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WORLD MAIZE FACTS AND TRENDS

Meeting World Maize Needs:

Technological Opportunities and
Priorities for the Public Sector

Prabhu L. Pingali, Editor

Part 4

Selected Maize Statistics

Pedro Aquino, Federico Carrión, Ricardo Calvo, and Dagoberto Flores

Introduction

The following tables present statistics related to maize production, trade, utilization, experimental yield, type of maize seed, moisture regime, prices, and input use. These statistics reflect the latest information available at the time of publication.

Countries are classified as either “developing” or “high-income” based on the criteria used by the World Bank in its *World Development Indicators* (2000). Countries classified as “developing” had a per capita GNP lower than US\$ 9,360 in 1998, whereas high-income countries had a per capita GNP exceeding US\$ 9,361. Countries in Eastern Europe and the Former Soviet Union (FSU) are treated separately. Traditionally included as “developed” countries in FAO statistics, most of these countries would be classified as developing countries by World Bank criteria.

The first set of tables is divided into two sections, “Production Statistics” and “Consumption Statistics.” Developing countries and those in Eastern Europe and the FSU are included in the individual country statistics if they consumed (or produced) at least 100,000 t of maize per year. Developing countries are classified as “maize producers” if they produce more than 100,000 t of maize per year, regardless of import and consumption levels. Developing countries that produce less than 100,000 t each year but that produced at least 50%

of their total maize consumption are also classified as producers. Other developing countries that consumed more than 100,000 t per year are defined as “maize consumers.” High-income countries are classified in the same way, using minimum levels of production or consumption of one million tons. A three-year average of the latest data available was used in the classification.

Unless otherwise indicated, the regional aggregates include data from all the countries in a particular region, including those countries for which data have not been reported individually. For a list of countries belonging to each region, see Appendix A. Regional means are appropriately weighted; thus they may not exactly equal the mean of the average values presented for each country. The former Czechoslovakia, former Yugoslavia, and the FSU were divided into separate countries, for which statistics were reported individually.

Notes on the Variables

The data source for all production and consumption statistics is FAO (1999, 2000).

Growth rates were calculated using the log-linear regression model:

$$\ln Y = a + \beta t + e,$$

where $\ln Y$ is the natural logarithm of Y , t is time period (year), a is a constant, β is the growth rate of Y , and e is the error

term. The function describes a variable Y , which displays a constant proportional rate of growth ($\beta > 0$) or decay ($\beta < 0$). β may be interpreted as the annual percentage change in Y .

Yield was computed by dividing three-year average production by the three-year average area harvested, which gives an average weighted by areas in the different years. The data source is the *FAOSTAT Production Statistics* (FAO 2000).

Net imports are defined as the amount of imports less exports. Data are taken from *FAOSTAT Trade Statistics* (1999).

Total consumption was calculated as the sum (in kilograms) of the amounts used for each type of maize utilization (i.e., food, feed, seed, processing, waste, and other uses). The data source is the *FAOSTAT Food Balance Sheets* (1999). The growth rate was calculated using the regression model given above.

Data regarding the type of maize seed, moisture regime, prices, and input use were collected through a general country survey of knowledgeable maize scientists. Data for experimental yields as of the year 2000 come from the CIMMYT International Maize Testing Historical Data System. The data for prices and input use refer to an important producing region within each country. The maize price is the average postharvest price received by farmers. The fertilizer price is usually the price paid by farmers for the most common fertilizers.

Production Statistics

REGION/COUNTRY	Average maize area, yield, and production, 1997-99			Growth rate of maize area (%/yr)			
	Harvested area ('000 ha)	Yield (t/ha)	Production ('000 t)	1951-65	1966-77	1978-87	1988-99 *
Eastern and Southern Africa	15436	1.5	23389	3.2	1.3	1.7	0.1
Angola	658	0.7	434	2.3	2.0	3.1	-2.9
Burundi	115	1.2	135	1.5	0.9	0.9	-1.2
Ethiopia	1606	1.7	2724	8.6	-1.2	1.5	8.9
Kenya	1502	1.5	2255	4.2	3.3	-0.1	0.2
Lesotho	134	1.0	128	-0.6	-5.2	2.2	-0.6
Madagascar	192	0.9	170	2.5	-2.1	2.2	2.7
Malawi	1342	1.4	1826	7.4	0.5	0.9	0.3
Mozambique	1221	0.9	1117	0.7	4.1	5.8	2.2
Somalia	200	0.7	141	16.7	-1.2	7.7	-0.5
South Africa	3691	2.3	8514	2.5	0.8	1.1	-2.1
Sudan	169	0.3	56	8.7	11.0	-4.4	8.1
Swaziland	63	1.8	115	8.8	-4.5	2.6	-3.7
Tanzania	1785	1.3	2362	3.7	1.8	3.6	-0.6
Uganda	615	1.2	763	2.3	5.1	-0.5	5.3
Zambia	553	1.5	818	1.0	1.1	-0.7	-4.1
Zimbabwe	1437	1.2	1710	5.7	1.8	3.8	2.5
Western and Central Africa	9223	1.2	11035	3.6	-0.5	7.6	1.5
Benin	607	1.2	738	1.7	-2.9	0.6	2.6
Burkina Faso	261	1.4	362	2.5	-6.3	4.3	1.1
Cameroon	392	1.5	583	7.9	2.7	-13.9	7.4
Central African Republic	94	0.9	89	18.6	8.3	-5.5	3.8
Chad	122	1.2	148	0.8	-6.6	5.9	13.5
Congo, Dem. Rep. of	1436	0.8	1161	3.2	2.4	4.2	2.2
Côte d'Ivoire	700	0.8	573	4.8	6.0	1.6	0.5
Ghana	683	1.5	1015	3.5	0.9	8.6	2.8
Guinea	85	1.0	88	4.7	0.2	1.3	2.2
Mali	195	1.7	324	0.7	-2.1	13.2	4.1
Nigeria	4111	1.3	5419	3.3	-5.3	23.9	0.6
Senegal	61	0.9	57	8.0	-0.8	5.3	-5.4
Togo	377	1.0	384	2.1	-5.6	6.9	4.0
North Africa	1192	5.4	6402	-1.2	0.5	-0.6	-0.8
Egypt	864	7.1	6164	-1.2	2.0	-0.6	< 0.1
Morocco	327	0.7	237	-1.1	-1.6	-0.7	-2.8
West Asia	1105	3.5	3876	1.3	-0.1	-2.2	1.4
Afghanistan	200	1.2	243	3.2	-0.3	-5.1	-3.2
Iran	148	6.3	932	5.1	2.7	-25.5	28.1
Iraq	61	1.9	118	-12.2	18.1	0.2	-0.6
Syria	75	3.2	244	-9.1	16.2	9.0	3.5
Turkey	573	3.9	2260	0.2	-1.3	-0.5	1.3
South Asia	8147	1.7	13660	2.1	0.8	0.6	0.7
India	6223	1.7	10694	2.4	0.8	-0.2	0.6
Myanmar	170	1.8	299	2.6	-1.0	5.8	3.9
Nepal	800	1.7	1343	-0.4	0.5	5.0	0.9
Pakistan	879	1.4	1251	1.8	0.7	2.4	0.3
Southeast Asia and Pacific	8185	2.4	19974	4.6	1.4	1.1	-1.2
Indonesia	3547	2.6	9358	3.0	-2.5	< 0.1	1.5
Philippines	2594	1.6	4266	4.9	4.0	1.3	-4.3
Thailand	1263	3.6	4483	21.3	6.7	2.7	-3.0
Vietnam	665	2.5	1668	4.2	3.1	0.5	3.7
East Asia	25592	4.8	122784	1.4	1.7	-0.6	2.2
China **	24996	4.9	121363	1.2	1.7	-0.6	2.3
North Korea	576	2.3	1338	7.5	2.5	-0.1	-1.8

