 animals, to a hourly speed from 80 to 120 bovine
Group 2 = it Abates annual from 50.000 to 100.000 animals, to a hourly speed from 60 to 80 bovine
Group 3 = it Abates annual from 10.000 to 50.000 animals, to a hourly speed from 40 to 60 bovine
Group 4 = it Abates annual of up to 10.000 animals, to a hourly speed of up to 40
() The number between parentheses means the number of establishments exporters
Source: CNA/SEBRAE (not given published)

In per capita consumption terms, there would be a quite limited increment in the current scenery-40 kg/year, increasing substantially, however, case prevailed the intermediate scenery (45 kg/year) or the optimist, in that 50 kg/year would be reached.

(11.3) Main Markets in Brazil

In Tabela III.114 were made estimates of the volumes of bovine meat marketed, for some selected states. It was taken as base the current medium consumption of 40 kg/year and the population (IBGE/1999). They were still made two projections, second study CNA/SEBRAE, with dear consumptions of 45 kg/year (situation THE) and of 50 kg/year (situation B).

TABLE III.114-PRODUCTION OF BOVINE MEAT AND MARKETED VOLUMES

Estado	Produção		População		Disponib	Demanda potencial (t/ano)			Deficit(-)/Superavit(+)/t/ano)		
	(t)	%	Habit.	%	Kg/hab/a	Atual	Cen. A	Cen. B	Atual	Cen. A	Cen. B
Tocantins	139096	2,13	1134985	0,69	112,56	45396	51070	56775	(+)93700	(+)88026	+ 82321
Pará	185247	2,84	5886454	3,59	31,47	235458	264890	294323	(-)50211	(-)79620	-109076
Maranhão	112426	1,72	5418349	3,31	20,75	216734	243826	270917	-104308	-131400	-158491
Piauí	45496	0,70	2734152	1,67	16,64	109366	123037	136708	(-)63870	- 77541	- 91212
Ceará	134682	2,07	7106605	4,34	18,96	284264	319797	355330	-149582	-185115	-220648
Pernamb.	175321	2,69	7580826	4,62	23,13	303233	341137	379041	-127916	-165816	-203720
Bahia	547416	8,39	12993011	7,93	42,13	519720	584685	649650	+27696	-37269	-102234
Mato Gr.	540495	8,29	2375549	1,45	227,52	95022	106900	118777	+473169	+443595	+421718
Goiás	612424	9,39	4848725	2,96	126,31	193949	218193	242436	+418475	+394231	+369988
M.Gr.Sul	648218	9,94	2026600	1,24	319,86	81064	91197	101330	+567154	+557021	+546880
Minas Gerais	556389	8,53	17295955	10,54	32,17	691838	778318	864798	-135449	-221929	-308409
Rio Janeiro	114815	1,76	13807358	8,42	8,31	552294	621311	690368	-407479	-506496	-575553
São Paulo	99514	15,26	35816740	21,85	27,79	1432670	1611753	1790837	-437516	-616599	-795683
Distr.Fed.	14525	0,22	1969818	1,20	7,37	78968	88644	98493	(-)64270	(-)74199	(-)83968
SUB TOTAL	4821731	73,93	120995087	73,80	39,85	4758740	5444758	6049783	-62991	-623027	-1228052
BRASIL	6522345	100,00	163947554	100,00	39,78	xx	7377640	8197377	xx	-)55295	-1675032

Fontes: - ANUALPEC 2000,.IBGE. CNA/SEBRAE

In the markets of the Southeast (São Paulo, Minas Gerais and Rio de Janeiro) the readiness interns is below the per capita consumption of Brazil, of 40 kg/year. This confirms for the Southeast area the current potential demand of 980 thousand t/year, that will still be able to grow until the year 2010, for 1.345 thousand tons in the situation THE and 1.680 thousand t/year in the situation B. This demand of States of the Southeast Area is already assisted by Goiás, Mato Grosso, Mato Grosso do Sul and Minas Gerais (it leaves) that, together, they form the call Circuito Centro-Oeste of the cut livestock, besides for effect of the control and eradication of the fever aftosa. In other words, it is treated of areas where the flow of origin of the bovine meat that it supplies the great centers of consumption of the Southeast area, it leaves mainly of States of the Center-west.

The main channels of commercialization of this of the Circuit Cattle Center-west are refrigerating industries (total of 164), where in spite of the great meat volume still to be marketed with bone (lineman, behind and needle tip) they increase the demands and the trade of boned meat (wrapped to vacuous and encased). 45 qualified refrigerating industries exist for export in the states of the circuit. In spite of counting with the best structure of freezers of the country, it is also big the clandestine discount (about 40 to 50%).

In the markets of the North and Northeast (Pará, Tocantins, Maranhão, Piauí, Ceará, Pernambuco and Bahia), it is noticed a high readiness interns of bovine meat, of 112,56 kg/hab. / year for Tocantins and of 42,13 kg/hab. / year to Bahia. In four states, this readiness can be considered very low: Pernambuco (23,13 kg), Maranhão (20,75 kg), Ceará (18,96 kg) and Piauí (16,64 kg). This is largely due to the adverse climatic conditions to the exploration of bovine in these areas of semi-arid climate (it dries). Considering the medium consumption of bovine meat, the group of these four states presents a current potential demand of 445 thousand t/year. With the projections of growth of GDP, this potential demand can go to 560.000 t/ano in the Situation THE and 675 thousand/year in the B Situation.

In the states of the Northeast they are supplied mainly for Goiás, Tocantins, Pará, Bahia and Minas Gerais (north), being enough common to commercialization of the alive ox for discount. The net of freezers of the area is composed of 26 establishments with federal inspection, being four with structure for export. A common practice in the area is the purchase of the alive ox for the retailer, for clandestine discount.

In terms of quotation of the prices of the at sign of the fat ox, a deságio is observed (differential of prices) between São Paulo and other more distant states. For the data of 1995/98, before the exchange depreciation in 1999, the average rates of the at sign of the fat ox of São Paulo (US$ 24,42 for at sign) they were 19,5% superiors to the average rates (US$ 20,45) of States of Tocantins and Pará. In 1999 the average prices of São Paulo (US$ 18,70/arroba) they were 16,9% superiors to the average (US$ 16,00) of the average prices of Tocantins and Pará. This differential one is explained, mainly, for the transport costs.

(11.4) Production and Market in the Area Program

The bovine livestock is the main activity developed in Tocantins and in the area-program. The State has a flock of 5.836.320 heads, of which 1.445.542 are in the area-program, what means 24,77% in relation to the total. In the area-program they stand out the municipal districts of Araguaína (236.525 heads), Santa Fé do Araguaia (110.293 heads), Ananás (107.464 heads) and Araguatins (105.420 heads). The numbers also show that, in the area Extreme-north the medium number of animals for rural establishment is very inferior to the of the North area (70 and 195, respectively) equally happening in relation to the largest averages (North with 1.361 in Araguaína, and Extreme-north with 497 in Ananas).

The production of the ready fat ox for the discount and of the bovine meat processed in the freezers of the area are destined, in majority, for the consumer markets of the main capitals of the Northeast area of Brazil. It is the case of the municipal district of Araguaína and area. Data showed that of a monthly average of 15.886 animals marketed for discount between March and May of 1997 had as destiny: Ceará (35,65%), Paraíba (17,64%), Maranhão (15,79%) and Rio Grande do Norte (14,34%), in other words, a total of 83,42% of the volume of bovine marketed for other states of Brazil.

