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BY

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CENTRO D' DOCUMENTAZIONE

After low bean production in the Latin American region due to sharp declines in output of the major producers Brazil and Mexico during 1979 and 1980 an all time historic high in regional bean production of 4.8 million tons was achieved in 1981.

In Mexico where drought resulted in a 1979 harvest of 600,000 tons the lowest figure in 18 years production recovered to 970,000 tons in 1980 and soared to 1.5 million tons in 1981. This later figure is 250,000 tons greater than the production attained in the previous record harvest of 1975.

This striking increase in Mexican bean production was due to the combination of the end of a severe drought and a series of policy measures enacted in order to stimulate bean production. As reported in the 1982 Trend Highlights support prices of beans were raised 33% to 50% input prices were reduced additional credit was allocated to beans and crop insurance premiums were cut. These incentives led farmers to significantly increase areas devoted to beans from 1.1 million hectares in 1979 to 1.8 million hectares in 1980 and to 2.2 million hectares in 1981. While yields also rose nearly 20% the main cause of higher bean production in Mexico was the doubling of area. Vastly strengthened economic incentives to Mexican bean farmers achieved the desired impact of raising bean production.

Similarly in Brazil policies to stimulate bean production led to an abrupt climb in production. After the poor harvest of 1.9 million tons in 1980 an increased allocation of subsidized credit to bean production and a steep rise in the guaranteed minimum producers price for beans were employed by the government to provide greater economic incentives to bean producers (see 1982 Trend Highlights). Bean output rose to 2.3 million tons in 1981 its highest level in almost a decade. Subsequently in 1982 bean production reached 2.9 million tons according to preliminary data (Latin American Commodities Report June 4 1982) exceeding the previous

harvest record of 1967 by about 350 000 tons This was achieved as the incentives for bean production were so favorable that some farmers are reported to have switched out of soy beans and rice into bean production (Latin American Weekly Report Feb 18 1982 FAS Report Jan 20 1982)

In 1982 the Brazilian government through the Comissão de Financiamento de Produção (CFP) purchased beans at about Cr 100/kg while it sold the beans to wholesalers at about Cr 40/kg resulting in a retail price of Cr 55-60/kg This represents a subsidy of some US \$267/ton Year end stocks were unofficially estimated at 650 000 tons and total government purchases of beans amounted to well over 1 0 million tons in 1982 The costs of the bean production incentives could potentially reach as much as US \$250 million

There is concern that the domestic market can not absorb present stocks at any reasonable price Some 40 000 tons of black beans are being exported to Venezuela at a CIF price of US \$240/ton This represents a loss of close to US \$200/ton excluding the costs of handling freight storage and insurance

A policy of high prices to bean farmers and cheap prices to consumers is likely to be politically attractive especially in an election year However there is considerable speculation that production incentives will be reduced due to the high costs of the current policy and the difficulty of sustaining such costs when under pressure from external financial institutions which are urging Brazil to reduce fiscal deficits in order to combat problems of inflation balance of payment deficits and external debt management

These recent events in Brazil and Mexico demonstrate the great instability characteristic of bean production yields and prices in the region These events also illustrate how better economic incentives to bean producers can lead to extremely high levels of production In the case of Brazil though it seems possible that the farm level prices which are required to insure sufficient production to meet demand are inconsistent with

retail level prices which enable the poor the main consumers of beans to purchase beans Obviously cost reducing bean production technologies could play a critical role in bringing the farm level supply price into line with affordable retail prices for poor consumers

Yield Trends

Although overall Latin American bean yields declined from 605 kg/ha in 1966-68 to 549 kg/ha in 1979-81 in nine of the countries in the region there were statistically significant increases in yields in this period while in only four countries were there statistically significant declines in yields (Table 4 1) Falling bean yields are not therefore characteristic of the majority of countries in the region Brazil which alone accounts for about half of total bean production in the region is primarily responsible for declining regional average yields