* Data for 1993-97 (former Ethiopia and former Czechoslovakia) and 1992-97 (former Soviet Union and former Yugoslavia).

** Data for China include figures for Hong Kong.

*** Slovenia is a high-income country but is included here for greater geographical consistency with previous *Maize Facts and Trends*.

**** The world aggregates are not exactly equal to the FAO estimates because the method of aggregation may have differed.

n.a. not available

Growth rate of maize yield (%/yr)				Growth rate of maize production (%/yr)				Maize area as percentage of total cereal area (average), 1997-99 (%)
1951-65	1966-77	1978-87	1988-99 *	1951-65	1966-77	1978-87	1988-99 *	
1.8	2.8	-2.7	0.4	5.1	4.1	-1.0	0.5	41
1.3	-2.1	-6.0	9.3	3.6	-0.1	-2.8	6.3	76
0.4	0.7	0.4	-1.6	1.9	1.6	1.4	-2.8	56
2.1	3.3	0.8	3.4	10.7	2.1	2.3	12.3	23
1.8	2.5	3.6	-1.5	6.1	5.8	3.5	-1.3	79
0.5	2.4	-7.0	1.3	-0.1	-2.7	-4.8	0.7	71
2.4	0.5	1.4	-1.3	4.9	-1.5	3.6	1.4	14
1.0	0.9	-1.5	3.1	8.4	1.3	-0.6	3.4	89
1.5	-5.1	-7.6	12.3	2.2	-1.1	-1.8	14.5	62
0.4	0.5	6.7	-6.0	17.1	-0.7	14.4	-6.6	39
2.3	3.1	-5.7	1.6	4.8	3.8	-4.6	-0.5	74
-6.9	-0.7	-3.0	-2.9	1.8	10.3	-7.4	5.2	2
-11.0	11.6	3.3	4.4	-2.2	7.1	5.9	0.8	98
1.7	5.8	0.7	0.1	5.3	7.6	4.3	-0.5	56
1.2	2.5	-3.1	-1.1	3.5	7.5	-3.6	4.3	45
1.9	5.9	1.2	-2.0	2.9	7.0	0.4	-6.1	78
0.3	3.0	-2.6	-3.2	6.0	4.8	1.2	-0.7	75
-0.2	0.5	3.3	0.4	3.4	0.1	10.9	1.9	21
0.8	2.7	1.1	3.5	2.5	-0.2	1.7	6.1	73
1.2	1.6	-1.5	2.2	3.7	-4.6	2.8	3.3	9
-3.0	2.1	12.3	-2.1	4.8	4.8	-1.5	5.4	37
-2.0	-9.0	12.7	0.1	16.6	-0.6	7.2	3.9	62
0.9	1.4	-3.9	3.5	1.7	-5.1	2.0	17.0	6
-2.8	0.4	1.0	< 0.1	0.5	2.9	5.2	2.2	69
6.5	-4.2	4.1	1.5	11.4	1.8	5.7	2.0	43
-1.8	-1.9	0.5	1.5	1.7	-1.1	9.1	4.3	52
-2.2	-0.3	0.9	0.3	2.6	-0.1	2.2	2.5	12
2.3	-0.1	-2.6	1.3	3.0	-2.2	10.6	5.5	10
0.4	2.1	-0.5	-0.2	3.7	-3.1	23.5	0.4	22
-1.5	2.8	5.1	-2.8	6.5	2.0	10.5	-8.2	5
2.5	6.3	-5.1	-0.7	4.6	0.7	1.7	3.3	52
3.1	1.5	2.6	3.4	1.9	2.0	2.0	2.6	10
2.9	0.4	2.9	3.1	1.7	2.3	2.3	3.1	32
3.9	1.3	-0.1	-5.4	2.8	-0.3	-0.8	-8.1	6
1.6	2.5	5.7	1.4	2.9	2.4	3.6	2.8	3
2.7	0.8	0.5	-4.2	5.9	0.5	-4.6	-7.5	7
0.5	5.8	15.1	8.0	5.5	8.4	-10.4	36.1	2
1.9	8.5	-3.3	-0.9	-10.4	26.6	-3.1	-1.6	2
-2.1	2.5	-4.0	2.4	-11.2	18.7	5.0	5.9	2
1.2	3.6	7.9	-0.6	1.4	2.4	7.4	0.7	4
0.0	0.3	1.3	1.3	4.1	1.1	1.9	2.0	6
2.9	0.4	1.4	1.5	5.3	1.2	1.2	2.2	6
1.7	2.4	6.1	1.6	4.4	1.5	11.9	5.5	3
0.6	-0.7	-1.5	0.8	0.2	-0.2	3.5	1.6	25
0.5	1.4	0.8	0.3	2.4	2.1	3.2	0.6	7
1.6	1.9	3.0	3.6	6.3	3.3	4.0	2.4	19
1.1	2.6	4.3	2.7	4.2	0.1	4.3	4.2	24
0.2	1.7	2.5	3.4	5.1	5.7	3.8	-0.9	41
5.4	-0.2	1.0	4.0	26.7	6.6	3.7	0.9	11
-0.1	0.6	4.1	5.5	4.1	3.7	4.6	9.2	8
0.8	3.7	3.8	1.7	2.2	5.4	3.2	3.9	27
0.5	3.8	3.8	2.0	1.8	5.5	3.2	4.3	27
5.6	2.1	4.4	-12.0	13.1	4.6	4.2	-13.8	42

Production Statistics (cont'd).