The Tabela III.115 shows the quotations of the prices of the at sign of the fat ox received by the cattle farmers in Araguaína (Tocantins), Marabá (Pará), Cáceres (Mato Grosso), Goiânia (Goiás) and São Paulo (SP).

Table III.115 - Prices of the Fat Ox Received by the Cattle farmers
(US$/arroba - annual average)

Município	Estado	1995	1996	1997	1998	1999	2000*
Araguaína	Tocantins	24,00	21,40	20,80	20,60	16,10	18,90
Marabá	Pará	23,90	20,80	20,60	20,50	15,90	19,20
Cáceres	Mato Grosso		20,60	21,50	21,30	16,80	20,00
Goiânia	Goiás	23,90	21,10	21,90	21,60	16,60	21,40
São Paulo	São Paulo	26,20	22,80	24,40	23,80	18,60	22,80

Em 06/07/2000, valor do dólar R$1,80
Fontes : Anualpec 2000 e Boletim Pecuário Semanal da FNP/ consultoria e Comércio

The Tabela III.116 shows the prices of wholesale pagos for the beef in the cities of São Paulo and Rio de Janeiro, the two larger centers of consumption of bovine meat of Brazil.

Table III.116 - Prices of wholesale of the cooled meat of ox
(R$/Kg July -19, 2000)

Especificação	São Paulo			Rio de Janeiro		
	Atacado	Supermerc	Revenda	Atacado	Supermerc	Revenda
Traseiro (1x1)	2,85/2,90	2,90	3,05/3,10	2,80	2,80/2,85	3,00/3,05
Dianteiro (1x1)	1,80	1,80	2,00	1,75/1,80	1,75/1,80	1,90
Boi Casado c/ PA	2,28/2,30	2,30/2,32	2,43/2,45	2,25	2,26/2,28	2,40
Equiv. Físico boi (R$ 10)	34,35	34,65	36,60	33,75	34,05	36,00

Fonte : Boletim Informativo Intercarnes (19/07/2000)

The values presented for the date of 06/07/2000, transformed in Real (1 dollar same to 1,80 real), it indicates the following values for the prices pagos to the producers for the at sign of fat ox: Araguaína (R$34,02 / @), Marabá (R$34,56), Cáceres (R$36,00), Goiânia (R$38,52) and São Paulo (R$41,04 / @). It can be ended, like this, that, for the prices pagos to the cattle farmers for the at sign of the fat ox in the julho/2000 beginning, the prices of the beef wholesale in São Paulo (Capital) they represent damages for the freezers. This confirms important aspects in the trading of the cut bovine:

- rational use and sale of by-products of the ox that are for the freezer, they represent the main source of profits;
- expressive volume of the trading of the "ox in foot" addressed for the discount "clandestine" or informal, where it is for too much known the fiscal withholding.

Recently, the map of the fever aftosa in Brazil won new limits of controlled areas, by order of the Ministry of the Agriculture. Starting from July/2000 it is in implantation a new rising epidemic's serum in the states that integrate the Circuit Cattle East, involving part of Minas Gerais, Rio de Janeiro, Espírito Santo, Bahia, Tocantins and Mato Grosso do Sul. The objective is to turn this area free from the fever aftosa, with vaccination up to 2001, with recognition of OIE (International organization of Epizootias).

The feeding of bovine of cut in the area-program should continue based in the use of pastures. The improvement of the conditions of these pastures, now quite degraded, besides his rational use, it is of primordial importance for the improvement of the general indexes of productivity of the flock: reduction of age to the first creates for the novilhas, reduction of the age to the discount for the bullocks and reduction of the interval among childbirths for the cows. The method that has been presenting the best results, technicians and economical for the recovery of pastures it is through the temporary planting of the soy, following by the grass planting. Given to the great involved extensions and the effect demonstration of this system is possible that the sojicultura expands and it is firm in the area-program as relevant economic activity. This system, owes, therefore, to be incentive object for the regional development. Like this, the average rate of capacity of the pastures can be high of the current 0,5/0,6 ox/ha for about 0,9 to 1,0 ox/ha.

The production of bovine of cut involves the phases of it creates, it recreates and fattening. The phase of it creates understands the reproduction and the growth of the calf to it weans her, what happens among six eight months of age. The phase of it recreates goes of the it weans to the beginning of the reproduction of the females or the beginning of the phase of fattening of the males, being the one of longer duration, while the fattening, when done in the predominant regime of pasture has duration from 6 to 8 months. The phases of the production defines the cattle farmers' characteristics, classified as creators (it creates), recriadores (it recreates) and invernistas (it puts on weight). The creators have an outstanding influence in the productive efficiency of the whole biological cycle of the production of the bovine meat. The activity of it creates tends pondering in the small production, in areas of weaker lands and small properties. The knowledge level and the capacity of technology use is low in the production systems of the area-program. In most of the cases, the animals don't receive any feeding type besides the pasture (grass). As consequence, is low the tax of births of calves a year (50%), and these calves, in his/her great majority, are of inferior quality-120 to 150 kg of alive weight to the 7-8 months of age (apartação). This lowers the creators' efficiency is a serious difficulty for the development of the other production phases, it recreates her and the fattening.

The phases of the it recreates and fattening, individually or associated, they are developed by the calls recriadores and invernistas. These two phases, especially the one of fattening, they almost always concentrate on larger areas/properties and of lands of medium fertility the discharge, as the municipal district of Araguaína. These producers make suplementação of the animals maintained to pasture (mineral salt, salt with protein), it maintains health inspection of the flocks and they are already shown prone in investing in the improvement of the pastures. The total verticalização of the three phases of the productive process - it creates, it recreates and fattening - it is accomplished by a small portion of cattle farmers. It is evidenced that the development of the whole section, besides of the refrigerating industry, it passes, necessarily, for the mobilization and support, invigoration and development of the small creators' portion that are devoted to the activity of creation of calves for cut. To it area-programs has been a liquid importadora of animals of other areas, for it recreates her and fattening.

(11.5) Competitiveness

Production costs

Being considered the exclusive production to I graze on, a production cost spreadsheet was developed by CEPEA/Centro of Advanced Studies in Applied Economy of the University of São Paulo (Superior USP)/Escola of Agricultura Luiz of Queiroz (ESALQ)-Piracicaba (SP) in 1994, involving the complete cycle of the cut bovine. It was arrived to a total operational cost of US$ 13,13 by at sign.

Being adopted this same model of production cost analysis, ANUALPEC/2000 published in april/2000, results regarding 1999, of a series of studies of costs considering, separately, the systems of it creates, the one of recreate/fattening, and the one of create/recreate/fattening The production systems were classified still in extensive, semi-intensive and intensive, and in agreement with properties classified according to the size of the flock: small (500 animal units); averages (1.500 animal units) and big (7.500 animal units), being an animal unit same to 450 kg of alive weight. In a general way, in most of the cases (56%), the costs for produced at sign vary of US$12,00 the US$ 15,00, with a minimum of US$9,00 and a maximum of US$16,00.

