

	Arable land		Irrigated land		Land under cereal production		Fertilizer consumption		Agricultural machinery			
	hectares per capita		% of cropland		thousands of hectares		hundreds of grams per hectare of arable land		Tractors per 1,000 agricultural workers		Tractors per 100 sq. km of arable land	
	1989-91	2000-02	1989-91	2000-02	1989-91	2001-03	1989-91	2000-02	1989-91	2000-02	1989-91	2000-02
Afghanistan	0.45	0.29	31.2	29.6	..	..	63	19	0	0	1	1
Albania	0.18	0.18	58.9	48.6	295	162	1,378	420	13	11	195	139
Algeria	0.29	0.25	5.1	6.8	2,807	2,383	157	129	48	36	125	123
Angola	0.31	0.24	2.2	2.3	883	1,124	46	2	3	2	35	34
Argentina	0.89	0.93	5.2	4.5	8,557	10,474	56	244	184	205	94	89
Armenia	..	0.16	..	50.2	..	196	..	157	..	92	..	370
Australia	2.76	2.57	4.0	4.9	12,823	17,676	272	464	686	708	67	63
Austria	0.19	0.17	0.3	0.3	940	797	2,001	1,533	1,250	1,796	2,378	2,363
Azerbaijan	..	0.22	..	72.6	..	777	..	63	..	31	..	170
Bangladesh	0.08	0.06	31.0	52.0	11,083	11,582	1,048	1,730	0	0	6	7
Belarus	..	0.58	..	2.2	..	2,279	..	1,325	..	100	..	116
Belgium ^a	..	..	2.3	4.7	367	..	4,969	3,487	425	543	1,530	1,245
Benin	0.34	0.39	0.3	0.4	658	971	54	154	0	0	1	1
Bolivia	0.31	0.34	5.4	4.2	620	750	37	38	4	4	25	21
Bosnia and Herzegovina	..	0.25	..	0.3	..	337	..	356	..	321	..	289
Botswana	0.33	0.22	0.5	0.3	201	174	22	124	21	17	135	162
Brazil	0.34	0.34	4.6	4.4	20,101	18,614	653	1,201	47	62	142	138
Bulgaria	0.44	0.43	30.1	16.4	2,152	1,950	1,698	500	88	120	135	96
Burkina Faso	0.40	0.36	0.5	0.6	2,743	3,375	59	31	0	0	2	5
Burundi	0.17	0.14	5.5	5.5	218	211	32	33	0	0	2	2
Cambodia	0.39	0.29	6.3	7.1	1,860	2,068	9	0	0	1	3	7
Cameroon	0.51	0.39	0.3	0.5	755	810	38	75	0	0	1	1
Canada	1.65	1.47	1.6	1.7	21,446	17,071	468	550	1,496	1,921	164	160
Central African Republic	0.65	0.51	..	..	110	185	5	3	0	0	0	0
Chad	0.56	0.44	0.5	0.6	1,170	1,939	20	49	0	0	1	0
Chile	0.22	0.13	51.8	82.6	778	656	1,082	2,386	39	55	129	273
China	0.11	0.11	36.0	35.9	93,047	80,626	2,223	2,576	2	2	67	65
Hong Kong, China	..	..	..	..	..	..	..	..	..	..	..	..
Colombia	0.09	0.06	13.1	21.5	1,655	1,144	1,770	2,605	9	6	98	83
Congo, Dem. Rep.	0.18	0.13	0.1	0.1	1,840	2,023	11	7	0	0	4	4
Congo, Rep.	0.06	0.05	0.5	0.4	15	10	76	180	1	1	46	38
Costa Rica	0.09	0.06	15.0	20.6	89	57	4,256	6,455	21	22	248	311
Côte d'Ivoire	0.21	0.19	1.1	1.1	1,401	1,350	152	263	1	1	15	12
Croatia	..	0.33	..	0.3	..	709	..	1,303	..	18	..	20
Cuba	0.31	0.28	22.0	21.1	233	323	1,658	502	90	101	239	256
Czech Republic	..	0.30	..	0.7	..	1,584	..	1,186	..	209	..	310
Denmark	0.50	0.43	16.9	19.5	1,564	1,521	2,436	1,394	1,014	1,159	639	539
Dominican Republic	0.15	0.13	15.1	17.2	135	163	859	848	3	3	22	17
Ecuador	0.16	0.13	27.9	29.0	828	872	465	1,531	9	12	65	91
Egypt, Arab Rep.	0.04	0.04	100.0	100.0	2,280	2,696	4,181	4,473	7	11	250	309
El Salvador	0.11	0.10	4.9	5.0	428	351	1,392	1,054	5	4	62	53
Eritrea	..	0.12	..	4.2	..	325	..	134	..	0	..	9
Estonia	..	0.59	..	0.5	..	266	..	397	..	656	..	709
Ethiopia	..	0.16	..	1.7	..	7,160	..	145	..	0	..	3
Finland	0.46	0.42	2.8	2.9	1,144	1,182	1,904	1,353	1,116	1,425	1,059	886
France	0.32	0.31	10.3	13.3	9,244	9,069	3,217	2,221	1,057	1,475	799	685
Gabon	0.31	0.25	2.9	3.0	14	20	33	9	7	7	50	46
Gambia, The	0.20	0.18	0.5	0.8	92	141	64	33	0	0	2	2
Georgia	..	0.15	..	44.1	..	351	..	412	..	37	..	235
Germany	0.15	0.14	3.9	4.0	6,864	6,951	3,070	2,245	972	994	1,314	814
Ghana	0.18	0.20	0.2	0.2	1,066	1,477	36	60	1	1	15	9
Greece	0.28	0.25	30.3	37.3	1,473	1,288	2,307	1,580	225	323	752	917
Guatemala	0.15	0.12	6.6	6.8	726	664	999	1,477	3	2	32	32
Guinea	0.13	0.12	7.2	6.2	603	763	18	36	0	0	5	6
Guinea-Bissau	0.29	0.21	4.1	3.1	106	143	22	80	0	0	1	1
Haiti	0.12	0.10	6.8	6.8	408	445	32	181	0	0	3	2