REGION/COUNTRY	Average maize area, yield, and production, 1997-99			Growth rate of maize area (%/yr)			
	Harvested area ('000 ha)	Yield (t/ha)	Production ('000 t)	1951-65	1966-77	1978-87	1988-99 *
Mexico, Central America, and the Caribbean	9601	2.2	21084	2.8	-1.0	0.6	1.3
Cuba	100	1.3	129	-6.7	-2.0	0.1	3.1
El Salvador	317	1.8	579	0.4	1.9	-0.6	1.0
Guatemala	611	1.7	1013	2.2	-1.6	2.0	-0.8
Haiti	273	0.8	217	-2.1	-1.5	1.4	1.4
Honduras	409	1.3	519	0.1	3.4	-1.9	1.4
Mexico	7502	2.4	18145	3.8	-1.2	0.6	1.5
Nicaragua	266	1.1	287	2.3	-0.4	-2.9	3.4
Andean Region, South America	2082	1.9	4013	3.0	-1.8	2.9	-1.6
Bolivia	283	2.0	572	8.9	0.9	1.6	0.1
Colombia	528	1.7	902	-0.1	-3.5	-1.1	-3.9
Ecuador	456	1.2	527	7.9	-1.2	8.4	0.2
Peru	440	2.1	939	3.1	0.9	2.8	0.9
Venezuela	373	2.9	1069	4.8	-3.1	5.2	-3.5
Southern Cone, South America	15501	3.2	50107	3.8	1.2	1.4	0.4
Argentina	3035	5.3	16026	4.0	-2.2	1.7	4.6
Brazil	11929	2.7	32091	4.1	2.2	1.5	-0.5
Chile	93	8.7	816	4.5	2.9	-0.8	-1.4
Paraguay	383	2.5	971	2.9	5.2	-6.1	7.6
Uruguay	60	3.4	203	-3.1	-2.8	-6.5	-1.2
Eastern Europe and Former Soviet Union	9577	3.8	36617	1.1	-0.1	1.5	-1.3
Albania	58	3.4	197	1.9	-4.1	-2.5	-0.7
Bosnia and Herzegovina	165	3.7	612	n.a.	n.a.	n.a.	-8.4
Bulgaria	437	3.1	1354	-1.4	1.8	-2.7	-2.0
Croatia	378	5.6	2098	n.a.	n.a.	n.a.	0.4
Czech Republic	38	6.6	249	n.a.	n.a.	n.a.	5.2
Georgia	211	2.3	484	n.a.	n.a.	n.a.	12.7
Hungary	1067	6.3	6693	0.9	1.1	-1.9	-0.7
Kazakhstan	63	2.5	159	n.a.	n.a.	n.a.	-12.1
Kyrgyzstan	48	4.7	223	n.a.	n.a.	n.a.	1.0
Macedonia	39	4.2	166	n.a.	n.a.	n.a.	-1.8
Moldova	419	3.3	1400	n.a.	n.a.	n.a.	6.3
Poland	89	5.7	504	-11.2	17.9	-3.5	5.7
Romania	3033	3.4	10439	0.8	-0.1	-1.5	1.8
Russian Federation	816	1.9	1522	n.a.	n.a.	n.a.	1.2
Slovakia	128	5.8	745	n.a.	n.a.	n.a.	-1.4
Slovenia ***	46	7.3	332	n.a.	n.a.	n.a.	-4.9
Ukraine	1077	2.9	3124	n.a.	n.a.	n.a.	-3.8
Uzbekistan	47	3.8	180	n.a.	n.a.	n.a.	-14.3
Yugoslavia	1371	4.4	6071	n.a.	n.a.	n.a.	-0.9
Western Europe, North America, and Other High-Income Countries	34543	8.3	287335	-1.5	2.3	-1.1	1.2
Austria	179	9.7	1739	-1.2	9.6	1.9	-0.8
Canada	1097	7.7	8396	4.0	7.2	1.3	1.0
France	1807	8.8	15888	7.9	5.8	< 0.1	-0.5
Germany	358	8.4	3002	5.3	8.9	6.7	5.6
Greece	211	9.1	1914	-4.1	-1.3	8.4	-1.0
Italy	1013	9.6	9677	-1.4	-1.0	-1.6	2.5
Portugal	190	5.6	1070	-0.1	-2.3	-5.0	-2.1
Spain	447	9.3	4164	2.8	-1.0	2.0	-1.9
United States of America	29110	8.3	240489	-1.9	2.2	-1.4	1.3
Regional aggregates							
Developing countries	96062	2.9	276325	2.7	0.9	1.1	0.8
Eastern Europe and Former Soviet Union	9577	3.8	36617	1.1	-0.1	1.5	-1.3
Western Europe, North America, and Other High-Income Countries	34543	8.3	287335	-1.5	2.3	-1.1	1.2
World ****	140182	4.3	600277	1.3	1.1	0.6	0.7

* Data for 1993-97 (former Ethiopia and former Czechoslovakia) and 1992-97 (former Soviet Union and former Yugoslavia).