For the countries where the feeding system of bovine predominant it is based on pastures, it is observed smaller market prices. It is the case of Brazil, Argentina and Uruguay that presented in the period of 1995/99, respectively, average prices of US$ 23,14, US$ 27,07 and US$ 24,38 for at sign (in Araguaína US$ 20,58). Already in the United States, where the predominant feeding is based on grains (confinement), the payd prices pagos to the producers were, in the the five year-old average (1995/99), of US$ 45,12 for at sign. In other words, 95% larger than in Brazil and 67% than in Argentina. The cost of the international transport + port costs + cost of the national transport from to it area-programs (Araguaína), until Porto of New Orleans (USA) for meat in carcass frigorificada, it corresponds the US$ 4,01 for at sign. This confirms the competitiveness of the bovine meat produced in the area-program, in terms of production costs, once the meat could be put in that port the US$ 31,50/@, value 45% smaller than the American price.

It is obtained a bovine carcass of 251 kg, or 16,7 liquid at signs starting from a depressed fat ox with 470 kg of alive weight. For average rates at wholesale level in the city of São Paulo (in july/2000) of R$ 3,00 for behind kg, R$ 1,80/kg of lineman and R$ 1,65/kg of needle tip (beef), the correspondent is had to R$ 35,33 by at sign of fat ox. In this time, the prices pagos to the cattle farmers presented the following quotations: Araguaína (R$ 34,02 / @), Marabá (R$ 34,56 / @), Cáceres (R$ 36,00 / @), Goiânia (R$ 38,52 / @) and São Paulo (R$ 41,04 / @). The cost of the transport of Araguaína to São Paulo (Capital), for meat in carcass frigorificada, it corresponds to R$ 2,98 for at sign, taking the final cost of the at sign produced in Araguaína for R$ 37,00. This price, in face of the quotation pays to the cattle farmer from São Paulo (R$ 34,02) it shows that the livestock tocantinense and of the area-program, it presents competitiveness in the national market, once the meat could be put at the main national market at a price 20% smaller than that pays to the close located producer of this market.

Being considered an exclusive production to graze on, the production costs varying of US$ 10,00/R $18,00 the US$ 15,00/R $27,00 for produced at sign, depending on the level of intensification of the exploration (extensive, semi-extensive and intensive) and of the used production system (it creates, recreates/fattening or create/recreate/fattening). Already the payd prices to the producer have been showing a tendency in the last 5 years of maintaining in levels that are varying of US$16,00/R$29,00 US$20,00/R$36,00 for at sign. In relation to the prices of export of bovine meat, average of the period 1995/99, was observed the following values for Brazil and three producing countries: Brazil (US$ 23,14), Uruguay (US$ 24,38), Argentina (US$ 27,07) and United States (US$ 45,12). These relationships of prices and production costs indicate that the regional livestock presents compatible competitiveness of costs with the development of the activity.

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 the articulation of the links of the productive chain inside of the biological cycle of production involving the creators (majority of small producers), recriadores/terminadores and the own refrigerating industry.

(12) Milk Cattle

(12.1) World Balance

The European Union leads the production of milk in the world with 120 Mt, that correspond to 31,0% of the total produced in the world. North America, second in the ranking, it presents a production of 89,0 Mt, meaning 23,0% of the total. The sum of the production of these two areas corresponds the more of the half of the production of the world (54,0%). South America, with a production of 36,6 Mt appears in fifth place, after Asia and countries of the old Soviet Union.

Considering the production of milk in the main countries, it is observed that the United States presents an absolute leadership with 72,6 Mt, what corresponds to 19% of the world production. In second place appears India. Brazil is the sixth largest producing with 22,5 Mt. The Brazilian production answers for 61,4% of the production of South America and 5,8% of the world production.

Being analyzed the growth rates of the production of milk in the period from 1991 to 1999 (data of USDA), it is noticed growth little accentuated in the United States and Canada, and that the countries of the European Union are with productions practically stabilized. Japan has also been maintaining the production along these years. There was decrease accentuated in the production of Russia and of Ukraine, as well as of Poland. New Zealand and Australia presented growth rates of the order of 41,1% and 51,0%, respectively. India and Brazil also presented accentuated indexes of growth. India with a tax of 27,7% and Brazil, with 58,4% (meaning 7,3% a year). Argentina, now the largest exporter of milky to Brazil, presented a growth of 52,3%. Therefore, according to USDA, Brazil was the country that presented the largest growth rate of the world.

The world demand of milky in 2.005 will be of 44 Mt, increase of 9,5 Mt in relation to 1995. Even so, it is believed that won't pass of 7% in relation to world production.

The European Union is the first world exporter, with 38% of the market. New Zealand produces only 2% of the milk of the world, but is the second exporter, with 31% of the market. Australia participates with 12% and the USA with 5% of the global market.

(12.2) National Panorama of Milk Cattle

Brazil is historically an importer of milk and flowed milky to supply domestic market. The imports in 1999 added 383,7 thousand tons, meaning a payment for the country of the order of 440 million dollars (FOB). Being still analyzed the behavior of the imports in the last four years, it is noticed that the largest flows of entrance of milky in the country happened in 1996, with 549,4 thousand tons. After this date there was decrease of imports with to smallest portion in 1997. The year of 1998 presented the largest value, of the order of 511,7 million dollars. The largest portion of acquisition of milky has origin in Argentina, and, of all the import accomplished in 1999, 205 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.

In Brazil a significant informal commercialization of milk exists and flowed, acting in the last years an index above 40% of all the milk produced at the country. It is worth to say that these products don't go by any sanitary and fiscal inspection. The growth of this informal market was of 52% among the averages of the three-year period 1990/92 to 1996/98 and it represented 8,7 billion liters in 1998. The product more marketed at the formal market of the country was the powdered milk, considering the more domestic production the imports (2,5+1,68 = 4,17 billion liters), being in second place the milk long life (UHT) with 3,2 billion liters, following by the cheeses (2,7 billion) and of the milk pasteurized type C (2,3 billion). It is worth to say, still, that the milk long life acted, in 1998, 53% of the flowing milks.

(12.3) Market of Tocantins

Regarding the Brazilian states few studies of market of milk exist and flowed. However, it is possible to have a vision of the potential of market of the states with base in the readiness interns of milk (leite/população disponibilidade=produção). Like this, the data of FNP-Anualpec, 2000 and of IBGE, 1999 show that the readiness interns of milk in Tocantins is of 95 liters/habitant/year, low index compared to the of the country, that presented 114,7 liters/habitant/year (that is also plenty for his/her time low). Bordering States to Tocantins as Piauí, Maranhão, Bahia and Pará present very inferior indexes to the of that state, respectively of 22,5, 25,8, 53,4 and 58 liters/habitant/year. Already the State of Goiás possesses exportable surpluses, presenting a readiness interns of 390,5 liters/habitant/year, besides larger than Minas Gerais, that leads the production of milk in the country. Mato Grosso presents a larger index than the one of Brazil and everything indicates that the offer should assist to the demand in this State.

On the other hand, exercises of calculations to arrive to the potential demand of milk (static) of Tocantins and neighboring states can still contribute to have a better notion on those markets. Like this, taking as base the readiness of the country (114,7 liters/habitant/year) multiplied by the population is arrived to the potential demand. Like this, the states of Tocantins, Pará, Maranhão, Piauí and Bahia, they have as result a demand of milk of 3,2 billion liters/year. As the total production is of 1,3 billion, was ended that the potential deficit is from 1,9 billion liters to the total of the five related states.

