

Food and Agriculture

Source: Food and Agriculture Organization of the United Nations, International Federation of Organic Agriculture Movements, United States Department of Agriculture

	Land		Intensity of Agricultural Inputs				Per Capita Food Production Index (1999-2001 =100)		Food Aid, Security, and Nutrition				Share of Calorie Supply From Animal Products (percent)	
	Agricultural Land (a) (000 ha)	Irrigated Cropland as a Percent of Total	Organic Cropland as a Percent of Total	Labor (workers per ha)	Fertilizer (kg/ha)	Mechanization (tractors per 000 ha)	Water Withdrawals (meters ³ /ha)	1983	2003	Cereals Received as Food Aid (000 metric tons)	Net Cereal Imports (b) as a Percent of Consumption	Cereal Fed to Livestock as a Percent of Total Consumption		Calorie Supply Per Capita (kilocalories /person/day)
World	1,534,466	18.1	..	0.87	90.1	17.5	..	87.1	101.4	8,610	..	36.9	2,804	16.7
Asia (excl. Middle East)	500,878	34.2	..	2.02	139.0	12.3	..	..	..	2,182	..	20.6	2,682	14.3
Armenia	560	50.0	..	0.36	8.9	32.7	3,464	..	114.6	16	46.1	29.2	2,268	16.1
Azerbaijan	2,009	72.4	0.20	0.50	6.1	15.0	6,108	..	118.3	5	21.5	21.6	2,575	14.6
Bangladesh	8,429	54.5	..	4.58	170.8	0.7	8,999	91.8	97.8	353	6.6	0.0	2,205	3.1
Bhutan	165	24.2	..	5.83	..	..	2,500	119.4	76.2	0	22.5	..	..	..
Cambodia	3,807	7.1	..	1.22	..	0.5	1,052	89.6	99.9	25	3.4	..	2,046	9.4
China (c)	153,956	35.7	0.06	3.29	227.6 e	7.2	3,149	52.1	109.1	..	(1.4)	28.1	2,951	20.9
Georgia	1,064	44.1	..	0.48	26.3	16.1	2,005	..	112.3	18	48.3	39.3	2,354	17.6
India (d)	170,115	33.6	0.03	1.57	102.1	9.0	3,291	83.0	98.4	128	(5.5)	4.9	2,459	7.7
Indonesia	33,700	14.3	0.09	1.48	78.5 e	2.1	2,254	76.2	104.2	204	11.5	7.4	2,904	4.3
Japan	4,762	54.7	0.10	0.54	282.4	423.0	11,435	112.9	95.7	..	67.6	45.8	2,761	20.7
Kazakhstan	21,671	10.8	..	0.06	2.3	2.3	1,321	..	107.5	..	(47.4)	47.2	2,677	25.6
Korea, Dem People's Rep	2,700	54.1	..	1.21	100.5 e	25.9	2,480	108.7	106.0	975	26.5	..	2,142	6.5
Korea, Rep	1,877	60.6	0.05	1.20	379.4 e	106.5	..	76.7	92.4	..	65.0	46.3	3,058	15.6
Kyrgyzstan	1,411	76.0	..	0.38	18.8	18.0	6,587	..	99.0	2	11.5	39.8	2,999	19.6
Lao People's Dem Rep	1,001	17.5	0.01	2.15	12.8	1.1	..	68.9	112.6	6	1.4	..	2,312	7.1
Malaysia	7,585	4.8	..	0.24	149.1	5.7	736	60.8	108.4	..	69.0	41.4	2,881	18.1
Mongolia	1,200	7.0	..	0.26	2.7	4.2	195	132.4	95.8	..	58.2	..	2,249	39.7