** Data for China include figures for Hong Kong.

n.a. not available

Growth rate of maize yield (%/yr)				Growth rate of maize production (%/yr)				Maize area as percentage of total cereal area (average), 1997-99 (%)
1951-65	1966-77	1978-87	1988-99 *	1951-65	1966-77	1978-87	1988-99 *	
2.5	1.2	1.5	2.5	5.4	0.2	2.1	3.8	70
0.4	2.8	-0.1	2.9	-6.4	0.8	0.0	5.9	41
1.2	2.7	0.5	-0.9	1.6	4.6	-0.1	0.1	71
1.0	5.0	0.8	-1.5	3.3	3.4	2.8	-2.3	91
3.0	-1.7	0.8	-0.1	0.9	-3.2	2.2	1.4	59
3.7	-1.7	4.5	-0.6	3.7	1.7	2.6	0.7	82
2.9	1.0	1.5	3.3	6.7	-0.2	2.2	4.7	71
-0.8	-0.5	2.9	-2.4	1.6	-0.9	0.0	1.0	69
-0.3	2.2	1.8	2.1	2.6	0.3	4.6	0.5	45
-0.1	0.2	2.1	3.1	8.8	1.1	3.7	3.2	37
0.5	2.3	0.3	2.1	0.4	-1.2	-0.8	-1.8	51
-4.2	4.1	1.0	1.3	3.7	2.9	9.4	1.5	52
0.6	1.2	2.6	0.8	3.6	2.0	5.4	1.7	43
-1.2	2.1	3.3	3.6	3.6	-1.0	8.5	0.2	53
0.8	1.7	2.5	4.3	4.7	2.9	3.9	4.7	53
1.3	2.5	0.7	4.3	5.3	0.3	2.4	8.9	30
0.5	1.9	3.3	3.8	4.6	4.1	4.8	3.3	68
4.6	-1.4	9.9	1.6	9.2	1.5	9.1	0.2	15
-0.1	2.0	2.4	2.9	2.8	7.2	-3.7	10.5	60
-2.3	6.2	2.7	8.4	-5.4	3.4	-3.8	7.2	10
4.8	2.9	0.5	0.3	5.9	2.9	2.0	-1.1	9
0.1	6.5	1.8	-0.5	2.0	2.3	-0.7	-1.2	27
n.a.	n.a.	n.a.	-3.2	n.a.	n.a.	n.a.	-11.6	55
7.1	0.7	-0.1	-1.9	5.6	2.5	-2.7	-3.9	23
n.a.	n.a.	n.a.	4.3	n.a.	n.a.	n.a.	4.8	58
n.a.	n.a.	n.a.	9.2	n.a.	n.a.	n.a.	14.3	2
n.a.	n.a.	n.a.	-0.9	n.a.	n.a.	n.a.	11.8	52
3.3	4.1	2.1	1.5	4.2	5.2	0.2	0.8	39
n.a.	n.a.	n.a.	-0.4	n.a.	n.a.	n.a.	-12.5	1
n.a.	n.a.	n.a.	1.2	n.a.	n.a.	n.a.	2.2	7
n.a.	n.a.	n.a.	7.8	n.a.	n.a.	n.a.	6.0	18
n.a.	n.a.	n.a.	2.0	n.a.	n.a.	n.a.	8.3	46
4.7	7.4	2.8	1.6	-6.5	25.3	-0.7	7.3	1
4.2	3.4	0.5	2.1	5.0	3.3	-1.0	3.9	53
n.a.	n.a.	n.a.	-10.0	n.a.	n.a.	n.a.	-8.9	2
n.a.	n.a.	n.a.	5.5	n.a.	n.a.	n.a.	4.1	16
n.a.	n.a.	n.a.	10.4	n.a.	n.a.	n.a.	5.6	48
n.a.	n.a.	n.a.	0.4	n.a.	n.a.	n.a.	-3.4	9
n.a.	n.a.	n.a.	2.4	n.a.	n.a.	n.a.	-11.9	3
n.a.	n.a.	n.a.	6.2	n.a.	n.a.	n.a.	5.3	59
4.6	1.5	2.0	2.6	3.1	3.8	0.8	3.7	25
4.5	2.5	2.3	2.0	3.3	12.0	4.1	1.1	22
2.8	0.5	2.2	2.5	6.9	7.7	3.5	3.5	6
4.3	-0.1	3.1	2.6	12.2	5.7	3.1	2.1	20
2.5	1.7	1.4	1.4	7.8	10.7	8.1	7.0	5
3.7	6.3	6.2	-0.7	-0.4	5.0	14.6	-1.7	16
3.7	5.2	1.2	2.6	2.3	4.2	-0.4	5.1	24
0.3	-0.4	7.9	7.4	0.2	-2.7	2.9	5.2	31
2.2	4.8	4.4	4.1	5.0	3.8	6.4	2.2	7
4.8	1.3	1.8	2.6	2.9	3.5	0.4	4.0	47
1.2	2.5	1.9	2.5	3.9	3.4	3.0	3.3	21
4.8	2.9	0.5	0.3	5.9	2.9	2.0	-1.1	9
4.6	1.5	2.0	2.6	3.1	3.8	0.8	3.7	25
2.4	2.4	1.2	2.4	3.7	3.5	1.8	3.1	20