The reason for the striking drop in Brazilian bean yields are complex In 16 of 18 Brazilian states bean yields have fallen (Table 4 2) Hence, national average bean yields have not declined because of shifts in the relative importance of production in the high yielding South compared to production in the low yielding North

In the South bean yields may have been depressed as soybean production rose dramatically expanding to over five million hectares by 1975 (Censo Agropecuario do Brasil) As soybeans spread beans may well have been displaced to more marginal lands However less than five hundred hectares of soybeans were cultivated in the North by 1975 so beans are obviously not being marginalized by soybeans in this area

While various factors including demand prices imprecision of available yield data and official policy may have contributed to apparently declining productivity in bean production in Brazil it must be noted that trends in bean yields are similar to those of other important crops In the period 1960 - 81 in Brazil while bean yields fell - 3 0%/yr for cassava it was - 0 9%/yr sorghum - 0 2 /yr and rice - 0 7%/yr Hence declining bean yields in Brazil seem not to be a phenomenon particular to beans but

a reflection of a general pattern among agricultural commodities where output growth comes from area expansion at the frontier rather than through more intensive production techniques associated with yield improvements

Demand and Nutrition

It is well known that beans are frequently the cheapest source of high quality protein (Table 4 3) and that consequently bean consumption is often greatest among the poor since beans are the most economic way of meeting nutritional requirements on a limited budget (Tables 4 4 and 4 5) Moreover due to generally lower incomes and problems of obtaining and storing meat in rural areas beans are much more important as a protein source in rural than urban areas (Table 4 6) and bean consumption is often higher in rural than urban areas (Table 4 7)

Although per capita bean consumption falls with increasing urbanization this can stimulate expansion in the market demand for beans In rural areas as much as 70% of bean consumption is from subsistence production (Table 4 7) Purchase of beans is low in rural areas while overall consumption is high In contrast in urban areas almost all beans that are consumed are purchased As a result per capita purchase of beans is greater in urban than rural areas so that increasing urbanization contributes to strong growth in the market demand for beans even when total bean consumption is declining Hence falling per capita consumption of beans in rapidly urbanizing countries can be accompanied by an expanding market demand for beans

TABLE 4 1 BEANS TRENDS IN YIELD LEVEL BY COUNTRY
1966-81

Country	Annual Growth Rate in Yield 1966-81	Average Yield (kg/ha)		
		1966-68	1972-74	1979-81
BRAZIL	-3 0	668	594	470
MEXICO	1 6* †	480	560	601
	<u>-1 6 †</u>	<u>600</u>	<u>582</u>	<u>506</u>
BOLIVIA	7 3* *	377	818	1017
COLOMBIA	1 6* ~**	561	705	715
CUBA	1 2* *	638	671	740
DOMINICAN REPUBLIC	0 9	687	1007	832
ECUADOR	1 1*~	445	441	546
PARAGUAY	1 9~**	633	747	775
PERU	0 7	849	857	935
VENEZUELA	3 3~ *	419	380	629
TROPICAL SOUTH AMERICA	<u>1 9* †</u>	<u>575</u>	<u>659</u>	<u>734</u>
COSTA RICA	2 7*	394	547	498
SALVADOR	0 6	670	725	786
GUATEMALA	0 1	650	693	740
HONDURAS	-2 6*	702	540	529
NICARAGUA	-0 7	838	718	791
PANAMA	-0 3	332	289	347
CENTRAL AMERICA	<u>-0 2</u>	<u>649</u>	<u>633</u>	<u>8</u>
HAITI	1 7 **	425	444	41
JAMAICA	-0 9 *	681	708	639
CARIBBEAN	<u>1 7* †</u>	<u>425</u>	<u>445</u>	<u>541</u>
TROPICAL LATIN AMERICA	<u>-1 2~**</u>	<u>599</u>	<u>588</u>	<u>530</u>
ARGENTINA	1 2	866	976	941
CHILE	-1 2*	1198	1006	998
URUGUAY	0 4	553	504	578
TEMPEKATE SOUTH AMERICA	<u>-0 4</u>	<u>1054</u>	<u>982</u>	<u>955</u>
LATIN AMERICA	<u>-1 0 *</u>	<u>605</u>	<u>597</u>	<u>549</u>