Myanmar	10,611	18.8	..	1.71	9.0 e	1.0	3,110	84.2	116.2	..	(3.6)	4.9	2,937	4.8
Nepal	3,294	34.5	0.00	3.33	22.7	1.4	3,307	88.1	99.3	..	0.3	..	2,453	6.5
Pakistan (d)	22,120	80.5	0.08	1.14	132.9	14.5	7,407	78.8	97.9	1	(13.6)	3.9	2,419	18.1
Philippines	10,700	14.5	0.02	1.18	73.4 e	1.1	2,099	95.5	106.1	68	19.6	23.7	2,379	15.7
Singapore	2	..	..	..	..	32.5	..	893.0	71.0	..	..	14.1	..	..
Sri Lanka	1,916	33.3	0.65	2.02	127.7 e	4.2	6,280	115.4	100.1	81	29.0	..	2,385	7.1
Tajikistan	1,057	68.0	..	0.77	11.4	28.4	12,745	..	120.6	121	37.2	12.9	1,828	9.2
Thailand	19,367	25.6	0.02	1.12	92.0 e	11.4	4,597	90.2	103.2	1	(26.5)	..	2,467	12.0
Turkmenistan	1,915	94.0	..	0.38	54.0	26.1	14,182	..	98.1	..	..	18.3	2,742	15.4
Uzbekistan	4,827	88.7	..	0.62	149.1	35.2	11,210	..	103.4	119	3.8	18.6	2,241	17.5
Viet Nam	8,895	33.7	0.08	3.30	225.9 e	18.4	6,615	64.7	113.8	60	(5.5)	10.0	2,566	12.1
Europe	303,993	8.3	..	0.10	73.4	36.1	..	..	107.5 f	96	..	51.3	3,331	27.7
Albania	699	48.6	..	1.07	26.8 e	11.4	1,522	89.6	105.0	25	44.9	..	2,848	28.6
Austria	1,462	0.3	11.60	0.13	148.1	224.5	14	96.7	91.7	..	(9.7)	..	3,673	33.1
Belarus	5,730	2.3	..	0.11	121.5	11.5	134	..	110.9	..	11.9	50.8	3,000	26.2
Belgium	..	..	1.45	..	..	..	..	..	96.8	..	52.6	..	3,584	30.5
Bosnia and Herzegovina	1,093	0.3	..	0.11	38.8	26.2	..	..	83.8	54	28.2	62.2	2,894	13.5
Bulgaria	3,583	16.5	0.00	0.06	43.2 e	6.7	425	145.2	101.0	3	(25.0)	39.1	2,848	24.5
Croatia	1,588	0.3	0.00	0.10	110.7	1.5	..	..	92.6	..	..	71.1	2,799	19.2
Czech Rep	3,305	0.7	5.09	0.14	119.2 e	28.6	17	..	90.5	..	(1.6)	..	3,171	27.0
Denmark	2,284	19.6	6.65	0.05	134.2	53.5	234	87.5	101.4	..	(12.5)	..	3,439	38.1
Estonia	631	0.6	3.00	0.12	42.6	79.7	7	..	107.5	..	25.4	..	3,002	27.0
Finland	2,208	2.9	7.00	0.06	135.1	88.2	30	124.9	101.6	..	(6.0)	..	3,100	37.5
France	19,583	13.3	1.70	0.04	213.3	64.5	200	99.4	93.0	..	(55.0)	..	3,654	37.1
Germany	11,997	4.0	4.10	0.08	217.4	85.8	775	101.0	93.2	..	(22.2)	..	3,496	30.6
Greece	3,846	37.2	0.86	0.20	111.9 e	64.9	1,621	100.1	95.9	..	22.0	..	3,721	21.8
Hungary	4,804	4.8	1.70	0.10	94.5 e	23.6	511	115.5	95.3	..	(44.7)	..	3,483	32.6
Iceland	7	..	0.70	..	.. e	1288.4	29	129.7	104.3	..	..	..	3,249	41.5
Ireland	1,123	..	0.70	0.15	562.2	144.8	0	89.8	92.4	..	24.6	..	3,656	31.1
Italy	11,064	24.9	8.00	0.12	128.1	148.2	1,849	106.8	91.4	..	25.9	..	3,671	25.9