(12.4) Trading System of the Area Program

Of the 104 million liters of milk produced in Tocantins 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 the great amount of raw flowing milk that it is marketed informally, of door-in-door, mainly in the small cities and periphery of the larger cities.

The city of Araguaína possesses two dairy products that receive the milk of several neighboring municipal districts with cheese production and milk long life, besides pasteurized it. The distribution of these products is made in Araguaína, in the area, in the Northeast and in Belém.

In the city of Augustinópolis there's other dairy product that possesses significant importance in the productive chain of milk in the area. The company transforms the milk produced in cheese of the type plate and mussarela, and also in butter. It is aimed at to process 100 thousand liters of milk a day and now it processes 60% of this volume. The sales are addressed strongly for the Brazilian Northeast, where it possesses connection with a distributing company.

It is installed in Imperatriz-MA Cooperleite, a cooperative of producers that maintains a position of reception of milk in New Ranch of Tocantins, with capacity about 10 thousand liters/day. The acquired milk is destined to the production and sale of pasteurized milk and powdered milk, cheese mussarela and cheese spread in the local market and in places of Pará and Brazilian Northeast.

The production systems explore the production of milk in small climbs, 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 that present racial characteristics, with larger degree of blood of the races zebuínas. They are more extensive systems, being used the pasture as basic feeding during the whole year, with some supplement alimentary. The milk is made manually, most of the time, just in the part of the morning with the presence of the calf. The productivity is very low (525 liters of milk/year) and in small production scale, of the order of 24 liters/property/day. The birth rate of the flock is of approximately 60%. The reproducers are with the cows during the whole year characterizing one sets up natural no controlled. The artificial insemination practically inexists. As for the sanity of the flock, there are systematic vaccinations against the corbúnculo (hose), being still the use of the vaccine against brucelose small, and smaller this practice regarding other diseases of the reproduction. The control of the aftosa is generalized.

The milk destined to the cooperative or dairy product is transported in brasses, to room temperature, in open trucks (conventional).

For being the area of Tocantins and areas of the small neighboring states producing of milk and flowed, with a demand also small, surpluses and great industries of dairy products don't exist in the area-program.

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

The price of a liter of milk received by the producers copper the variable costs, meaning a positive cash flow. However, most of the time, the price is below of the total cost of production, ending that it happens the decapitalization of the producer in the medium and long periods. Therefore, there is no economical sustainability of the regional production and nor competitiveness. The flock milkman's low quality, the low technological level and the indexes deficient zootécnicos are the causes of the competitive inefficiency of the livestock of milk of the area-program.

It is important to point out that, starting from middles of this year (2000) it has been happening, in an accentuated way, a very smaller offer of milk for the Brazilian population, with strong tendencies of increase of the price of milk to the producers in all of the areas of the country. That smaller offer is owed basically to the largest difficulty of imports of milky products (mainly powdered milk), motivated by the price increase in the international market and larger competitiveness in price (it adjusts exchange) of the national milk; fall in the production of Argentina (larger exporter to Brazil) and, momentarily, fall in the

domestic production due to the production seasonal variation (drought period), that it happens mainly in the areas of less tradition in the production of milk.

(12.5) Competitiviness

The present study makes available the section milkman's information, focusing the situation world, national, state and regional is verified that the world market of milky products is highly competitive, in spite of the international transactions they represent only 7% to 8% of the world production.

The great production of milk of the European Union - European Union (120 billion litros/ano), ally to the fact that their exportable surpluses are favored for the high direct and indirect subsidies and according to the National Confederation of Agriculture, for the disloyal practice of international trade, exporting milky below their production costs, characterizing dumping. According to Jank, M.S., 1999, the section of dairy products of the European Union is highly subsidized by government politics that, when establishing protection mechanisms to the domestic market, it ends for distorting the free trade and the production of other countries, for instance, the one of Brazil. The European Union is the first world exporter, with 38% of the market, and in agreement with the data, the equivalent subsidy to the producing of this economical community was of 83% in 1998. This means that the direct and indirect subsidies applied in the section of dairy products eqüivalem to 83% of the value of the primary production, what configures a high protectionism degree to the markets of the countries of the European Union. The European system limits the imports, it uses high tariffs and intervention price. Fundo Europeu for Expenses with the Agriculture executes expenses, only with the milk, of the order of US$3,4 billion a year, for export subsidies of milky products.

The significant competitiveness of Australia and New Zealand are arrested to the fact of they have structured and organized the section seeking to the international market. New Zealand produces only 2% of the milk of the world, but he/she is the second exporter with 31% of the market. His/her high one to can commercial he/she is due to the fact of accomplishing the primary production at very low costs, with production system maximizing the use of pastures, besides being the whole organized section in cooperatives. The producer neo-Zealander receives US$ 0,14 the US$ 0,15 for liter of milk, one of the smallest prices of the world, compensated, partly, for the government neo-Zealander's fiscal renouncement. Australia participates with 12% of the global market and the USA with 5%.

Brazil is historically an importer of milky products. For obvious reasons, it don't justify to comment on the Brazilian competitiveness (in physical volume) in relation to the foreign market, because as it was already mentioned, it doesn't get to be self-sufficient in the production of milk. It participates in the international market as importer tends Argentina as a largest supplier. This country possesses significant competitiveness in the market due to larger productivity levels, competitive prices payd to the producers (US$ 0,17/litro) and exportable surpluses.

The Brazilian producers receive one of the lower prices of milk of the world, in the order of US$ 0,14 the US$ 0,15 for liter. Brazil can, in the future, to become self-sufficient in milk (due to the largest growth rate of the production on the consumption), and same to participate at the market as exporter, since it is competitive in quality of milky.

The Brazilian production of milk is led by Minas Gerais that, besides being the largest producer, it possesses exportable surpluses and a competitive milky industrial park. In the State they are present, in an active way, the largest dairy products, like Nestlé, Parmalat, Energy, Fleischmann Royal, Danone and powerful central cooperatives as Itambé and the Inhabitant from São Paulo. It is worth to stand out that the Central Cooperative of the Rural Producers of Minas Gerais-CCPR (Itambé) it is the first central cooperative of the country and the third company in the general ranking, with a reception of milk of the order of 2,2 million liters daily. It competes of equal in the market of the Northeast of the country, mainly regarding the powdered milk. The State of Goiás presents great competitive potential, mainly for the fact of presenting a high readiness interns of milk, with exportable surpluses.

It was verified that the State of Tocantins and in matter to it area-programs don't possess working power to assist other markets, besides they be not competitive in the productivity indexes, what results in an activity that is not economically maintainable to the long period, besides presenting an insignificant

volume of production of milk. Therefore, there is no competitiveness, not just in function of the competition of the most efficient production of other areas, but also for the lack of economical sustainability of the regional production, that it doesn't present profitability the medium and long periods. Like this, the activity survives in subsistence character and as by-product of the creation of calves for cut.

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. As already commented on previously, the readiness interns of milk is small, what can turn attractive these niches of markets. At the same time, the indifference of the great groups of the milky section in expanding their businesses for areas with small markets and small production scale, opens opportunities for the dairy products of regional extent.

Being considered the population of the State in 1,2 million inhabitants and tends as reference the Brazilian consumption (production more imports), of 140 l/hab/year, tha is a current potential demand of the order of 168 million liters of milk a year, what results in a potential deficit of 60 million l/year in the State, once the production is of 108 million liters.