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Consumption Statistics

REGION/COUNTRY	Average net maize imports, 1996-98		Maize food		Maize consumption		Average percentage of maize used	
	Total ('000 t)	Per capita (kg/yr)	Average per capita, 1995-97 (kg/yr)	Growth rate per capita, 1988-97 (%/yr) *	Average per capita, 1995-97 (kg/yr)	Growth rate per capita, 1988-97 (%/yr) *	Human consumption 1995-97 (%)	Animal feed 1995-97 (%)
Eastern and Southern Africa	-127	< 1	58	0.3	81	-0.4	72	17
Angola	147	13	36	3.7	42	3.1	84	5
Burundi	n.a.	n.a.	23	-3.6	25	-3.6	91	2
Ethiopia	25	< 1	39	2.0	45	2.9	88	5
Kenya	427	15	94	0.4	103	0.1	91	3
Lesotho	120	60	135	0.1	163	< 0.1	83	3
Madagascar	-4	< 1	11	0.3	12	0.2	86	5
Malawi	83	8	148	-0.3	182	0.4	82	6
Mozambique	109	6	53	2.8	58	2.7	93	++
Rwanda	163	27	25	8.0	42	12.0	61	++
Somalia	6	1	15	-13.3	17	-12.9	89	++
South Africa	-1200	-31	101	0.5	212	-1.0	48	39
Swaziland	10	11	60	7.1	150	-1.8	40	21
Tanzania	34	1	72	-2.1	85	-2.6	85	5
Uganda	-64	-3	25	3.7	39	3.6	64	11
Zambia	131	15	140	-1.4	165	-1.9	85	5
Zimbabwe	-260	-23	122	0.6	159	0.3	76	14
Western and Central Africa	184	1	28	0.9	43	0.5	66	13
Benin	2	< 1	66	2.4	102	2.4	65	3
Burkina Faso	n.a.	n.a.	26	1.3	28	1.2	91	
Cameroon	2	< 1	42	3.3	47	3.3	89	1
Central African Republic	< 1	< 1	21	3.4	25	3.1	83	
Chad	5	1	12	17.3	15	16.8	81	7
Congo, Dem. Rep. of	7	< 1	22	-0.4	25	-1.1	86	1
Côte d'Ivoire	-2	< 1	28	0.8	41	0.2	68	10
Ghana	29	2	42	3.0	56	2.6	75	6
Guinea	22	3	10	1.0	14	0.7	76	
Mali	1	< 1	25	1.9	28	1.8	91	++
Nigeria	n.a.	n.a.	34	0.3	62	< 0.1	55	20
Senegal	39	4	11	-6.1	13	-6.1	84	7
Togo	4	1	66	2.3	85	2.2	78	++
North Africa	4892	36	35	1.7	74	1.1	45	44
Algeria	874	30	5	22.1	34	-0.2	14	79
Egypt	2856	44	57	0.8	117	1.2	48	39
Libya	166	32	1	0.3	36	-7.7	2	93
Morocco	586	22	24	5.2	30	3.8	79	9
Tunisia	409	44	++	++	41	3.1	++	98
West Asia	4101	18	8	-0.2	34	1.9	23	69
Afghanistan	n.a.	n.a.	10	-12.7	14	-12.5	74	20
Iran	1068	17	1	9.5	30	9.5	3	92
Iraq	n.a.	n.a.	4	33.3	7	-20.7	50	45
Jordan	326	72	1	12.5	88	-2.6	1	95
Lebanon	260	83	1	3.1	85	4.5	2	95
Saudi Arabia	1062	54	< 1	2.3	62	15.9	1	96
Syria	418	28	2	2.4	38	9.0	5	91
Turkey	832	13	21	1.9	45	-0.1	47	39
Yemen	98	6	4	-1.6	8	-0.4	55	39

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n.a. Not available.

Consumption Statistics (cont'd)

REGION/COUNTRY	Average net maize imports, 1996-98		Maize food		Maize consumption		Average percentage of maize used	
	Total ('000 t)	Per capita (kg/yr)	Average per capita, 1995-97 (kg/yr)	Growth rate per capita, 1988-97 (%/yr) *	Average per capita, 1995-97 (kg/yr)	Growth rate per capita, 1988-97 (%/yr) *	Human consumption 1995-97 (%)	Animal feed 1995-97 (%)
South Asia	24	< 1	7	-0.6	10	-0.4	75	5
India	-26	< 1	8	-0.8	10	-0.5	77	2
Myanmar	-71	-2	3	3.1	5	1.7	56	35
Nepal	3	< 1	52	0.8	61	-0.1	85	3
Pakistan	5	< 1	5	-1.7	9	-1.8	59	20
Sri Lanka	104	6	2	-3.9	7	7.3	32	63
Southeast Asia and Pacific	3080	7	22	2.6	50	3.0	43	46
Indonesia	453	2	39	4.7	49	4.4	79	5
Malaysia	2253	107	4	1.3	123	5.0	3	91
Philippines	393	6	9	-13.1	67	-1.9	14	74
Thailand	179	3	< 1	-5.4	67	4.7	< 1	96
Vietnam	-195	-3	13	7.9	17	7.0	74	20
East Asia	10326	8	12	-10.1	100	3.1	12	75
China **	1938	2	11	-11.1	97	3.5	11	76
North Korea	354	15	45	-1.3	84	-11.9	54	< 1
South Korea	8034	176	18	3.8	193	3.7	9	74
Mexico, Central America, and the Caribbean	6722	42	101	-0.9	166	0.8	56	28
Costa Rica	411	110	13	-8.0	106	3.5	12	82
Cuba	226	20	++	++	30	-11.8	++	94
Dominican Republic	700	87	8	7.0	93	5.2	8	88
El Salvador	227	38	92	-0.9	142	1.3	64	30
Guatemala	207	20	114	-1.4	131	-1.8	87	9
Haiti	7	1	29	2.0	33	1.9	87	5
Honduras	63	11	83	-2.2	125	0.7	67	25
Jamaica	185	73	12	-3.2	75	1.3	16	78
Mexico	4377	46	128	-0.8	222	1.1	58	25
Nicaragua	10	2	54	-3.4	74	-1.6	73	16
Panama	178	65	29	0.8	92	6.2	32	66
Andean Region, South America	3967	37	35	2.3	73	5.2	47	44
Bolivia	< 1	< 1	42	2.6	80	4.3	52	19
Colombia	1814	45	40	5.6	66	10.8	60	37
Ecuador	96	8	18	-1.5	48	0.7	38	50
Peru	947	39	12	0.0	69	2.0	18	77
Venezuela	1096	48	58	-0.1	105	4.3	55	31
Southern Cone, South America	-8744	-39	17	-1.2	190	3.1	9	77
Argentina	-9933	-278	6	2.1	133	0.6	5	59
Brazil	618	4	19	-1.8	216	3.3	9	80
Chile	652	45	9	10.9	99	4.4	9	87
Paraguay	-123	-24	43	1.9	127	4.3	34	49
Uruguay	41	13	18	-5.7	60	4.2	29	50

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Consumption Statistics (cont'd)

