



Dataset on water footprints of 175 individual crops in 1990–2019

1 March 2024

University of Twente

Enschede, the Netherlands

Contents

1. Overview	3
2. Dataset files	4
2.1. National unit water footprints of crops (annual)	4
2.2. National unit water footprints of crops (current state)	5
2.3. Global unit water footprints of crops (current state)	5
2.4. Global gridded water footprint of crop production (annual)	5
2.5. Global gridded unit water footprints of crops (current state)	5
2.6. Global gridded crop water use of crops (current state)	6
3. List of countries	7
4. List of crops	12

1. Overview

Dataset name: “Data underlying the publication: Water footprints and crop water use of 175 individual crops for 1990–2019 simulated with a global crop model”

Dataset DOI: doi.org/10.4121/7b45bcc6-686b-404d-a910-13c87156716a

Associated publication DOI: doi.org/10.1038/s41597-024-03051-3

Authors: Oleksandr Mialyk, Joep F. Schyns, Martijn J. Booij, Han Su, Rick J. Hogeboom, Markus Berger

Organisation: Multidisciplinary Water Management group at the University of Twente, the Netherlands

Primary contact: Oleksandr Mialyk (o.mialyk@utwente.nl)

Additional contact: Markus Berger (m.berger@utwente.nl)

License: CC BY 4.0

Citation: to cite the dataset, you can refer to doi.org/10.1038/s41597-024-03051-3 or to doi.org/10.4121/7b45bcc6-686b-404d-a910-13c87156716a or to both (if you want to improve citation index of the authors).

Introduction: Here we provide outputs of the global simulation of crop water footprints (WFs) with a process-based gridded crop model ACEA¹. The model is based on FAO’s AquaCrop and covers 175 widely-grown crops in the 1990–2019 period at a 5 arcminute resolution (10 x 10 km). We partition WFs into green (water from precipitation) and blue (from irrigation or capillary rise) and differentiate between rainfed and irrigated production systems. The outputs cover several variables, including unit WFs (expressed in $\text{m}^3 \text{t}^{-1} \text{yr}^{-1}$), WFs of crop production ($\text{m}^3 \text{yr}^{-1}$), and crop water use (mm yr^{-1}). For more information on methods, input data, validation, and uncertainties please refer to the corresponding data descriptor paper published in Scientific Data².

Comments and suggestions: If you notice any mistake or a problem in the dataset, please let us know as soon as possible. If you have any suggestions for additional information to add, we would be happy to consider them for the next version of the dataset. Contacts are available above.

Funding: This publication received the support of the Global Water Security & Sanitation Partnership (GWSP). GWSP is a multi-donor trust fund administered by the World Bank’s Water Global Practice and supported by the Australian Department of Foreign Affairs and Trade, Austria’s Federal Ministry of Finance, the Bill & Melinda Gates Foundation, Denmark’s Ministry of Foreign Affairs, the Netherlands’ Ministry of Foreign Affairs, the Swedish International Development Cooperation Agency, Switzerland’s State Secretariat for Economic Affairs, the Swiss Agency for Development and Cooperation, and the U.S. Agency for International Development.

¹ Mialyk, O. & Su, H. Global gridded crop model ACEA (version 2.0). Zenodo <https://doi.org/10.5281/zenodo.10510933> (2024).

² Mialyk, O., Schyns, J. F., Booij, M. J., Su, H., Hogeboom, R. J., and Berger, M.: Water footprints and crop water use of 175 individual crops for 1990–2019 simulated with a global crop model, Sci Data, 11, 206, <https://doi.org/10.1038/s41597-024-03051-3>, 2024.

2. Dataset files

2.1. National unit water footprints of crops (annual)

Name: national_wf_175_crops_annual_1990_2019.csv (1 file)

Format: CSV (comma separated)

Period: annual values in 1990–2019

Resolution: national values, country classification is taken from FAOSTAT³ and provided in “List of countries”

Content: annual green and blue unit WFs and related variables of 175 crops (see “List of crops”). The list of variables is provided in Table 1. Users can estimate WFs of crop production by multiplying corresponding unit WFs with crop production quantity. Crop water use can be derived by multiplying unit WFs with the corresponding crop yield and further division by 10 (to have values in [mm yr⁻¹]).

Please note that minor producing countries may have extreme unit WFs of some crops due to uncertainty in input data. We recommend to exclude them from your analysis if possible. In some cases, very small unit WFs may result from crop production in greenhouses, such as for tomatoes in the Netherlands (small harvested areas but extremely high crop yields).

User suggestions: information is easily accessible via Excel or any programming language (e.g. via Pandas in Python). If you use Excel, data for specific combination of year/country/crop can be obtained via Filter feature or FILTER function.

Table 1. List of included variables.