LEVEL OF SIGNIFICANCE IS REPRESENTED AS FOLLOWS

† * P < 0 05

~ P < 0 01

P < 0 05

TABLE 4 2 BEAN YIELD AND PRODUCTION BY STATE BRAZIL 1968 69 AND 1976 77

	AVERAGE 1968 69			AVERAGE 1976 77		
	PRODUCTION (000 TONS)	PER CENT OF NATIONAL PRODUCTION	YIELD (KG/HA)	PRODUCTION (000 TONS)	PER CENT OF NATIONAL PRODUCTION	YIELD (KG/HA)
<u>SOUTH</u>						
PARANA	499	21 6	751	582	28 2	714
RIO GRANDE DO SUL	223	9 7	817	125	6 0	700
SANTA CATERINA	109	4 7	970	117	5 7	673
SAO PAULO	131	5 7	557	171	8 3	579
<u>CENTRAL</u>						
ESPIRTU SANTO	45	2 0	515	35	1 7	422
MINAS GERAIS	270	11 5	536	274	13 3	476
RIO DE JANEIRO	8	0 4	496	7	0 3	600
<u>NORTHEAST</u>						
ALAGOAS	51	2 2	454	31	1 5	358
BAHIA	194	8 4	787	94	4 6	335
CEARA	198	8 6	560	113	5 5	241
MARANHAO	41	1 8	601	41	2 0	512
PARAIBA	89	3 9	505	58	3 0	227
PERNANBUCO	136	5 9	535	110	5 4	389
PIAUI	60	2 6	500	34	1 7	204
RIO GRANDE DO NORTE	66	3 0	436	56	2 7	280
SERGIPE	16	0 7	343	7	0 4	331
<u>WEST</u>						
GOIAS	115	5 0	768	97	4 7	450
MATO GROSSO	45	2 0	765	72	3 5	752

**TABLE 4 3 COST OF PROTEIN NUMBER OF GRAMS OF PROTEIN SUPPLIED BY BEANS
FOR COST OF ONE GRAM OF PROTEIN FROM ALTERNATIVE FOODS**

	<u>ECUADOR</u>	<u>COLOMBIA</u>	<u>VENEZUELA</u>	<u>BRAZIL</u>
BEEF	2 7	2 8	5 1	4 0
CHICKEN	3 1	1 8	2 0	3 3
PORK	-	6 1	8 5	9 8
BREAD	1 1	-	-	1 9
RICE	1 4	1 1	1 2	2 3

NOTES - DATA NOT AVAILABLE

SOURCES ANUARIO ESTADISTICO DO BRASIL DANE INSTITUTO NACIONAL DE
ESTADISTICA Y CENSOS ANUARIO AGROPECUARIO DE VENEZUELA FOOD
COMPOSITION TABLES FOR THE ENGLISH SPEAKING CARIBBEAN

TABLE 4.4 PER CENT OF TOTAL FOOD EXPENDITURES ON BEANS OR PULSES BY INCOME CLASS

	<u>Lowest Income Strata</u>	<u>Income Strata 2</u>	<u>Income Strata 3</u>	<u>Income Strata 4</u>	<u>Income Strata 5</u>	<u>Highest Income Strata</u>
MEXICO ^b						
Rural Chihuahua	11.4	8.9	7.0	5.0	5.5	4.8
Urban Chihuahua	10.5	9.6	6.5	4.4	3.1	2.9
EL SALVADOR URBAN ^a	10.2	5.6	5.3	4.8	8.7	4.1
PERU LIMA ^a	4.1	4.0	3.4	3.3	2.7	2.5
VENEZUELA, MARACAIBO	2.1	1.6	1.3	1.2	0.9	1.0