Latvia	1,861	1.1	0.81	0.08	35.0	30.1	19	..	111.0	..	(8.6)	..	2,938	28.2
Lithuania	2,989	0.2	0.25	0.07	54.2	34.2	6	..	109.6	..	(6.1)	..	3,325	26.3
Macedonia, FYR	612	9.0	..	0.19	36.4	88.2	..	..	91.1	..	29.1	44.9	2,655	21.8
Moldova, Rep	2,143	14.0	..	0.22	14.9	19.1	..	..	102.8	..	(24.9)	59.7	2,806	16.2
Netherlands	949	59.5	2.19	0.26	443.5	159.4	2,853	101.5	92.6	..	68.3	..	3,362	34.2
Norway	871	14.6	3.13	0.12	200.3	151.1	259	118.5	97.5	..	25.7	68.0	3,484	33.0
Poland	14,226	0.7	0.36	0.30	110.0 e	91.4	94	111.4	97.5	..	0.3	..	3,375	26.1
Portugal	2,705	24.0	2.20	0.23	76.9	62.5	3,258	68.2	97.4	..	64.8	..	3,741	29.1
Romania	9,899	31.1	0.27	0.16	37.2 e	16.6	1,339	124.2	106.2	1	(3.4)	59.2	3,455	20.5
Russian Federation	125,300	3.7	0.00	0.06	12.7	6.2	108	..	110.4	1	(16.9)	49.0	3,072	22.3
Serbia and Montenegro	3,724	0.8	0.30	0.26	66.7	109.2	..	..	97.7	0	(8.0)	65.6	2,678	35.0
Slovakia	1,559	11.7	2.20	0.17	74.5 e	14.7	..	..	91.0	..	(1.5)	..	2,889	27.5
Slovenia	198	1.5	1.91	0.09	357.0	562.6	..	..	106.4	..	37.3	..	3,001	32.1
Spain	18,715	20.2	2.28	0.07	122.3	48.4	1,331	74.4	106.5	..	28.4	..	3,371	27.8
Sweden	2,682	4.3	6.09	0.05	98.5	61.2	98	115.1	99.7	..	(11.8)	..	3,185	33.7
Switzerland	433	5.8	10.00	0.36	225.5	256.9	114	112.5	99.2	..	32.5	59.0	3,526	33.8
Ukraine	33,457	6.8	0.58	0.11	14.2	9.5	588	..	95.6	12	(53.8)	45.8	3,054	20.5
United Kingdom	5,803	2.9	4.22	0.09	327.9	87.7	47	107.0	96.8	..	2.1	..	3,412	30.6
Middle East & N. Africa	100,520	28.7	..	0.51	66.8	17.2	..	..	..	2,232	..	33.2	3,110	9.9
Afghanistan	8,054	29.6	..	0.74	2.3	0.1	2,836	..	..	388	..	..	..	..
Algeria	8,265	6.8	..	0.31	12.8 e	11.4	481	76.2	109.7	43	73.8	25.4	3,022	9.9
Egypt	3,400	100.0	0.19	2.52	392.0	26.8	16,364	68.6	95.7	11	34.1	32.7	3,338	7.6
Iran, Islamic Rep	17,088	43.9	..	0.38	80.1 e	14.3	..	72.6	106.7	10	24.1	21.2	3,085	9.5
Iraq	6,090	57.9	..	0.10	105.0 e	9.8	7,108	..	..	1,333	..	16.1	..	..
Israel	424	45.8	0.90	0.16	210.8	57.8	3,055	124.8	99.2	..	75.8	66.7	3,666	21.8
Jordan	400	18.8	..	0.48	55.9 e	14.4	1,896	110.0	121.9	205	91.4	49.8	2,674	9.2
Kuwait	15	86.7	..	0.93	..	5.9	23,333	56.7	103.9	..	114.4	42.9	3,010	17.4
Lebanon	313	33.2	0.07	0.14	187.1 e	26.5	2,757	78.1	96.1	48	81.6	40.0	3,196	17.0
Libyan Arab Jamahiriya	2,150	21.9	..	0.05	34.0 e	15.8	1,987	107.7	95.4	..	91.3	20.9	3,320	10.4