REGION/COUNTRY	Average net maize imports, 1996-98		Maize food		Maize consumption		Average percentage of maize used	
	Total ('000 t)	Per capita (kg/yr)	Average per capita, 1995-97 (kg/yr)	Growth rate per capita, 1988-97 (%/yr) *	Average per capita, 1995-97 (kg/yr)	Growth rate per capita, 1988-97 (%/yr) *	Human consumption 1995-97 (%)	Animal feed 1995-97 (%)
Eastern Europe and Former Soviet Union	-544	-1	8	8.8	88	-5.7	7	82
Albania	6	2	< 1	-105.6	67	-2.8	< 1	90
Belarus	99	10	++	++	8	-35.1	++	87
Bosnia and Herzegovina	6	2	45	-14.4	115	-15.1	39	43
Bulgaria	11	1	2	3.0	176	-7.7	1	83
Croatia	-18	-4	6	8.9	427	8.2	1	95
Czech Republic	113	11	< 1	-13.3	35	15.5	< 1	81
Georgia	1	< 1	81	24.8	100	23.6	81	13
Hungary	-1134	-112	1	-9.7	515	-2.4	< 1	77
Kazakhstan	-15	-1	1	-0.5	10	-40.3	6	84
Kyrgyzstan	12	3	++	++	38	-6.6	++	96
Latvia	14	6	< 1	50.8	6	17.2	3	97
Lithuania	49	13	< 1	12.7	12	14.3	2	77
Macedonia	64	32	26	14.9	108	12.4	24	58
Moldova	-79	-18	49	-2.8	286	13.7	17	75
Poland	487	13	++	++	20	4.2	++	77
Romania	-210	-9	39	2.7	420	3.6	9	87
Russian Federation	178	1	< 1	-20.4	24	-7.5	1	96
Slovakia	-117	-22	++	++	105	4.6	++	87
Slovenia ***	173	87	34	2.8	264	2.3	13	79
Ukraine	-55	-1	9	-1.7	55	-4.5	16	70
Uzbekistan	1	< 1	7	-10.9	10	-20.6	70	26
Yugoslavia	-147	-14	16	-0.3	560	12.0	3	84
Western Europe, North America, and Other High-Income Countries	-25749	-30	11	0.3	282	2.0	4	76
Austria	-103	-13	7	12.6	227	2.5	3	77
Belgium-Luxembourg	933	88	2	-1.9	118	-0.3	2	58
Canada	684	23	3	-0.5	267	1.4	1	78
France	-7091	-121	13	-0.5	129	0.6	10	72
Germany	606	7	7	0.4	45	0.5	16	63
Greece	236	22	2	2.9	206	-0.1	1	84
Italy	464	8	3	1.9	162	4.4	2	93
Japan	16050	127	22	-0.5	127	-0.5	17	76
Netherlands	1617	104	3	-0.2	87	-2.5	3	59
Portugal	1070	108	7	-2.3	180	4.3	4	91
Spain	2232	56	2	6.6	136	2.4	1	88
United Kingdom	1372	23	3	0.9	25	-1.5	14	11
United States of America	-45113	-166	14	0.9	652	2.1	2	76
Regional aggregates								
Developing countries	24426	5	20	-2.0	66	2.1	30	57
Eastern Europe and Former Soviet Union	-544	-1	8	8.8	88	-5.7	7	82
Western Europe, North America, and Other High-Income Countries	-25749	-30	11	0.3	282	2.0	4	76
World ****	---	---	18	-1	100	1.1	17	66

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n.a. Not available.

Maize Area by Type of Seed and Moisture Regime (%)

REGION/COUNTRY*	Maize area planted by type of seed as a percentage of total maize area, 1999 (%)				Maize area by moisture regime as a percentage of total maize area, 1999 (%)	
	Improved seed	Hybrids	OPVs	Farm-saved seed	Irrigated	Rainfed
Eastern and Southern Africa	92	81	11	8	1	99
Kenya	87	85	2	13	0	100
Mozambique	9	3	6	91	4	96
South Africa	100	90	10	0	<1	100
Uganda	65	10	55	35	0	100
Zambia	65	62	3	35	1	99
Zimbabwe	100	91	9	0	2	98
South Asia	54	30	24	46	26	74
Bangladesh	44	25	19	56	80	20
India	58	36	22	42	23	77
Nepal	54	6	47	46	5	95
Pakistan	30	13	17	70	65	35
West Asia	82	67	15	18	100	0
Iran	100	100	0	0	100	0
Syria	45	0	45	56	100	0
Southeast Asia	72	35	36	28	9	91
Indonesia	80	24	56	20	n.a.	n.a.
Philippines	42	17	25	58	5	95
Thailand	100	90	10	0	5	95
Vietnam	90	60	30	10	30	70
East Asia	91	84	7	10	38	62
China	91	84	7	10	38	62
Mexico, Central America, and the Caribbean	23	15	8	77	18	82
El Salvador	80	34	46	20	0	100
Guatemala	9	8	<1	91	2	98
Haiti	1	0	1	99	n.a.	n.a.
Honduras	38	29	9	62	15	85
Mexico	22	15	7	79	20	80
Nicaragua	17	2	15	83	<1	100
Andean Region, South America	70	43	27	30	17	83
Bolivia	63	37	25	37	10	90
Colombia	59	36	23	41	22	78
Ecuador	89	52	37	11	<1	100
Peru	50	13	37	50	41	59
Venezuela	95	88	7	5	2	98
Southern Cone, South America	74	62	12	26	16	84
Argentina	100	80	20	0	3	97
Brazil	69	59	10	31	19	81
Paraguay	52	27	25	48	0	100
Western Europe	100	98	2	0	91	9
Greece	100	100	0	0	100	0
Italy	100	100	0	0	90	10
Netherlands ¹	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Spain	100	90	10	0	90	10

* Regional aggregates include only countries that have been reported.

++ not applicable

n.a. not available

¹ Data for Netherlands correspond to silage maize and other types of maize.