Source FAO 1977

^a All pulses

^b Beans only

TABLE 4 5 BEAN CONSUMPTION BY INCOME QUARTILE BRAZIL 1975 (KG/CAPITA/YR)

	<u>Lowest Income Quartile</u>	<u>Income Quartile 2</u>	<u>Income Quartile 3</u>	<u>Highest Income Quartile</u>
RURAL BRAZIL	22 4	21 7	21 5	15 6
METROPOLITAN BRAZIL	14 9	13 5	15 2	10 8
ALL BRAZIL	18 7	16 7	16 6	12 1

Source Estimated from IBGE data

TABLE 4 6 NUTRITIONAL CONTRIBUTION OF BEANS AND BEEF BRAZIL 1975

	<u>% PROTEIN FROM BEANS</u>	<u>% CALORIES FROM BEANS</u>	<u>% PROTEIN FROM BEEF</u>	<u>% CALORIES FROM BEEF</u>
<u>NORTHEAST</u>				
RURAL	37 9	17 2	8 3	2 6
RECIFE	15 9	8 0	19 1	6 0
EL SALVADOR	15 6	8 5	26 4	8 7
FORTALEZA	26 6	12 9	12 0	3 8
<u>EAST</u>				
RURAL MINAS GERAIS	32 3	12 8	3 6	0 8
BELO HORIZONTE	16 6	7 2	13 4	3 1
<u>RIO DE JANEIRO STATE</u>				
RURAL	26 1	10 5	9 1	2 3
METROPOLITAN	16 6	8 4	17 4	5 4
<u>SAO PAULO STATE</u>				
RURAL	25 3	10 4	7 8	1 8
METROPOLITAN	16 4	8 1	16 4	4 2
<u>SOUTH</u>				
RURAL	22 5	10 0	5 8	1 7
PORTO ALEGRE	10 8	5 3	20 8	6 6

SOURCE IBGE

TABLE 4 7 BEAN CONSUMPTION AND PURCHASE IN RURAL AND URBAN BRAZIL
(kg /cap /year)

	CONSUMPTION		PURCHASES	
	RURAL	URBAN	RURAL	URBAN
SOUTH	27 6	13 4	8 5	12 5
SAO PAULO	27 4	18 5	18 6	17 7
RIO DE JANEIRO	24 8	19 3	17 9	18 9
CENTRAL	32 5	15 9	10 7	15 1
NORTHEAST	38 2	16 4	12 3	15 3