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	Land			Intensity of Agricultural Inputs				Per Capita Food Production Index (1999-2001 =100)		Food Aid, Security, and Nutrition					
	Agricultural Land (a) (000 ha)	Irrigated Cropland as a Percent of Total	Organic Cropland as a Percent of Total	Labor (workers per ha)	Fertilizer (kg/ha)	Mechanization (tractors per 000 ha)	Water Withdrawals (meters ³ /ha)	1993	2003	Cereals Received as Food Aid (000 metric tons)	Net Cereal Imports (b) as a Percent of Consumption	Cereal Fed to Livestock as a Percent of Total Consumption	Calorie Supply Per Capita (kilocalories /person/day)	Share of Calorie Supply From Animal Products (percent)	
		2002	2002												2003
		2002	2002												2003
Sub-Saharan Africa	182,680	3.7	..	1.02	11.4	1.3	..	92.4	97.4	f	3,145	..	7.0	2,262	6.6
Angola	3,300	2.3	..	1.27	..	3.1	64	91.9	104.1	..	217	42.7	..	2,083	8.5
Benin	2,815	0.4	0.00	0.68	13.7	0.1	84	62.4	99.0	6	16.5	..	..	2,548	4.4
Botswana	380	0.3	..	0.94	12.3	15.8	161	162.2	100.4	..	168.2	12.2	..	2,151	18.1
Burkina Faso	4,400	0.6	..	1.34	0.4	0.5	179	72.8	108.6	21	7.3	4.8	..	2,462	4.6
Burundi	1,351	5.5	..	2.40	2.8	0.1	153	117.0	98.8	55	7.2	..	..	1,649	2.1
Cameroon	7,160	0.5	0.09	0.52	7.3	e	0.1	102	103.0	105.0	0	20.3	..	2,273	5.7
Central African Rep	2,024	..	..	0.63	0.3	0.01	1	88.9	101.5	5	21.1	..	..	1,980	9.9
Chad	3,630	0.6	..	0.76	4.8	0.05	53	92.0	101.4	16	5.5	..	..	2,114	6.6
Congo	240	0.4	..	2.60	21.0	3.0	18	125.8	97.6	14	102.6	..	..	2,162	6.1
Congo, Dem Rep	7,800	0.1	..	1.66	0.2	0.3	14	151.0	89.6	45	23.7	0.0	..	1,599	2.2
Côte d'Ivoire	6,900	1.1	..	0.42	9.2	e	0.6	82	83.2	91.8	13	43.3	1.9	2,631	4.1
Equatorial Guinea	230	..	..	0.59	..	0.7	4	96.6	90.4	..	..	..	..	..	..
Eritrea	503	4.2	..	2.87	10.9	e	0.9	574	..	74.6	184	471.3	2.7	1,513	5.4
Ethiopia	10,671	1.8	..	2.10	11.8	e	0.3	231	..	99.6	1,219	7.4	1.1	1,857	4.9
Gabon	495	3.0	..	0.42	0.6	3.0	104	119.3	95.4	..	..	..	..	2,637	12.7
Gambia	255	0.8	..	2.11	3.1	0.2	91	133.2	65.5	7	49.1	0.0	..	2,273	5.6
Ghana	6,331	0.2	0.16	0.95	5.3	0.6	43	57.7	107.6	43	18.2	3.2	..	2,667	4.5
Guinea	1,540	6.2	..	2.23	2.1	1.0	919	97.1	103.6	32	26.0	..	..	2,409	3.6
Guinea-Bissau	548	3.1	..	0.92	4.4	0.03	286	83.4	93.6	6	38.1	..	..	2,024	6.5
Kenya	5,162	1.7	0.00	2.34	29.1	e	2.4	223	96.6	94.2	84	22.2	1.9	2,090	11.9
Lesotho	334	0.3	..	0.84	34.0	6.0	31	119.9	104.2	38	240.7	6.8	..	2,638	4.3
Liberia	600	0.5	..	1.33	..	0.5	101	141.0	84.8	37	74.0	..	..	1,900	2.9
Madagascar	3,550	30.7	..	1.63	2.5	1.0	4,089	128.6	94.0	40	5.2	..	..	2,005	9.5
Malawi	2,440	1.2	0.01	1.98	11.7	0.6	362	82.4	79.5	156	17.9	2.3	..	2,155	2.7
Mali	4,700	2.9	..	0.99	8.9	0.6	1,469	104.0	96.3	7	4.7	1.5	..	2,174	9.6
Mauritania	500	9.8	..	1.28	5.8	e	0.8	3,000	109.1	97.6	63	..	0.0	2,772	17.5
Mozambique	4,435	2.4	..	1.82	5.9	1.4	133	99.7	98.1	95	27.8	1.0	..	2,079	2.3
Namibia	820	0.9	..	0.38	0.4	3.8	205	134.4	90.7	41	123.4	..	..	2,278	15.9
Niger	4,500	1.5	..	1.00	1.1	0.03	462	115.4	99.8	17	8.7	2.7	..	2,130	5.1
Nigeria	33,000	0.7	..	0.49	7.1	1.0	179	62.4	97.0	13	14.1	1.8	..	2,726	3.2
Rwanda	1,385	0.4	..	2.99	0.2	0.1	25	126.4	103.4	20	8.7	7.4	..	2,084	2.9
Senegal	2,500	2.8	0.10	1.26	12.0	0.3	598	72.2	86.0	2	58.4	0.0	..	2,280	9.1
Sierra Leone	600	5.0	..	1.86	0.5	0.1	643	137.3	96.6	50	52.8	0.0	..	1,936	3.8