To supply this market in a competitive way, the production milk pan in the area-program will have to improve their creation indexes significantly and business, seeking to reduce costs. The industry regional is projected for the service of the demand, what constitutes competitive advantage of the area.

(13) Buffalos

(13.1) Introduction

As presented in this study the main productive activity of the area-program is the livestock, with prominence for the cut livestock, standing out a lot in relation to the agriculture. Analyzing the relative growth of the farmings, the livestock will still have a great importance in Tocantins and in the area-program due to factors as: decapitalization of the producers (that inhibits structural changes), knowledge of the market, difficulties of diffusion of agricultural technology and demands of investments for changes of the productive structure, as well as of the favorable perspectives for the cut livestock.

However, it was verified that the cut livestock and of milk in Tocantins and area-program is still practiced in subsistence character, with low technological level in the area-program, where it is significant the participation of the small production, above all in the Extreme - North area and in the activity milk pan.

The fast and irreversible integration competitive crescent is verified from the economy tocantinense to the main national markets and, potentially, international, what will result in modern transformations of the livestock, with tendency of concentration of the production in the largest properties and of practices more and more capital-intensive. In this scenery, it is foreseen growing difficulties for the small production in the area-program, in way economically maintainable. The profile of the producing of the small cattle production doesn't include enough capacity of technology absorption, capital and production scale (mainly in the case of the milk) requested by the growing competition in the meat markets and milky and for the economical viability of these activities.

Like this, to the if they evaluate the perspectives for the regional development, it is fundamental that alternatives are analyzed for the sustainability of the small production linked to the livestock. In that sense, the creation of buffalos comes as appropriate option to the traditional livestock, for several reasons. Firstly, it is an activity also livestock, relatively known by the producers and that it doesn't demand significant changes of handling and work. Therefore, it is culturally less aggressive, not generating resistance for his adoption.

In second place, and what is more important, the rusticity, the adaptability and the productive acting of the buffalos that allow the maintenance of the practice of subsistence exploration, with low technological level, but with productivity results, zootechnics and economical, superiors the those reached by the bovine livestock in the same circumstances.

At the same time, the market doesn't come as restriction to the development of the regional buffalos creation, once it doesn't differentiate their products of those presented by the cattle bovine. In other words, the market recognizes and it remunerates the production of buffalos just as the bovine livestock of cut. In the markets of milk of South/Southeast is practiced, besides, superior prices for the buffalo milk, given his largest industrial profitability, of the order of 40% on the cow milk.

Other factors that facilitate the expansion of the creations of buffalos are: those animals take advantage the sustentation capacity better (pasture) in atmosphere of degraded pastures (as to it area-programs), once they also feed of the rude vegetation that the bovine ones reject; they can take advantage the hidric abundance and environment much better; they present an income in the processing of superior milk to the bovine ones, besides healthier for the consumption human in natura; they are more precocious in the meat production and they don't request significant investments for his introduction.

Like this, given the subsistence production system with low technological level, the tradition of the cattle production, the regional environment and a scenery of competitive integration of the state livestock with the other markets, the buffalos creation when allowing results superiors without significant changes in the production system, can allow the sustainability of the cut livestock and milk of the small production in the area programs, while the competitive bovine livestock tends noticing in the largest properties.

(13.2) World Balance

Original of Asia and Africa, the buffalo is today diffused in all the continents, with a flock of the order of 165 million animals, or 11% of the world total. According to FAO, Asia stops 97% of the world flock, whose growth rates are significantly superiors to the ones of bovine, mainly in South America.

India is the largest world producer, with 75 million heads, following by China, with 21,4 million, Pakistan, with 14,7 million, Thailand, with 5,4 million and Philippines, with 2,8 million. In Africa, distinguished her only the Egypt, with 2,5 million animals. In Europe, they deserve citation Romania, with 212 thousand heads, Italy, with 112 thousand, and the Soviet former-union (Europe and Asia), with 420 thousand heads. In America, Brazil stops the largest flock, with more than 2,5 million animals, standing out, also, Venezuela, Argentina, Peru, Trinidad Tobago and United States.

The potential of world commercialization for original products of the buffalo is shown very promising. Italy and United States have been evidencing high demands for milky products of buffalo, mainly the muzzarela. Italy, same tends significant own production, it presents larger demand than the offer. The USA are liquid importers, above all of Venezuela, being his/her potential of much larger consumption than the current. Brazil consumes all milky production of buffalo, but has a domestic market still little explored, with great growth margins.

The buffalo meat is consumed mainly in America and in Europe, but the only significant exporter is Australia, that supplies part of the European market. Already the leather, for plasticity and resistance, it is demanded for the making of shoes and pieces of furniture.

However, the largest use and consumption of products originating from of the buffalo feels in poor areas, of Asia and Africa, mainly. Because rusticity and readiness, it means indispensable source of survival of ponder portion of the rural populations.

(13.3) National Panorama of Buffalos Production

In spite of the great potential for the production of foods, Brazil and Tocantins meet, still today, in uncomfortable situation in relation to the supply of a minimum diet to the less favored segments of the population.

The production of foods at a low cost is an imperious alternative against to the national stigma. In that context, the creation of buffalos acquires outlines of priority option, when making possible the conversion of marginal areas or degraded, available in the area-program, as flooded slopes and you flooded, natural and artificial pastures with low nutritional value for bovine, in noble proteins.

In little more than a century of his introduction in the country, the flock national of buffalos is growing to superior taxes to 10% a year, resulting in a flock with more than 2,5 million heads, distributed in all of the Brazilian states, with great prevalence of the meat production, but crescent interests for the production of milk.

According to data of FEDERACITE et al, 1994 (The buffalo and it profitability) the North area of the country, with dear flock of 1.500.000 animals, possesses the largest national flock, their due ace natural conditions, with excessive humidity and heat, great amount of areas flooded and high precipitations, what hinders the bovine livestock and it motivates the creation of buffalos.

The Northeast area, with about 420.000 animals, it presents several situation. The heat is loud, the humidity falls abruptly and the drought prevails. Of the heat and of the drought they result serious restrictions to the development of the vegetation, fact that propitiates poverty of pastures and alimentary lack of great proportions. The buffalo grows based on those difficulties, being put as alternative for to animal production that intends to establish in that area.

In the Southeast area, with dear flock of 450.000 animals, and in the area Center-west, with 360.000 heads, the buffalos creation grows in competition with the cut livestock and milk, in production systems with more technics and taking advantage of areas where happen restrictions and difficulties for the introduction of the competitive bovine livestock.

The South area, with 270.000 animals, it has been presenting great expansion of the buffalos production, where the creation presents good adaptability to the cold and the available pastures.

An alternative creation as the one of buffalo can represent a significant increment in the meat production and milk, in function of the largest working power and precocity of those animals, that can reach from 400 to 500 kg to the two years of age (about 300 kg for bovine), in native pastures or cultivated, and whose production of milk can reach the average of 5 l/female/year (1,6 l/cow/day in the area prograrm), with rustic production system, in pasture regime, without any suplement alimentary, possessing larger resistance to the main diseases.

(13.4) Characteristics of the Buffalos Production

It is intended, in this item, to present the main characteristics of the creation of buffalos, comparatively to the one of bovine, in the intention of discovering the viability in the area programs.