SOURCE IBGE data

TABLE 4 8 BEANS PRODUCTION, RELATIVE IMPORTANCE IN THE REGION AND PER CAPITA PRODUCTION LEVELS

Country	P r o d u c t i o n			Percentage per Capita of Total Production	
	1966-68	1972-78	1979-81	1979-81	1979-81
	----- 1000 Mt -----			%	kg
BRAZIL	2372	2250	2165	52 6	20
MEXICO	950	905	1014	24 7	17
	<u>3322</u>	<u>3156</u>	<u>3178</u>	<u>77 3</u>	<u>19</u>
BOLIVIA	3	2	4	0 1	1
COLOMBIA	38	70	82	2 0	4
CUBA	22	24	26	0 7	3
DOMINICAN REPUBLIC	24	37	42	1 0	8
ECUADOR	37	27	26	0 6	4
PARAGUAY	20	49	64	1 5	24
PERU	64	57	45	1 1	3
VENEZUELA	40	32	46	1 1	4
TROPICAL SOUTH AMERICA	<u>248</u>	<u>299</u>	<u>335</u>	<u>8 1</u>	<u>4</u>
COSTA RICA	16	13	12	0 3	6
EL SALVADOR	21	36	41	1 0	10
GUATEMALA	56	71	82	2 0	14
HONDURAS	50	34	39	0 9	13
NICARAGUA	54	46	53	1 3	24
PANAMA	7	4	4	0 1	3
CENTRAL AMERICA	<u>205</u>	<u>205</u>	<u>231</u>	<u>5 6</u>	<u>12</u>
HAITI	40	43	49	1 2	10
JAMAICA	0	0	0	0 0	0
CARIBBEAN	<u>40</u>	<u>44</u>	<u>49</u>	<u>1 2</u>	<u>5</u>
TROPICAL LATIN AMERICA	<u>3815</u>	<u>3703</u>	<u>3794</u>	<u>92 3</u>	<u>14</u>
ARGENTINA	27	116	203	4 9	8
CHILE	75	85	113	2 7	11
URUGUAY	2	2	3	0 1	1
TEMPERATE SOUTH AMERICA	<u>103</u>	<u>203</u>	<u>319</u>	<u>7 7</u>	<u>1</u>
LATIN AMERICA	<u>3918</u>	<u>3906</u>	<u>4112</u>	<u>100 0</u>	<u>108</u>

COLUMNS MAY NOT ADD EXACTLY DUE TO ROUNDING

TABLE 4 9 BEANS ANNUAL GROWTH RATES

C o u n t r y	Production 1966 81	Area 1966-81	Yield 1966-81
BRAZIL	-0 8	2 2~	3 0
MEXICO	<u>0 1</u>	-1 6	<u>1 6</u>
	-0 5	<u>1 1***</u>	<u>-1 6*</u>
BOLIVIA	3 2	-4 1	7 3
COLOMBIA	6 4 **	4 7	1 6
CUBA	1 2 **	-0 0	1 2
DOMINICAN REPUBLIC	4 5***	3 6~**	0 9
ECUADOR	-3 3***	-4 4***	1 1**
PARAGUAY	9 7~**	7 8 ~*	1 9 *
PERU	-2 6 ~**	-3 3 *	0 7
VENEZUELA	0 9	-2 4 ~*	3 3
TROPICAL SOUTH AMERICA	<u>2 5***</u>	<u>0 6**</u>	<u>1 9 **</u>
COSTA RICA	-0 2	-2 9	2 7*
SALVADOR	4 9* *	4 3~**	0 6
GUATEMALA	2 8~**	2 7***	0 1
HONDURAS	-2 3**	0 4	-2 6***
NICARAGUA	-0 4	0 3	-0 7
PANAMA	-3 3**	-3 0**	-0 3
CENTRAL AMERICA	<u>0 9**</u>	<u>1 2~**</u>	<u>-0 2</u>
HAITI	1 5***	-0 2	1 7
JAMAICA	9 0***	9 8***	-0 9*
CARIBBEAN	<u>1 5***</u>	-0 2	<u>1 7</u>
TROPICAL LATIN AMERICA	-0 1	1 1 ~*	-1 2*
ARGENTINA	15 9**	14 7	1 2
CHILE	4 0	5 2 ~*	-1 2*
URUGUAY	<u>1 9 ~*</u>	<u>1 5 ~**</u>	<u>0 4</u>
TEMPERATE SOUTH AMERICA	<u>9 4 ~*</u>	<u>9 8</u>	<u>-0 4</u>
LATIN AMERICA	0 3	1 3 ~*	-1 0

LEVEL OF SIGNIFICANCE IS REPRESENTED AS FOLLOWS

* * P < 0 005
 P < 0 01
 * P < 0 05

TABLE 4 10 PULSES SUMMARY OF LATIN AMERICA TRADE (THOUSAND TONS)