Somalia	1,071	18.7	..	2.57	0.5	1.6	3,075	..	..	16	..	..	..	..	..
South Africa	15,712	9.5	0.05	0.11	48.5	e	4.6	708	94.6	100.1	21	11.4	34.4	2,956	12.2
Sudan	16,653	11.7	..	0.46	5.1	e	0.7	2,195	89.7	102.0	126	25.0	7.4	2,228	20.4
Tanzania, United Rep	5,100	3.3	0.14	2.93	1.6	1.5	374	129.3	97.3	51	7.7	2.2	..	1,975	6.3
Togo	2,630	0.7	..	0.45	7.3	0.03	30	93.0	96.2	..	16.0	13.9	..	2,345	3.4
Uganda	7,200	0.1	1.39	1.29	0.8	0.7	17	114.0	99.1	113	6.4	4.4	..	2,410	6.2
Zambia	5,289	0.9	0.06	0.58	6.9	e	1.1	250	107.6	102.7	35	75.8	3.4	1,927	4.9
Zimbabwe	3,350	3.5	..	1.08	45.4	e	7.2	670	95.5	85.1	174	61.7	8.5	1,943	7.7
North America	223,951	10.4	..	0.02	99.0	24.8	..	82.8	97.5	f	..	..	62.5	3,756	27.6
Canada	45,879	1.7	1.30	0.01	53.6	e	16.0	118	87.1	95.2	..	(47.5)	72.0	3,589	26.7
United States	178,068	12.6	0.23	0.02	110.7	27.1	1,105	82.3	97.8	..	..	(40.5)	61.3	3,774	27.7
C. America & Caribbean	42,178	19.3	..	0.40	66.9	10.6	..	..	..	415	..	..	45.1	2,878	17.1
Belize	102	2.9	1.30	0.25	45.2	11.6	2	67.7	94.0	..	31.7	..	..	2,869	20.7
Costa Rica	525	20.6	3.11	0.62	223.2	e	13.3	2,834	72.4	88.5	..	81.6	54.7	2,876	20.0
Cuba	3,788	23.0	0.16	0.17	46.1	e	19.3	1,264	128.3	107.9	1	61.8	..	3,152	12.3
Dominican Rep	1,596	17.2	0.40	0.37	61.1	e	1.2	1,404	138.2	102.6	..	61.4	57.1	2,347	14.8
El Salvador	910	4.9	0.31	0.85	80.4	e	3.8	934	88.2	95.1	70	40.8	33.9	2,584	13.2
Guatemala	1,905	6.8	0.33	1.03	107.6	e	2.3	844	85.1	95.5	118	46.1	29.4	2,219	9.2
Haiti	1,100	6.8	..	1.98	12.7	0.1	1,022	151.6	98.8	144	61.2	2.0	..	2,086	7.0
Honduras	1,428	5.6	0.06	0.54	106.1	3.6	486	114.6	101.1	27	52.4	42.8	..	2,356	14.4
Jamaica	284	8.8	0.26	0.93	73.4	10.8	730	86.4	97.8	..	80.8	33.8	..	2,685	14.6
Mexico	27,300	23.2	0.20	0.31	68.3	e	11.9	2,210	94.2	100.8	..	31.8	47.5	3,145	19.4
Nicaragua	2,161	4.3	0.14	0.18	8.9	e	1.3	393	107.0	110.7	55	19.6	30.6	2,298	7.8
Panama	695	5.0	0.24	0.36	42.0	e	7.2	357	126.9	98.5	..	51.5	32.1	2,272	23.9
Trinidad and Tobago	122	3.3	..	0.40	14.3	e	22.1	139	100.1	114.3	..	97.7	34.8	2,732	15.8
South America	126,594	8.3	..	0.21	78.7	10.4	..	76.0	107.5	f	289	..	..	2,851	21.2
Argentina	35,000	4.5	1.70	0.04	24.6	e	8.6	791	83.8	99.6	..	(174.9)	38.6	2,992	29.9
Bolivia	3,106	4.2	1.04	0.49	3.7	1.9	524	63.7	110.0	77	27.3	36.5	..	2,235	16.2
Brazil	66,580	4.4	0.24	0.19	102.9	e	12.1	562	68.5	114.2	..	12.8	62.3	3,050	22.1
Chile	2,307	82.4	1.50	0.43	209.1	e	23.5	3,468	67.5	102.0	..	31.4	50.9	2,863	21.4
Colombia	3,850	23.4	0.24	0.87	145.9	4.9	1,082	87.7	98.7	..	48.6	35.4	..	2,585	16.0
Ecuador	2,985	29.0	0.74	0.42	117.1	e	4.9	4,653	68.6	103.5	63	23.5	40.0	2,754	18.2
Guyana	510	29.4	0.01	0.11	25.5	e	7.1	3,226	65.0	105.2	26	(22.8)	8.1	2,692	16.0
Paraguay	3,115	2.2	0.38	0.23	21.5	5.3	147	81.4	107.4	..	(3.6)	3.0	..	2,565	22.1
Peru	4,310	27.7	0.42	0.71	74.7	e	3.1	3,900	66.8	105.7	124	38.7	40.6	2,571	13.1
Suriname	67	76.1	0.28	0.45	83.6	19.9	9,194	149.1	104.1	..	(12.5)	..	..	2,652	13.1
Uruguay	1,340	13.5	4.00	0.14	86.7	e	24.6	2,264	92.2	101.8	..	(18.9)	15.0	2,828	29.7
Venezuela	3,408	16.9	..	0.23	88.0	e	14.4	1,168	99.1	91.6	..	37.4	23.1	2,336	17.4
Oceania	53,664	5.4	..	0.06	59.9	7.2	..	90.4	98.7	f	..	..	62.5	..	..
Australia	48,600	5.2	2.20	0.01	47.1	6.2	356	85.3	95.9	..	156.4	64.8	..	3,054	33.8
Fiji	285	1.1	0.04	0.46	35.1	24.6	190	86.2	96.1	..	93.5	..	..	2,894	16.4
New Zealand	3,372	8.5	0.33	0.05	267.2										