In relation to bovine, they are characteristic inherent to the species of buffalos: rusticity, adaptability, longevity, high indexes of procreation and precocity. The rusticity refers to the excellent capacity of the buffalos in transforming rude foods (forages with high tenor of fibers and low nutritional value) in meat and milk, could produce satisfactorily in adverse conditions and without larger demands of sanitary handling (it is known that all of the diseases that attack the bovine ones, also attack the buffalos, but they show in a much more way brandishes).

The buffalos creation can be addressed for the use of native pastures, preferentially in areas flooded, little capable the bovine ones, as well as for cultivated pastures, although degraded, and for natural pastures of firm lands. Even in pastures of low quality, or in places of difficult access to the forages, the buffalos possess superior capacity to produce meat, in function of the ability of his organism to digest rude foods and of the locomotion easiness in flooded areas.

In several handling conditions it is known that the bubalinos present won of satisfactory and larger weight than the ones of bovine in the same conditions, what transforms them in viable options in the conditions of the area-program. Also the use of native fields or degraded pastures can be an interesting system for great number of producers, tends in view the reduction of the expenses with formation and reform of pastures, besides propitiating small damage herbs infestation, ingested by the buffalos even not being forages for bovine, reducing maintenance costs. Same when servants in the system of native pasture of low quality in poor soils, the buffalos reach 370 kg of alive weight with 30 months of age, quite satisfactory index when compared to the of bovine. It reaches medium productivity of milk from 4 to 5

l/female/day, without suplement or special handling, what is quite better than the medium productivity of the livestock of the area-program, that it varies from 0,65 to 1,6 l/cow/day.

The adaptability is consequence of the rusticity. Capable to survive soundly in different feeding conditions, the buffalos are found in the whole world, in the most different environmental situations, from desert climates and hot to temperate and humid climates. In Brazil, half of the flock is in the North area, being the other half distributed in all the other areas of the country-of the cold pampas to the hot and dry interior of the Northeast, growing and producing satisfactorily under the most varied handlings and climates.

The longevity refers to the useful life of the animals. The buffalos have much larger periods of productive life than the bovine ones. They produce without problems until the 20 years, while the bovine ones make it until the 10 years.

The working power of the females is measured by the annual percentages of deliver, index that it influences the profitability of the activity a lot and it privileges the buffalos a lot on the bovine ones, reaching 94% in the first ones (Assunção, J.C., 1996), with appropriate handling, or average above 80% in extensive production systems, while in the bovine ones they reach between 60 and 70%.

The precocity refers to the capacity of weight earnings in relation to the age, being significantly superior in bovine. With two years, a treated buffalo the pasture for cut gets to dye 460 kg, while a bovine one needs 3,5 years to arrive to the same weight. Nascimento, Cristo (Creation of Buffalos, EMBRAPA, 1993) it presents the following weight averages to the 24 months of age: 378,9 kg for buffalos and 273,2 kg for bovine.

Those advantageous characteristics of the buffalos result in inferior production costs and better profitabilities, with use of rudimentary production systems. Like this, the costs of maintenance of a flock of buffalos can be up to 50% inferior at the creation costs of bovine (Suplento Agrícola, newspaper of Minas Gerais, 09.06.99).

However, the fact of the buffalos obtain good indexes in conditions of native field doesn't mean that should receive worse treatment or any use of technologies. The species answers, and a lot, to most of the techniques already in use in the bovine livestock, with significant won economical and zootechnics.

The superior quality of the meat and milk of buffalos origin on the one of bovine origin is plenty known. The cooked meat of buffalos compared it of bovine possesses 40% less cholesterol, 12 times less fat, 55% less calories, 11% the more of proteins and 10% the more of minerals (EMBRAPA, Creation of Buffalos, 1998). The buffalos'meat has less intermuscular and intramuscular fat, being characterized, for that, as healthier food for the man, once the largest amount of the covering fat can be removed easily. The buffalo carcass is composed by 68% of meat, 21% of bones and 11% of fat, percentages similar to the bovine ones. The characteristics' odor, flavor and succulency of the buffalos meat are very similar to the ones of bovine. Like this, the largest obstacle for the consumption of buffalo meat is the prejudice still existent in the population and the little readiness in the main markets.

It should also be reminded the world tendency of growth of the demand by products "light", rich in proteins of high value and healthier, with low cholesterol tenors and calories, as it is the case of the buffalo meat.

Table III.117 - Comparison of meats of buffalos and bovine

Item	Carne de Búfalo	Carne de Bovino
Colesterol (mg)	61,00	90,00
Calorias (kcal)	131,00	289,00
Proteína (N x 6,25)	26,83	24,07
Ácidos graxos saturados total (g)	0,60	8,13
Ácidos graxos monosaturados total (g)	0,53	9,06
Ácidos graxos polisaturados total (g)	0,36	0,77
Minerais: soma total de mg de cálcio, ferro, magnésio, fósforo, potássio, zinco, cobre e manganês	641,80	583,70
Vitaminas: soma total de mg de ácido ascórbico, tiamina, riboflavina, niacina,	20,95	18,52

ácido pantotênico, vitamina B6 , ácido fólico e vitamina B12		

Fonte: Associação Brasileira de Criadores de Búfalo

The characteristics of the buffalos milk in relation to the cow milk are superior. It possesses 33% less cholesterol, 48% more protein, 59% more calcium and 47% more match.

Tabela III.118- Comparação de leite de búfala e de vaca

Item	Leite de búfala	Leite de vaca
Colesterol total	214 mg%	319 mg%
Proteínas	4,00 %	3,50 %
Lipídios	8,00%	9,50%
Lactose	4,90%	4,70%
Água	82,00%	87,80%
Cálcio (mg/100 ml)	203,0	102,1
Magnésio (mg/100 ml)	18,50	11,50
Sódio (mg/100 ml)	50,15	50,00
Potássio (mg/100 ml)	108,5	148,00
Fosfato (mg/100 ml)	129,3	95,0
Citrato (mg/100 ml)	160 – 200	166
Cloro (mg/100 ml)	65 – 82	106
Vitaminas A (mg/g de gordura	9,5	9,2
Tiamina (mg/ml de leite)	0,50	0,45
Riboflavina (mg/ml de leite)	1,07	1,47
Vitamina C (mg/100 ml de leite	2,97	2,56

Fonte: Associação Brasileira de Produtores de Búfalo e FEDERACITI, et al, 1994.

Besides these superior characteristics, where the buffalo milk is better, there is the industrial income, 40% superior to the bovine milk, in reason to the high fat tenor. The picture 3 illustrates this situation.

Tabela III.119 - Rendimento industrial do leite de búfalo e de vaca

(litros de leite por kg de produto)

Produto	Leite de búfala	Leite de vaca
Queijo frescal	4,00	10,0
Muzzarela	5,0	12,0
Manteiga	14,0	20,00

Fonte: FEDERACITI et al, 1994 e EMBRAPA, 1998

It is important to observe that for being a type of having marked reproductive seasonal variation, the pick of production of milk in the buffalo creations in Brazil coincides with the time between harvests of bovine milk, what means possibilities of better remuneration of the product. According to the Brazilian Association of Creators of Buffalo, his milk can be worth the double of the price of the cow milk in the harvest and more than the double in the time between harvests.