Fertilizer Area and Use for Maize

REGION/COUNTRY*	Fertilized area as a percentage of total maize area (%)	Fertilizer applied per ha of maize harvested, 1999-2000 (kg/ha)			Ratio of farm-level fertilizer price to maize price, 1999-2000					
		Nitrogen	Phosphorus	Potassium	Nitrogen		Phosphorus		Potassium	
					Yellow maize	White maize	Yellow maize	White maize	Yellow maize	White maize
Eastern and Southern Africa										
Kenya	30	34	30	0	4	4	2	2	++	++
Mozambique	3	n.a.	n.a.	n.a.	6	7	29	35	59	70
South Africa	88	85	15	8	4	4	6	5	12	11
Sudan	n.a.	80	40	0	5	5	5	5	++	++
Uganda	15	70	35	0	++	29	++	78	++	140
Zambia	75	130	50	20	++	9	++	7	++	14
Zimbabwe	30	43	14	7	++	11	++	10	++	20
West Asia										
Iran	100	184	138	42	1	++	1	++	1	++
Syria	100	130	80	0	2	++	2	++	++	++
South Asia										
Bangladesh	95	256	55	139	2	++	12	++	2	++
India	50	100	60	40	2	2	8	8	1	1
Nepal	22	60	40	20	7	7	4	5	2	2
Pakistan	90	66	14	0	7	8	4	5	++	++
Southeast Asia										
Indonesia	n.a.	n.a.	n.a.	n.a.	7	7	++	++	++	++
Philippines	60	90	60	30	7	6	9	8	1	++
Thailand	98	83	31	n.a.	11	++	13	++	16	++
Vietnam	80	235	90	20	2	++	1	++	2	++
East Asia										
China	96	155	60	15	4	4	3	2	11	9
Mexico, Central America, and the Caribbean										
Salvador	80	n.a.	n.a.	n.a.	++	3	++	++	++	++
Guatemala	53	86	26	7	11	12	15	16	6	6
Haiti	n.a.	115	0	0	3	++	++	++	++	++
Honduras	53	105	43	22	9	9	5	6	13	14
Mexico	43	157	61	3	4	4	4	4	6	6
Nicaragua	21	61	27	14	++	5	++	4	++	5
Andean Region, South America										
Bolivia	40	40	40	0	5	3	++	++	++	++
Colombia	59	105	48	70	5	5	4	4	3	3
Ecuador	79	81	3	6	8	7	8	7	3	3
Peru	56	170	60	33	5	3	5	3	4	2
Venezuela	88	203	68	68	5	5	6	6	6	6
Southern Cone, South America										
Argentina	50	51	37	0	16	++	10	++	++	++
Brazil	61	35	65	37	11	++	13	++	22	++
Paraguay	35	18	46	0	5	1	++	++	++	++
Western Europe										
Greece	100	300	150	100	6	++	18	++	32	++
Italy	100	300	100	100	14	9	10	7	5	4
Netherlands ¹	100	250	n.a.	n.a.	52	15	65	19	33	10
Spain	100	270	150	150	5	5	9	8	7	6

* Regional aggregates include only countries that have been reported.

++ not applicable

n.a. not available

¹ Data for Netherlands correspond to silage maize and other types of maize.

Prices for Seed and Maize Grain

REGION/COUNTRY*	Farm price of maize (US\$/t), 1999-2000		Consumer price of maize (US\$/t), 1999-2000		Ratio of the price of improved seed to the price of grain, 1999-2000				Farm wage in kg of maize per day, 1999-2000	
	Yellow maize	White maize	Yellow maize	White maize	Hybrids		OPVs		Yellow maize	White maize
					Yellow maize	White maize	Yellow maize	White maize		
Eastern and Southern Africa										
Kenya	160	160	231	231	9	9	9	9	4	4
Mozambique	60	50	130	120	11	13	10	12	17	20
South Africa	84	93	n.a.	n.a.	18	16	7	6	75	68
Sudan	120	120	200	200	n.a.	n.a.	n.a.	n.a.	7	7
Uganda	++	65	++	327	++	22	++	12	++	13
Zambia	++	184	++	137	++	6	++	2	++	5
Zimbabwe	++	111	++	316	++	3	++	n.a.	++	14
West Asia										
Iran	120	++	145	++	8	++	++	++	20	++
Syria	170	++	183	++	++	++	2	++	11	++
South Asia										
Bangladesh	139	++	179	++	17	++	2	++	9	++
India	130	127	149	134	7	7	6	6	9	9
Nepal	146	139	175	168	8	8	5	6	7	8
Pakistan	130	111	157	148	29	33	2	3	14	17
Southeast Asia										
Indonesia	81	74	141	121	33	36	11	12	24	26
Philippines	131	153	283	278	16	13	5	4	21	18
Thailand	93	++	120	++	24	++	3	++	34	++
Vietnam	143	++	150	++	9	++	3	++	6	++
East Asia										
China	87	103	100	115	6	5	2	2	17	14
Mexico, Central America, and the Caribbean										
El Salvador	++	151	++	227	++	12	++	n.a.	++	20
Guatemala	153	147	201	195	9	9	7	8	23	24
Haiti	141	++	188	++	++	++	5	++	15	++
Honduras	154	142	228	206	11	12	6	6	21	23
Mexico	142	158	173	214	19	17	9	8	38	34
Nicaragua	++	172	++	203	++	11	++	5	++	13
Andean Region, South America										
Bolivia	200	400	300	600	11	6	5	2	21	10
Colombia	209	211	258	283	11	11	6	6	23	23
Ecuador	66	72	72	76	21	19	10	9	21	19
Peru	141	223	192	246	22	14	7	4	24	15
Venezuela	231	231	608	651	10	10	5	5	25	25
Southern Cone, South America										
Argentina	65	++	90	++	46	++	n.a.	++	308	++
Brazil	100	++	141	++	84	++	31	++	75	++
Paraguay	93	315	138	516	34	10	11	3	68	20
Western Europe										
Greece	120	++	149	++	65	++	1	++	190	++
Italy	130	190	145	205	58	39	n.a.	n.a.	346	237
Netherlands ¹	27	93	43	152	142	41	n.a.	n.a.	5000	1463
Spain	133	151	n.a.	n.a.	1	1	n.a.	n.a.	239	212

* Regional aggregates include only countries that have been reported.

++ not applicable

n.a. not available

¹ Data for Netherlands correspond to silage maize and other types of maize.