DEFINITIONS AND METHODOLOGY

Agricultural Land, in thousand hectares, is the total area of all arable and permanent cropland. Arable land is land under temporary crops (those that are sown and harvested in the same agricultural year), temporary meadows for mowing or pasture, land under market and kitchen gardens, and land temporarily fallow (less than five years). Abandoned land resulting from shifting cultivation is not included under this category. Permanent cropland is land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest, including land under trees grown for wood or timber. Land in permanent pasture is not included here.

Irrigated Cropland as a Percent of Total refers to the proportion of agricultural land equipped to provide water to crops. These include areas equipped for full and partial control irrigation, spate irrigation areas, and equipped wetland or inland valley bottoms.

Organic Cropland as a Percent of Total shows the portion of agricultural land converted to certified organic agriculture or in the process of conversion. Definitions of organic agriculture vary among countries. According to the International Federation of Organic Agriculture Movements (IFOAM), "Organic agriculture is an agricultural production system that promotes environmentally, socially and economically sound production of food and fibers, and excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, livestock feed and additives and genetically modified organisms." Data are obtained directly from IFOAM. The data shown here include pastures used for grazing. Data on land under organic management are a result of surveys undertaken between October and December of 2003 and research conducted by IFOAM. Experts from member organizations, certification bodies, and other institutions were asked to contribute statistics.

Intensity of Agricultural Inputs: Labor shows the labor input intensity of agricultural systems in per hectare of agricultural land. WRI calculates labor intensity by dividing the number agricultural workers by agricultural land area. Agricultural workers include all economically active persons engaged in agriculture, hunting, forestry, or fishing. According to the International Labor Organization (ILO), the economically active population "comprises all persons of either sex who furnish the supply of labor for the production of economic goods and services." The ILO derives the labor estimates from population censuses and sample surveys of the economically active population. When country data are missing, the ILO estimates figures from similar neighboring countries or by using special models of activity rates. The UN Food and Agriculture Organization (FAO) provided the annual figures used for these calculations through interpolating and extrapolating the ILO's decennial series.