(13.5) Competitiviness

Comparative studies don't exist in subsistence production systems and low technology for buffalos and bovine. It is known, however, that the rusticity and productive acting of the buffalos are significantly superiors to the of bovine in those conditions, for the capacity of use of rude foods, reproductive capacity and larger resistance to diseases. Therefore, in those conditions, the introduction is advisable. Assumpção, J. C. (Serious Bufalando, Guaíba Agropecuária, 1996), when evaluating the possibilities for the zoning of the buffalos production and to compare it with the bovine production in Brazil, suggests that competitiveness is larger in all of the cattle areas where the bovine ones present inferior actings to the presented in the picture below.

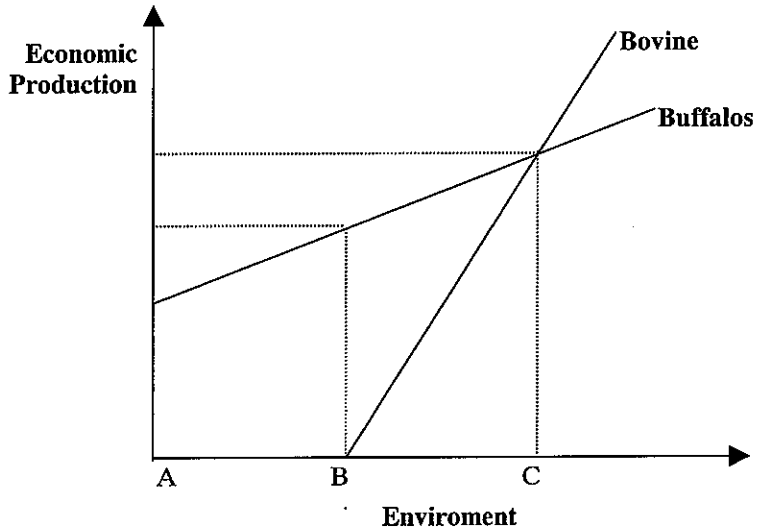
Tabela III.120- Índices produtivos esperados da bovinocultura

% de parições anuais	70%
% de mortalidade de bezerros	5%
% de mortalidade pós-desmama	0%
Longevidade produtiva das vacas	12 anos
Idade na primeira cria	36 meses
Idade dos machos no abate (500 kg)	42 meses
Rendimento de carcaça no abate	53%

Fonte: Assumpção, JC, op. Cit.

In this analyses, the author proposes the use of the graph below as illustration of the competitiveness of the Buffalos X Bovines in different atmospheres..

Graph III.23 - Production Levels and Environment



The graph relates the production levels with the middle where bovine and bubalinos are created. The species are submitted each one its own handling.

Areas understood among the points A and B

They are inhospitable areas to the creation of bovine, for if they turn unable to procreate and to produce. So that the bovine ones have some acting in these areas are the man's great necessary interventions on the environment, creating artificial conditions and uneconomical handling methods, most of the time, with great volume of investments. In general they are areas of soaked meadows where the bovine ones at least get to walk. In these areas, the buffalo is the only cattle option financially viable.

Areas understood between B and C

They offer possibility of introduction of the bovine production, but with index bass of productivity. Usually, they are areas of poor soils, with natural pastures or degraded with low support capacity, with or without the presence of hidric deficiencies. For the sustainability of the livestock, significant investments and specialized handling are demanded. Great part of the national cattle areas and, mainly of the area-program, they locate in this description. Here, the buffalo, given the great rusticity and adaptability, they produce in a more efficient way, guaranteeing better economical returns, with few investments and more rustic production systems.

Areas understood besides C

They are excellent areas for the cattle production, where the bovine ones answer with expressive productive indexes, overcoming the exploration of the buffalos. Here is justified, economically, the practice of handlings highly intensive in aspects reproductive or alimentary. The livestock has as improved and specialized bovine base.

The point C is the balance, representing areas where the acting of the two species is equivalent. In a hypothetical exercise for this point, the author concluded that the buffalos produce 24% more meat, however, for the largest corporal weight of the species, this advantage would be compensated by the smallest capacity of support of the pastures.

Being observed that birth rate of the livestock of Tocantins is about 60% a year, and the medium age of discount of oxen passes the 4 years of age, we can evaluate it as the buffalo could contribute to the elevation of the productivity of the cut livestock in the area-program.

Federaciti et al, in" the buffalo and its profitability" (Guaíba Agropecuária, 1994), when analyzing the profitability of the buffalos creation, it presents the following comparative picture of buffalos productivity and bovine.

Tabela III.121 - Índices médios de produtividade de búfalos e bovinos a campo nativo no Rio Grande do Sul.

Índice	Bovinos	Búfalos
Natalidade	50%	75/85%
Peso de ventres	380/450 kg	500/600 kg
Idade ao primeiro parto	48 meses	36/38 meses
Mortalidade	4%	2,5%
Intervalo entre partos	570 dias	405/480 dias
Vida útil da fêmea	9 anos	20 anos
Idade de abate	4 anos	2,3 anos
Peso de abate	440 kg	450 kg
Lotação	0,91 UA/há	0,76 UA/há
Desfrute	119,58 kg vivo/há	82,74 kg vivo/há
% de pastagem/superfície pastoril	11,53%	2,70%

Fonte: FEDERACITE, op. Cit.

As a result of the evaluation, was ended that the profitability of the beef cattle was of US$ 20,15/ha and the one of buffalos was of US$ 27,42/ha.

The Fundação Cargill, (Fundação Cargill, Bubalinocultura, 1981) it esteems the operational profitability of the creation of buffalos in Brazil in 37%. It is verified, therefore, that the competitiveness of the buffalos creation in relation to the beef cattle and milk, for simplified production systems, as practiced them by the small production in the area-program, it is quite compatible with it expansion as alternative of economical sustainability and productivity improvements.

Bibliography

ABCB (Associação Brasileira dos Criadores de Búfalo). Propecto. Sem título.

AGROANALALYSIS. Revista de Agronegócios da FGV. Vol.20, nº 6, junho 2000.

ANUALPEC 2000. Anuário da Pecuária Brasileira. FNP. Consultoria&Comércio. Abril, 2000.

ASSOCIAÇÃO BRASILEIRA DA INDÚSTIRA EXPORTADORA DE CARNE SUÍNA (ABIPECS). Relatório Estatístico, NR. 12/99

ASSOCIAÇÃO BRASILEIRA DA INDÚSTIRA EXPORTADORA DE CARNE SUÍNA (ABIPECS). Relatório Estatístico, NR. 12/99

ASSOCIAÇÃO BRASILEIRA DOS CRIADORES DE SUÍNOS. Suinocultura 500 anos. ABCS. 1999.

ASSOCIAÇÃO BRASILEIRA DOS CRIADORES DE SUÍNOS. Suinocultura 500 anos. ABCS. 1999.

ASSUNPÇÃO, J. C. Bufalando sério. Guaíba Agropecuária. 1996

BIRD, 2000 . *Produto Nacional Bruto* de países selecionados.