R e g i o n	Export			Import			+Import -Export		
	1966-68	1972-74	1979-81	1966-68	1972-74	1979-81	1966-68	1972-74	1979-81
BRAZIL	16	3	2	21	19	37	5	16	35
MEXICO	86	68	87	1	21	321	-85	-47	234
	<u>102</u>	<u>71</u>	<u>89</u>	<u>22</u>	<u>40</u>	<u>358</u>	<u>-80</u>	<u>-31</u>	<u>269</u>
BOLIVIA	1	1	0	1	1	1	0	0	1
COLOMBIA	1	10	5	2	12	38	1	2	33
CUBA	0	0	0	73	99	101	73	99	101
DOMINICAN REPUBLIC	1	1	3	3	6	5	2	5	2
ECUADOR	0	0	0	1	1	4	1	1	4
PERU	2	3	3	7	2	8	5	-1	5
VENEZUELA	0	0	0	41	38	78	41	38	78
TROPICAL SOUTH AMERICA	<u>5</u>	<u>15</u>	<u>11</u>	<u>128</u>	<u>159</u>	<u>235</u>	<u>123</u>	<u>144</u>	<u>224</u>
COSTA RICA	1	1	1	9	18	11	8	17	10
EL SALVADOR	2	1	0	15	3	2	13	2	2
GUATEMALA	2	1	0	3	2	1	1	1	1
HONDURAS	19	6	1	1	1	2	-18	-5	1
NICARAGUA	4	4	4	2	4	8	-2	0	4
PANAMA	0	0	0	4	4	5	4	4	5
CENTRAL AMERICA	<u>28</u>	<u>13</u>	<u>6</u>	<u>34</u>	<u>32</u>	<u>29</u>	<u>6</u>	<u>19</u>	<u>23</u>
BARBADOS	1	1	1	2	2	2	1	1	1
GUYANA	1	1	0	4	4	4	3	3	4
HAITI	0	0	0	1	1	1	1	1	1
JAMAICA	1	0	0	2	3	1	1	3	1
TRINIDAD ETC	1	3	2	7	11	13	6	8	11
CARIBBEAN	<u>4</u>	<u>5</u>	<u>3</u>	<u>16</u>	<u>21</u>	<u>21</u>	<u>12</u>	<u>16</u>	<u>18</u>
TROPICAL LATIN AMERICA	139	104	109	200	252	643	61	148	534
ARGENTINA	25	52	172	1	1	3	-24	-51	-169
CHILE	15	21	70	1	2	0	-14	-19	-70
URUGUAY	0	0	0	1	1	3	1	1	3
TEMPERATE SOUTH AMERICA	<u>40</u>	<u>73</u>	<u>242</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>-37</u>	<u>-69</u>	<u>-236</u>
LATIN AMERICA	179	177	351	203	256	640	24	79	298

REFERENCES

- Anuario Estadístico Agropecuario Ministerio de Agricultura y Cria Caracas
Venezuela 1978
- Anuario Estadístico do Brasil Fundação Instituto Brasileiro de Geografia
e Estatística Rio de Janeiro various issues
- Caribbean Food and Nutrition Institute Food Consumption Tables for the
English Speaking Caribbean Kingston Jamaica 1974
- Censos Agropecuario do Brasil 1975 Fundação Instituto Brasileiro de Geogra-
fia e Estatística Rio de Janeiro 1979
- DANE (Departamento Administrativo Nacional de Estadística) Boletín Mensual
Bogota Colombia various issues
- FAO Review of Food Consumption Surveys Vol 2 Rome 1977
- FAO Proyecciones para Productos Agrícolas 1970-1980 Rome 1971
- FAS Report U S Department of Agriculture Washington D C Jan 20 1982
- Instituto Brasileiro de Geografia y Estatística Estudio Nacional da Despesa
Familiar Rio de Janeiro 1978
- Instituto Nacional de Estadística y Censos Indice de Precios al Consumidor
Quito Ecuador various issues
- Latin American Commodities Report London June 4 1982
- Latin American Weekly Report London Feb 18 1982
- PACHICO D Beans in Latin America Trends in CIAT Commodities CIAT
Cali Colombia 1982