Agricultural inputs

3.2

ENVIRONMENT

	Arable land		Irrigated land		Land under cereal production		Fertilizer consumption		Agricultural machinery			
	hectares per capita		% of cropland		thousands of hectares		hundreds of grams per hectare of arable land		Tractors per 1,000 agricultural workers		Tractors per 100 sq. km of arable land	
	1989-91	2000-02	1989-91	2000-02	1989-91	2001-03	1989-91	2000-02	1989-91	2000-02	1989-91	2000-02
Honduras	0.30	0.16	4.1	5.6	475	387	191	1,193	6	7	31	49
Hungary	0.49	0.46	3.8	4.7	2,827	2,941	1,459	992	89	230	126	246
India	0.19	0.16	27.0	33.7	102,279	97,285	736	1,032	4	6	61	94
Indonesia	0.11	0.10	14.3	14.3	13,442	14,755	1,227	1,321	1	2	15	46
Iran, Islamic Rep.	0.29	0.23	41.1	45.1	9,503	8,396	760	921	39	38	136	163
Iraq	0.29	0.24	57.2	58.8	..	..	350	968	53	94	72	105
Ireland	0.30	0.29	..	..	306	294	6,609	5,308	895	989	1,624	1,431
Israel	0.07	0.05	47.0	45.8	111	90	2,876	2,610	370	355	795	725
Italy	0.16	0.15	21.9	24.3	4,481	4,196	2,135	1,819	682	1,287	1,593	1,974
Jamaica	0.05	0.07	11.3	8.8	2	1	2,079	1,258	11	12	252	177
Japan	0.04	0.03	54.3	54.7	2,469	1,998	3,865	3,066	441	779	4,306	4,562
Jordan	0.09	0.05	16.5	18.8	101	60	663	977	50	30	213	225
Kazakhstan	..	1.44	..	10.8	..	13,551	..	24	..	38	..	23
Kenya	0.18	0.15	1.2	1.7	1,845	1,941	258	320	1	1	24	27
Korea, Dem. Rep.	0.11	0.11	57.5	54.1	1,604	1,302	3,577	1,071	18	19	299	258
Korea, Rep.	0.05	0.04	63.7	60.4	1,427	1,156	4,888	4,294	12	88	215	1,176
Kuwait	0.00	0.01	60.0	85.6	0	2	417	747	8	7	222	77
Kyrgyz Republic	..	0.27	..	75.6	..	619	..	208	..	46	..	188
Lao PDR	0.19	0.17	15.7	18.0	643	826	18	95	1	1	11	12
Latvia	..	0.78	..	1.1	..	442	..	300	..	379	..	305
Lebanon	0.05	0.04	28.2	32.6	41	56	1,510	2,838	51	185	175	471
Lesotho	0.20	0.19	0.3	0.3	199	235	161	309	7	7	59	61
Liberia	0.16	0.12	0.4	0.5	179	123	25	0	1	0	8	9
Libya	0.42	0.34	20.2	21.9	418	343	445	349	228	381	179	219
Lithuania	..	0.84	..	0.2	..	897	..	579	..	490	..	349
Macedonia, FYR	..	0.28	..	9.1	..	198	..	502	..	473	..	960
Madagascar	0.23	0.18	30.1	30.9	1,308	1,417	32	31	1	1	11	12
Malawi	0.21	0.21	1.0	1.3	1,415	1,642	317	400	0	0	8	7
Malaysia	0.09	0.08	4.8	4.8	696	696	5,386	6,548	13	24	153	240
Mali	0.24	0.42	5.7	2.9	2,340	2,951	78	89	1	1	10	6
Mauritania	0.20	0.18	12.2	9.8	156	157	95	40	1	1	8	8
Mauritius	0.09	0.08	16.0	20.1	1	0	2,867	3,035	5	6	36	37
Mexico	0.29	0.25	21.6	23.1	10,014	10,504	716	727	35	38	124	131
Moldova	..	0.43	..	14.0	..	963	..	86	..	86	..	225
Mongolia	0.65	0.49	5.7	7.0	649	211	116	31	33	16	79	41
Morocco	0.36	0.29	13.5	14.1	5,545	5,217	369	440	10	11	45	56
Mozambique	0.24	0.22	2.8	2.5	1,561	2,008	10	53	1	1	17	14
Myanmar	0.24	0.21	10.0	18.6	5,154	7,069	84	146	1	1	13	10
Namibia	0.47	0.42	0.6	0.9	214	252	0	4	11	10	46	39
Nepal	0.13	0.13	41.0	35.4	3,013	3,318	322	251	1	0	19	15
Netherlands	0.06	0.06	61.0	59.9	192	226	6,506	4,286	583	621	2,074	1,642
New Zealand	0.73	0.39	7.3	8.5	161	143	1,525	5,704	456	450	301	507
Nicaragua	0.34	0.37	5.7	4.3	305	489	281	177	7	7	20	15
Niger	0.47	0.41	1.8	1.5	6,232	7,957	5	11	0	0	0	0
Nigeria	0.31	0.22	0.7	0.7	15,596	21,095	135	66	2	2	8	10
Norway	0.21	0.19	..	..	357	327	2,388	2,100	1,142	1,282	1,741	1,503
Oman	0.02	0.02	72.6	76.9	2	2	2,185	2,491	1	0	41	39
Pakistan	0.19	0.15	80.4	81.1	11,794	12,204	921	1,381	13	13	127	150
Panama	0.21	0.19	4.8	5.1	179	132	656	545	21	32	103	146
Papua New Guinea	0.05	0.04	..	..	2	3	671	556	1	1	60	55
Paraguay	0.51	0.55	3.0	2.2	447	689	92	319	25	23	71	56
Peru	0.16	0.14	30.5	27.8	802	1,141	320	759	5	4	37	36
Philippines	0.09	0.07	15.7	14.5	7,113	6,524	955	1,313	1	1	19	20
Poland	0.38	0.36	0.7	0.7	8,541	8,426	1,383	1,115	228	313	815	950
Portugal	0.24	0.19	20.2	24.0	832	486	1,152	1,062	153	269	563	849
Puerto Rico	0.02	0.01	34.5	47.6	1	0	..	..	..	..	..	..