Intensity of Agricultural Inputs: Fertilizer measures the mass in kilograms of the nutrients nitrogen (N), potash (K₂O), and phosphate (P₂O₅) consumed annually per hectare of cropland. Some countries report data based on the fertilizer year; i.e., 2001 data actually encompassed July 1, 2001 to June 30, 2002. Data are collected through the FAO fertilizer questionnaire, with support from the Ad Hoc Working Party on Fertilizer Statistics.

Intensity of Agricultural Inputs: Mechanization shows the number of tractors used in agriculture per thousand hectares of arable and permanent cropland. WRI calculates the intensity of tractor use with FAO's estimates on agricultural land area and the total number of tractors for each country. Tractors generally refer to total wheeled and crawler tractors, excluding garden tractors. Tractor intensity is useful for understanding the nature of production systems, as tractors tend to be used in areas with flatter lands and scarce labor. Information on agricultural machinery is reported to FAO by country governments through surveys.

Intensity of Agricultural Inputs: Water Withdrawals measures the volume of water used in the agricultural sector per square hectare of arable and permanent cropland. Water use for agriculture is defined as the water withdrawals that are attributed to the agricultural sector, used primarily for irrigation. WRI calculates water intensity using water-use data from FAO's AQUASTAT information system and agricultural land-use data from the FAOSTAT database. To estimate agricultural water use, an assessment has to be made

both of irrigation water requirements and of water withdrawal for agriculture. AQUASTAT collects its information from a number of sources, including national water resources and irrigation master plans; national yearbooks, statistics and reports; reports from FAO; international surveys; and results from surveys made by national or international research centers.

The **Per Capita Food Production Index** shows the food output, excluding animal feed, of a country's agriculture sector relative to the base period 1999-2001. The per capita food production index covers all edible agricultural products that contain nutrients; coffee and tea are excluded. For a given year and country, the index is calculated by taking the disposable average output of all food commodities in terms of weight or volume during the period of interest and dividing that year's output by the average of the 1999-2001 output, and then multiplied by 100. In other words, the index values shown in this table indicate per capita food production levels larger than 1999-2001 levels if their values are larger than 100. Data shown here are for 1983 and 2003.

Cereals Received as Food Aid represents the total shipments of cereals transferred to recipient countries on a total-grant basis or on highly concessional terms. Cereals include wheat, barley, maize, rye, oats, millet, sorghum, rice, buckwheat, alpiste/canary seed, fonio, quinoa, triticale, wheat flour, and the cereal component of blended foods. To facilitate comparisons between deliveries of different commodities, processed and blended cereals are converted into their grain equivalent with specific conversion factors. Information on food aid shipments is provided to the FAO by the World Food Program (WFP).

Net Cereal Imports as a Percent of Consumption indicates whether countries are able to produce sufficient grain for domestic consumption. It is calculated by dividing the sum of net imports (imports minus exports) by total cereal consumption (production plus imports, minus exports). Cereals imported as food aid are included in net imports. This variable does not account for changes in cereal stocks. As a result, some numbers may be negative or greater than 100. Cereals include wheat, barley, maize, rye, oats, millet, sorghum, rice, buckwheat, alpiste/canary seed, fonio, quinoa, triticale, wheat flour, and the cereal component of blended foods. Import and export data have, for the most part, been supplied to FAO by governments, national publications and, most frequently, FAO questionnaires.

Cereal Fed to Livestock as a Percent of Total Consumption is calculated by dividing the total feed grain consumed by total domestic grain consumed. Grains include wheat, rice, corn, barely, sorghum, millet, rye, oats, and mixed grains. Grain consumption includes all domestic use during the local marketing year of the individual country. It is the sum of feed, food, seed, and industrial uses. Data is collected from a variety of sources. Whereas the FAO is required to use official country estimates, the USDA supplements official estimates with data collected from other sources. The international portion of the USDA data is updated with input from agricultural attachés stationed at U.S. embassies around the world, U.S. Foreign Agricultural Service (FAS) commodity analysts, and country and commodity analysts with the USDA's Economic Research Service (ERS). WRI calculates the percentage shown here from USDA grain consumption and feed estimates.