BORLAUG,N.E. and DOWSWELL, C.R. *The acid land: one of agriculture's last frontiers. In: Plant Soil interactions at Low pH – Sustainable Agriculture and Forestry* Production, Brazilian Soil Science Society, Belo Horizonte, MG, 17-24 March 1996. p.7-15

CNI-CNA-SEBRAE/FGV. *Análise da Eficiência Econômica e da Competitividade da Cadeia Têxtil Brasileira, Brasília, 2000, p. 405-406*

COMPANHIA DE DESENVOLVIMENTO DO VALE DO SÃO FRANCISCO - CODEVASF. Mercado, Comercialização e Organização da Produção de Frutas no Norte de Minas. 1998

CONAB – Companhia Nacional de Abastecimento, do Ministério da agricultura e do Abastecimento: - *Indicadores da Agropecuária, dos anos 1980 a 2000; Quadros de Suprimento,1999*

CONFEDERAÇÃO NACIONAL DA INDÚSTRIA, CONFEDERAÇÃO NACIONAL DA AGRICULTURA, SEBRAE - Estudo sobre a Eficiência Econômica e Competitividade da Cadeia Agroindustrial da Pecuária de Corte no Brasil.

CONFEDERAÇÃO NACIONAL DA INDÚSTRIA, CONFEDERAÇÃO NACIONAL DA AGRICULTURA, SEBRAE - Análise da Eficiência Econômica e Competitividade da Cadeia Têxtil Brasileira.

EMPRESA BRASILEIRA DE PLANEJAMENTO DE TRANSPORTES – GEIPOT. *Corredores estratégicos de desenvolvimento: relatório final*. Brasília: GEIPOT, 1998.

EMPRESA BRASILEIRA DE PLANEJAMENTO DE TRANSPORTES – GEIPOT. *Corredores de transporte: proposta de ações para adequação da infra-estrutura e para racionalização do transporte de granéis agrícolas - relatório de atualização*. Brasília: GEIPOT, 1997.

EMPRESA BRASILEIRA DE PLANEJAMENTO DE TRANSPORTES – GEIPOT. *Transportes no Tocantins*. Brasília: GEIPOT, 1999.

F.IBGE – Fundação Instituto Brasileiro de Geografia e Estatística: *Censos agropecuários e Levantamento de safras*

FAO – Food and Agriculture Organization of United Nations: *Food Outlook –highlights, Rome (Italy), June,2000; Commodity Market Review, 199-2000, march, 2000; Committee on Commodity Problems, 22-24 September,99*

FAS-USDA – Federal Agricultural Service US Department of Agriculture, Washington,DC - *Production Estimates and Crop Assessment, feb-april, 2000*

FEDERAÇÃO DAS INDÚSTRIAS DE MINAS GERAIS - Cresce Minas: Um Projeto Brasileiro, 2000.

FEDERACITE et al. O búfalo e sua sustentabilidade. Guaíba Agropecuária. 1994

FERREIRA, R.C. Competitividade do sistema agroindustrial suinícola brasileiro. Dissertação de Mestrado. Esalq/USP, 1998.

FERREIRA, R.C. Competitividade do sistema agroindustrial suinícola brasileiro. Dissertação de Mestrado. Esalq/USP, 1998.

FGV/IBRE/CEA – Fundação Getúlio Vargas- Instituto Brasileiro de Economia- Centro de Estudos Agrícolas: *Panorama da Agricultura brasileira-1980-98 (não publicado), 2000*

FNP–Consultoria e Comércio. Boletim Pecuário Semanal, Ano 7, 6 de julho a 12 de julho de 2000.

GAZETA MERCANTIL. Seminários: A Fruticuotura Brasileira: Presente e Futuro. 2000.

GOMES, M.F.M. et alii. Análise prospectiva do complexo agroindustrial de suínos no Brasil. Concórdia: EMBRAPA, CNPSA, 1992. 108p. (Documento 26).

GOMES, M.F.M. et alii. Análise prospectiva do complexo agroindustrial de suínos no Brasil. Concórdia: EMBRAPA, CNPSA, 1992. 108p. (Documento 26).

GOVERNO DO ESTADO DO TOCANTINS. *Corredor multimodal de transporte Centro-Norte: caminho para o desenvolvimento do Tocantins*. Palmas: sd.

Transporte multimodal já é uma realidade para soja produzida nos estados do Maranhão, Piauí e Tocantins. Palmas: 2000. mimeo.

Transporte multimodal já é uma realidade para soja produzida nos estados do Maranhão, Piauí e Tocantins. Palmas: 2000. mimeo.

IRGA – Instituto Riograndense do Arroz, Porto Alegre, RS e EMATER/RS: - *Informações sobre a competitividade da Orizicultura gaúcha, outubro/99*

JANK, M.S. (1996). Competitividade do Agribusiness brasileiro: discussão teórica e evidências no sistema carnes. Faculdade de Economia, Administração e Contabilidade – USP, São Paulo, Outubro de 1996. 194 p.

LEMONICK,E. *Participação dos cereais na dieta* de países selecionados. In; revista TIME, edição de 15/07/2000

LOPES, Mauro de Resende. A Agricultura e a Demanda por Irrigação Ministério da Irrigação, Brasília, DF, 1988

MARQUES, José R. F. Criação de Búfalos. Brasília: Embrapa-SPI, 1998

MINISTÉRIO DO DESENVOLVIMENTO, IDÚSTRIA E COMÉRCIO. Secex, Balança Comercial, Dezembro 1999,

MINISTÉRIO DO DESENVOLVIMENTO, IDÚSTRIA E COMÉRCIO. Secex, Balança Comercial, Dezembro 1999,

MINISTÉRIO DOS TRANSPORTES & MINISTÉRIO DA AGRICULTURA E DO ABASTECIMENTO. Relatório do grupo interministerial Agricultura / Transportes. Brasília: 1999.

MOURA, J. C. Bubalinocultura. Campinas: Fundação Cargill. 1981

NASCIMENTO, C e CARVALHO, L. O. M. Criação de Búfalaos: alimentação, manejo,

ORGANIZAÇÃO MUNDIAL DO COMÉRCIO (OMC). Site oficial.

ORGANIZAÇÃO MUNDIAL DO COMÉRCIO (OMC). Site oficial.

Porto de Itaqui: informações básicas (internet).

RABOBANK INTERNATIONAL NETWORK. Competitiveness in the pig industry. Netherland, 1993. 64p.

RABOBANK INTERNATIONAL NETWORK. Competitiveness in the pig industry. Netherland, 1993. 64p.

REIS, Joracy M.L. dos. *Consumo domiciliar de Alimentos nas regiões metropolitanas Brasileiras- Comparativo dos Planos Cruzado x Real.* CONAB, Brasília, DF. Abril/2000

REVISTA PREÇOS AGRÍCOLAS. Centro de Estudos Avançados em Economia Agrícola, ESALQ, USP, Piracicaba (SP), Dezembro 1994.

Rio Tocantins: ficha informativa da hidrovia internet)
SECEX-DECEX – Secretaria de Comércio Exterior-Departamento de Comércio Exterior do Ministério de Desenvolvimento - ***Estatísticas sobre Exportações e importações brasileiras***
SIMINO, Jorge. ***De olho na evolução do saldo comercial.*** **In; jornal Valor Econômico, edição de 05/07/2000, p. D2**
THORSTENSEN, Vera. OMC As regras do comércio internacional e a rodada do milênio. Aduaneiras, 1999.
THORSTENSEN, Vera. OMC As regras do comércio internacional e a rodada do milênio. Aduaneiras, 1999.
UNITED STATES DEPARTMENT OF AGRICULTURE. Site oficial.
UNITED STATES DEPARTMENT OF AGRICULTURE. Site oficial.