3.2

Agricultural inputs

	Arable land		Irrigated land		Land under cereal production		Fertilizer consumption		Agricultural machinery			
	hectares per capita		% of cropland		thousands of hectares		hundreds of grams per hectare of arable land		Tractors per 1,000 agricultural workers		Tractors per 100 sq. km of arable land	
	1989-91	2000-02	1989-91	2000-02	1989-91	2001-03	1989-91	2000-02	1989-91	2000-02	1989-91	2000-02
Romania	0.41	0.42	31.1	31.1	5,927	5,760	1,077	355	54	106	147	175
Russian Federation	..	0.86	..	3.7	..	40,911	..	121	..	87	..	56
Rwanda	0.12	0.13	0.3	0.4	250	306	20	48	0	0	1	1
Saudi Arabia	0.22	0.17	45.5	42.7	1,009	677	1,461	1,067	6	14	19	28
Senegal	0.32	0.25	3.6	2.9	1,211	1,230	58	140	0	0	2	3
Serbia and Montenegro	..	0.35	2.1	..	..	3,412	1,075	..	..	..	1,424	..
Sierra Leone	0.12	0.10	5.2	5.3	462	231	24	5	0	0	6	2
Singapore	0.00	0.00	..	..	..	..	54,333	25,920	11	22	620	650
Slovak Republic	..	..	..	..	..	..	..	..	..	..	..	..
Slovenia	..	0.09	..	1.5	..	101	..	4,239	..	6,160	..	6,430
Somalia	0.14	0.12	17.3	18.7	..	..	18	5	1	1	21	16
South Africa	0.38	0.33	9.0	9.5	6,175	4,465	573	558	75	43	108	49
Spain	0.40	0.33	16.8	20.3	7,756	6,586	1,282	1,605	390	725	481	684
Sri Lanka	0.05	0.05	27.1	33.1	810	864	2,127	2,862	2	2	75	107
Sudan	0.52	0.51	14.7	11.7	5,376	8,684	48	40	1	2	7	7
Swaziland	0.24	0.17	33.2	36.8	80	71	697	371	38	33	233	221
Sweden	0.33	0.30	4.0	4.3	1,235	1,152	1,148	1,010	836	1,131	604	613
Switzerland	0.06	0.06	6.1	5.7	210	168	4,297	2,272	567	718	2,874	2,723
Syrian Arab Republic	0.40	0.28	12.9	23.5	3,968	3,046	581	718	53	66	129	219
Tajikistan	..	0.15	..	68.0	..	379	..	175	..	27	..	241
Tanzania	0.14	0.12	3.3	3.3	2,990	2,870	378	31	1	1	19	19
Thailand	0.32	0.26	20.6	25.7	10,991	11,421	537	1,039	3	11	33	139
Togo	0.60	0.54	0.3	0.7	625	773	57	74	0	0	0	0
Trinidad and Tobago	0.06	0.06	3.3	3.3	6	2	833	631	50	55	355	360
Tunisia	0.36	0.29	6.7	7.7	1,372	807	328	372	31	37	86	125
Turkey	0.44	0.37	13.9	17.9	13,679	13,829	735	727	53	65	278	377