Calorie Supply Per Capita refers to the amount of available food per person per day, expressed in kilocalories. **Share of Calorie Supply from Animal Products** refers to the percent of available food that is derived from animal products, including all types of meat and fish; animal fats and fish oils; edible offal; milk, butter, cheese, and cream; and eggs and egg products. FAO compiles statistics on apparent food consumption based on Supply/Utilization Accounts (SUAs) maintained in FAOSTAT, its online statistical service. SUAs are time-series data using statistics on supply and utilization. For each food product, the SUA traces supplies from production, imports, and stocks to utilization in different forms—addition to stocks, exports, animal feed, seed, processing for food and non-food purposes, waste (or losses), and lastly, as food available to the population. For internal consistency, total food supply equals total utilization. FAO derives caloric values by applying the appropriate food composition factors to the quantities of the processed commodities, rather than examining primary commodities. Per capita supplies are derived from the total supplies available for human consumption by dividing the quantities of food by the total population actually partaking of the food supplies during the reference period.

FREQUENCY OF UPDATE BY DATA PROVIDERS

Data from FAO are updated annually, with the exception of production data, which are updated three times each year, and trade data, which are updated semiannually. Data on international organic agriculture was first published by IFOAM in 1998 and are updated annually. The USDA's Foreign Agricultural Service updates international grain production estimates every month.

DATA RELIABILITY AND CAUTIONARY NOTES

Agricultural Land and Irrigated Cropland: Data are compiled from various sources (national publications, FAO questionnaires, international publications, etc.). As a result, definitions and coverage do not always conform to FAO recommendations and may not always be completely consistent across countries.

Organic Cropland as a Percent of Total: Data for organic agriculture are collected by IFOAM from a variety of sources, including member organizations, certification bodies, and other institutions. Data collection methods vary depending on the institution and the country. Figures for percent of total agricultural land under organic management are calculated by IFOAM. Data on total agricultural land used in these calculations are different from those provided by FAO for total arable and permanent cropland.

Labor: Values vary widely among and within countries according to labor scarcity, production technologies, and costs of energy and machinery. The annual figures for total number of agricultural workers were obtained by interpolating and extrapolating past trends (1950-2000), taken from ILO decennial population series. As a result, fluctuations in the labor force may not be captured in annual figures. Labor intensity may be overestimated in countries with substantial fishing or forestry industries, since the total agricultural labor force includes some workers engaged in these activities.

Fertilizer: Data are excluded for some countries with a relatively small area of cropland, such as Iceland and Singapore. In these cases, the calculation of fertilizer consumed per hectare of cropland yields an unreliable number.

Mechanization: Data collection methods differ across countries, resulting in varying degrees of reliability. Some caution should be used in interpreting tractors-in-use figures because the data do not account for variations in the size and horsepower of different tractors.

Water Withdrawals: While AQUASTAT represents the most complete and careful compilation of water resources statistics to date, freshwater data are generally of poor quality. Sources of information vary but are rarely complete. Access to information on water resources is still sometimes restricted for reasons related to political sensitivity at the regional level. The accuracy and reliability of the information vary greatly among regions and countries. Data are typically collected in different years for different countries and interpolated or extrapolated to a single year.

Per Capita Food Production Index: Indices are not directly measured; they are derived from a set of formulas and algorithms. The calculation therefore contains an unavoidable amount of subjectivity. Reliability is limited by the accuracy and precision of agricultural production and price data. While these data can illustrate rough comparisons and trends over time, rigid score comparisons and rankings are discouraged. The country-level indices reported here may differ from other calculations of agricultural production due to varying concepts of production, coverage, weights, time reference of data, and methods of calculation.

Cereals Received as Food Aid: Data on shipments and receipts of food aid are governed by established accounting procedures and are generally considered to be reliable. These measurements represent the amount of cereals distributed to recipient countries; they are not a measure of consumption.

Cereal Fed to Livestock as a Percent of Total Consumption: As with any large and complex data set, there are numerous difficulties involved with maintaining accuracy and standardizing reporting standards

across country and commodity. In general, these data should be considered accurate, but users should exercise the usual caution in attempting to create reliable cross-country comparisons.

Calorie Supply: Figures shown here represent only the average calorie supply available for the population as a whole and do not necessarily indicate what is actually consumed by individuals. Even if data are used as approximations of per capita consumption, it is important to note that there is considerable variation in consumption among individuals. Secondly, food supply data are only as accurate as the underlying production, trade, and utilization data.

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