CIMMYT Average Maize Experimental Yield, 1997-99, Subtropical Trials (t/ha)

REGION/COUNTRY	CIMMYT experimental yield by grain color		CIMMYT experimental yield by type of seed		CIMMYT experimental yield
	Yellow	White	OPV	Hybrid	Quality Protein Maize
Eastern Africa ⁴	5.53	5.07	4.24	5.37	n.t
Number of trials	18	122	28	112	
Ethiopia	n.t	4.45	3.96	4.84	n.t
Number of trials		34	14	20	
Madagascar ¹	5.53	n.t	n.t	5.53	n.t
Number of trials	18			18	
Tanzania	n.t	6.15	n.t	6.15	n.t
Number of trials		20		20	
Uganda	n.t	4.75	4.55	4.91	n.t
Number of trials		32	14	18	
Zimbabwe ¹	n.t	5.45	n.t	5.45	n.t
Number of trials		36		36	
North Africa ²	8.93	4.35	n.t	5.97	n.t
Number of trials	18	23		41	
Egypt ²	n.t	4.35	n.t	4.35	n.t
Number of trials		23		23	
Morocco ²	8.93	n.t	n.t	8.93	n.t
Number of trials	18			18	
South Asia ³	5.55	4.92	n.t	5.07	4.25
Number of trials	54	151		205	14
India	5.55	5.02	n.t	5.17	4.25
Number of trials	54	128		182	14
Pakistan ²	n.t	4.36	n.t	4.36	n.t
Number of trials		23		23	
Southeast Asia	6.30	n.t	n.t	6.30	n.t
Number of trials	18			18	
Vietnam	6.30	n.t	n.t	6.30	n.t
Number of trials	18			18	
East Asia	4.53	6.24	n.t	5.80	n.t
Number of trials	18	60		78	
China	4.53	6.24	n.t	5.80	n.t
Number of trials	18	60		78	
Mexico and Central America	7.86	7.12	6.45	7.45	6.09
Number of trials	90	284	56	318	70
El Salvador	n.t	2.34	n.t	2.34	2.34
Number of trials	14		14	14	
Guatemala	5.74	3.54	n.t	4.65	3.54
Number of trials	18	14		32	14
Honduras	n.t	4.45	4.45	n.t	n.t
Number of trials		14		14	
Mexico	8.50	8.12	7.28	8.36	10.04
Number of trials	72	242	42	272	42
Andean Region, South America ¹	4.66	n.t	n.t	4.66	n.t
Number of trials	18			18	
Bolivia ¹	4.66	n.t	n.t	4.66	n.t
Number of trials	18			18	
Southern Cone, South America ²	4.24	n.t	n.t	4.24	n.t
Number of trials	18			18	
Brazil ²	4.24	n.t	n.t	4.24	n.t
Number of trials	18			18	
Western Europe and North America	3.42	2.47	n.t	2.99	n.t
Number of trials	54	38		92	
Greece	5.40	n.t	n.t	5.40	n.t
Number of trials	18			18	
USA	2.73	2.47	n.t	2.59	n.t
Number of trials	36	38		74	
Total trials	5.63	5.65	5.61	5.65	5.75
Total number of trials	306	678	84	900	84

n.t. = Not trial. ¹ Data for 1997. ² Data for 1998. ³ Data for 1998, and 1999. ⁴ Data for 1997 and 1999.

CIMMYT Average Maize Experimental Yield, 1997-99, Tropical Trials (t/ha)

REGION/COUNTRY	CIMMYT experimental yield by grain color		CIMMYT experimental yield by type of seed		CIMMYT experimental yield
	Yellow	White	OPV	Hybrid	Quality Protein Maize
Sub-saharan Africa ²	n.t.	3.92	n.t.	3.92	n.t.
Number of trials		18		18	
Sudan ²	n.t.	3.92	n.t.	3.92	n.t.
Number of trials		18		18	
Western Africa ²	n.t.	6.13	n.t.	6.13	n.t.
Number of trials		36		36	
Ghana ²	n.t.	6.13	n.t.	6.13	n.t.
Number of trials		36		36	
South Asia ⁴	4.81	3.99	2.38	5.25	5.38
Number of trials	200	149	74	275	23
India	4.71	3.99	2.38	5.19	5.38
Number of trials	190	149	74	265	23
Myanmar ²	7.22	n.t.	n.t.	7.22	n.t.
Number of trials	10			10	
Southeast Asia	5.02	4.35	3.99	5.11	4.17
Number of trials	190	218	156	252	92
Indonesia	7.47	7.19	7.17	7.49	n.t.
Number of trials	54	14	18	50	
Philippines	5.11	4.85	4.61	5.22	3.80
Number of trials	86	107	78	115	23
Thailand	3.23	2.99	2.76	4.08	4.08
Number of trials	32	51	60	23	23
Vietnam	3.04	4.41	n.t.	3.97	4.41
Number of trials	18	46		64	46
Mexico, Central America, and the Caribbean ⁴	5.79	6.33	6.22	6.10	6.40
Number of trials	326	589	204	711	207
Costa Rica	n.t.	7.44	7.25	7.68	n.t.
Number of trials		51	28	23	
Cuba ²	6.91	n.t.	n.t.	6.91	n.t.
Number of trials	10			10	
Dominican Rep ²	6.02	n.t.	n.t.	6.02	n.t.
Number of trials	10			10	
Guatemala	5.40	6.69	n.t.	6.21	6.80
Number of trials	54	102		156	46
Honduras	4.54	6.89	4.54	6.44	7.76
Number of trials	46	93	28	111	23
Mexico	6.02	5.82	6.48	5.68	5.82
Number of trials	154	274	120	308	92
Nicaragua	6.72	6.26	6.15	6.58	5.74
Number of trials	32	51	28	55	23
Panama ²	6.50	6.74	n.t.	6.61	n.t.
Number of trials	20	18		38	
Andean Region, South America ⁵	5.15	7.02	n.t.	6.01	6.16
Number of trials	136	135		271	23
Colombia	5.73	7.57	n.t.	6.85	n.t.
Number of trials	54	98		152	
Ecuador	4.25	5.75	n.t.	4.81	6.16
Number of trials	54	37		91	23
Peru ²	n.t.	8.13	n.t.	8.13	n.t.
Number of trials		10		10	
Venezuela ¹	5.18	n.t.	n.t.	5.18	n.t.
Number of trials	18			18	
Southern Cone, South America ²	6.34	n.t.	n.t.	6.34	n.t.
Number of trials	28			28	
Brazil ²	6.34	n.t.	n.t.	6.34	n.t.
Number of trials	28			28	
Total trials	5.30	5.57	4.50	5.74	5.63
Total number of trials	880	1,145	434	1,591	345

n.t. = Not trial. ¹ Data for 1997. ² Data for 1998. ³ Data for 1997 and 1998. ⁴ Data for 1998, and 1999. ⁵ Data for 1997, 1998, and 1999.