Turkmenistan	..	0.39	..	94.0	..	865	..	543	..	72	..	270
Uganda	0.29	0.21	0.1	0.1	1,078	1,411	1	14	1	1	9	9
Ukraine	..	0.66	..	7.0	..	12,907	..	154	..	108	..	116
United Arab Emirates	0.02	0.02	128.1	29.6	1	0	4,247	5,221	2	5	55	57
United Kingdom	0.12	0.10	2.4	2.9	3,677	3,106	3,553	3,147	829	970	762	868
United States	0.74	0.62	11.1	12.6	63,775	55,604	1,007	1,093	1,321	1,619	258	273
Uruguay	0.41	0.39	9.6	13.5	508	536	586	895	172	174	262	254
Uzbekistan	..	0.18	..	88.7	..	1,560	..	1,614	..	57	..	379
Venezuela, RB	0.14	0.10	13.4	17.2	819	869	1,579	1,157	55	62	169	193
Vietnam	0.08	0.08	44.8	34.8	6,549	8,301	1,183	3,157	1	6	51	250
West Bank and Gaza	..	..	..	..	..	..	..	..	..	..	..	..
Yemen, Rep.	0.12	0.08	22.4	30.4	781	595	134	95	3	2	40	43
Zambia	0.67	0.52	0.6	0.9	929	628	128	84	2	2	11	11
Zimbabwe	0.28	0.25	3.3	3.5	1,606	1,641	562	443	5	7	60	75
World	0.27 w	0.23 w	17.8 w	19.7 w	695,097 s	665,131 s	999 w	986 w	22 w	20 w	191 w	190 w
Low income	0.21	0.17	24.4	26.8	206,088	228,681	552	672	4	4	50	66
Middle income	0.25	0.23	18.1	19.7	345,990	304,868	1,104	1,051	13	12	132	130
Lower middle income	0.24	0.21	18.9	20.8	308,466	264,386	1,143	1,096	10	9	116	106
Upper middle income	0.36	0.32	13.0	13.4	37,524	40,482	880	808	93	119	231	258
Low & middle income	0.23	0.20	20.3	22.3	552,079	533,549	909	912	9	8	103	106
East Asia & Pacific	0.12	0.12	..	..	141,841	133,881	1,768	2,148	2	2	56	73
Europe & Central Asia	0.64	0.58	10.3	10.9	141,325	116,270	994	343	108	111	194	184
Latin America & Carib.	0.31	0.29	12.4	12.5	48,262	49,456	590	861	36	40	119	119
Middle East & N. Africa	0.23	0.18	33.5	38.4	27,826	24,278	702	855	22	25	107	136
South Asia	0.18	0.15	34.1	41.2	129,072	125,321	743	1,053	4	5	62	92
Sub-Saharan Africa	0.29	0.24	4.5	4.3	63,753	84,343	150	132	2	1	21	15
High income	0.43	0.38	10.9	12.2	143,018	131,582	1,248	1,205	642	918	433	436
Europe EMU	0.22	0.21	16.9	19.8	33,599	31,403	2,524	2,032	654	920	997	973

a. Includes Luxembourg.

About the data

Agricultural activities provide developing countries with food and revenue, but they also can degrade natural resources. Poor farming practices can cause soil erosion and loss of soil fertility. Efforts to increase productivity through the use of chemical fertilizers, pesticides, and intensive irrigation have environmental costs and health impacts. Excessive use of chemical fertilizers can alter the chemistry of soil. Pesticide poisoning is common in developing countries. And salinization of irrigated land diminishes soil fertility. Thus inappropriate use of inputs for agricultural production has far-reaching effects.

This table provides indicators of major inputs to agricultural production: land, fertilizer, and agricultural machinery. There is no single correct mix of inputs: appropriate levels and application rates vary by country and over time, depending on the type of crops, the climate and soils, and the production process used.

The data shown here and in table 3.3 are collected by the Food and Agriculture Organization (FAO) through annual questionnaires. The FAO tries to impose standard definitions and reporting methods, but exact consistency across countries and over time is not possible. Data on agricultural employment, in particular, should be used with caution. In many countries much agricultural employment is informal and unrecorded, including substantial work performed by women and children.

Fertilizer consumption measures the quantity of plant nutrients. Consumption is calculated as production plus imports minus exports. Because some

chemical compounds used for fertilizers have other industrial applications, the consumption data may overstate the quantity available for crops.

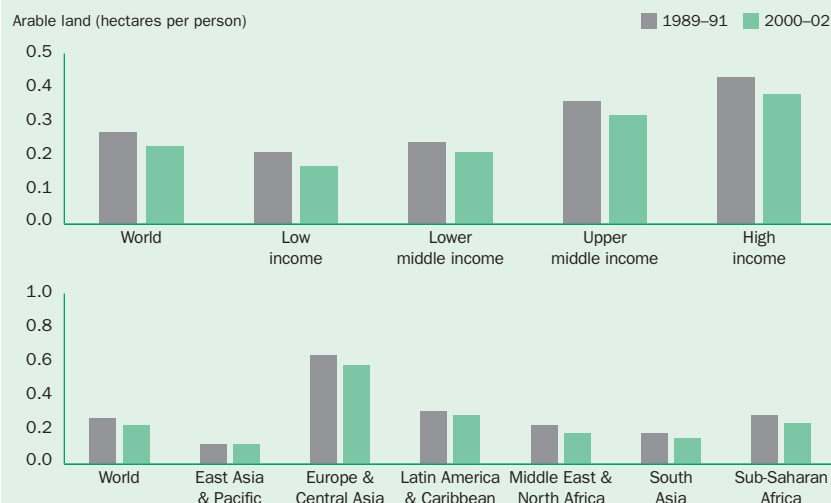
To smooth annual fluctuations in agricultural activity, the indicators in the table have been averaged over three years.

Definitions

- Arable land includes land defined by the FAO as land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned as a result of shifting cultivation is excluded.
- Irrigated land refers to areas purposely provided with water, including land irrigated by controlled flooding.
- Cropland refers to arable land and permanent cropland (see table 3.1).
- Land under cereal production refers to harvested areas, although some countries report only sown or cultivated area.
- Fertilizer consumption is the quantity of plant nutrients used per unit of arable land. Fertilizer products cover nitrogenous, potash, and phosphate fertilizers (including ground rock phosphate). Traditional nutrients—animal and plant manures—are not included. The time reference for fertilizer consumption is the crop year (July through June).
- Agricultural machinery refers to wheel and crawler tractors (excluding garden tractors) in use in agriculture at the end of the calendar year specified or during the first quarter of the following year.
- Agricultural workers refer to all economically active people engaged principally in agriculture, forestry, hunting, or fishing.

3.2a

Arable land per person is shrinking in all regions and in all income groups



Source: Table 3.2.

Data sources

The data are from electronic files that the FAO makes available to the World Bank and that may contain more recent information than those published in the FAO's Production Yearbook.