	Parameter	Units*	Description
1	crop_code		Crop code (according to FAOSTAT)
2	crop_name		Crop name (according to FAOSTAT)
3	crop_group		Crop group (according to FAOSTAT)
4	country_code		Country code (according to FAOSTAT)
5	country_name		Country name (according to FAOSTAT)
6	country_iso3		Country ISO3 code (according to ISO standard)
7	year	year	Year of harvest (crop can be planted and harvested in different years)
8	harvarea_ha	ha yr ⁻¹	National harvested area
9	irrigated_harvarea_fraction		Fraction of harvested area under irrigation
10	production_t	t yr ⁻¹	National crop production
11	crop_yield_t_ha	t ha ⁻¹ yr ⁻¹	Crop yield
12	wfg_m3_t	m ³ t ⁻¹ yr ⁻¹	Green unit water footprint
13	wfb_cr_m3_t	m ³ t ⁻¹ yr ⁻¹	Blue unit water footprint from capillary rise
14	wfb_i_m3_t	m ³ t ⁻¹ yr ⁻¹	Blue unit water footprint from irrigation
15	wf_tot_m3_t	m ³ t ⁻¹ yr ⁻¹	Total unit water footprint (sum of 10–12)

*For unit WFs and crop yields, [yr⁻¹] corresponds to a full calendar year only for perennial crops; the growing season of annual crops covers only some part of the year (e.g. 100 days) and, thus, you should read the affected variables as representative value for a specific calendar year. This is important for crops with multiple growing seasons a year such as rice. In this case, wf_tot_m3_t represents an average value between the seasons, not the sum of them.

³ FAO: <https://www.fao.org/faostat/en/#definitions>, last access: 20 April 2023b.

2.2. National unit water footprints of crops (current state)

Name: national_wf_175_crops_average_2010_2019.csv (1 file)

Format: CSV (comma separated)

Period: arithmetic average of annual values over 2010–2019

Resolution: national values, country classification is taken from FAOSTAT and provided in “List of countries”

Content: representative national green and blue unit WFs of 175 individual crops for 2010–2019 (see description of variables in Table 1).

2.3. Global unit water footprints of crops (current state)

Name: global_wf_175_crops_average_2010_2019.csv (1 file)

Format: CSV (comma separated)

Period: arithmetic average of annual values over 2010–2019

Resolution: global values

Content: representative global green and blue unit WFs of 175 individual crops for 2010–2019 (see description of variables in Table 1).

2.4. Global gridded water footprint of crop production (annual)

Name: wf_prod_{wf_type}_1990_2019.nc, where *wf_type* is one of: *irrigated_blue*, *irrigated_green*, *rainfed_blue*, *rainfed_green*, or *total* (5 files inside *wf_crop_production_1990_2019.zip*)

Format: NetCDF4

Period: annual values in 1990–2019 (30 bands)

Extent: 180°E–180°W and 90°S–90°N according to a WGS84 coordinate system

Resolution: 5 arcminute (0.083333 decimal degrees), 4320 columns and 2160 rows

Content: aggregated green and blue WFs of crop production (in $\text{m}^3 \text{yr}^{-1}$) reported for rainfed and irrigated production systems and for both combined (total).

2.5. Global gridded unit water footprints of crops (current state)

Name: wf_unit_{crop_name}_average_2010_2019.nc, where *crop_name* is one of 43 selected crop names (43 files inside *unit_wf_selected_crops_average_2010_2019.zip*)

Format: NetCDF4

Period: weighted average values over 2010–2019

Extent: 180°E–180°W and 90°S–90°N according to WGS84 coordinate system

Resolution: 5 arcminute (0.083333 decimal degrees), 4320 columns and 2160 rows

Content: seven layers with representative average unit WFs of a corresponding crop (in $\text{m}^3 \text{t}^{-1} \text{yr}^{-1}$) for 2010–2019. Average values are weighted by production to reduce contribution from years with extreme values. Each layer named wf_unit_{wf_type} where *wf_type* is one of: *rainfed*, *rainfed_blue*, *rainfed_green*, *irrigated*, *irrigated_blue*, *irrigated_green*, or *total*. The layer *rainfed* is a sum *rainfed_green* and *rainfed_blue*, the layer *irrigated* is a sum *irrigated_green* and *irrigated_blue*, and the layer *total* is weighted by the production average of *rainfed* and *irrigated*.

2.6. Global gridded crop water use of crops (current state)

Name: `cwu_{crop_name}_average_2010_2019.nc`, where *crop_name* is one of 43 selected crop names (43 files inside *crop_water_use_selected_crops_average_2010_2019.zip*)

Format: NetCDF4

Period: weighted average values over 2010–2019

Extent: 180°E–180°W and 90°S–90°N according to WGS84 coordinate system

Resolution: 5 arcminute (0.083333 decimal degrees), 4320 columns and 2160 rows

Content: three layers with representative average crop water use of a corresponding crop (in mm yr⁻¹) for 2010–2019. Average values are weighted by harvested area to reduce contribution from years with extreme values. Each layer is named `cwu_{cwu_type}` where *cwu_type* is one of: *rainfed*, *irrigated*, or *total*. The layer *total* is weighted by harvested area average of *rainfed* and *irrigated*. Note that we report the average crop water use of only one growing season—crop water use of crops planted several times a year (such as rice) are not summed up but averaged instead.

3. List of countries

	Country	FAOSTAT code	M49 code	ISO2 code	ISO3 code	Start Year	End Year
1	Afghanistan	2	4	AF	AFG		
2	Albania	3	8	AL	ALB		
3	Algeria	4	12	DZ	DZA		
4	Angola	7	24	AO	AGO		
5	Antigua and Barbuda	8	28	AG	ATG		
6	Argentina	9	32	AR	ARG		
7	Armenia	1	51	AM	ARM	1992	
8	Australia	10	36	AU	AUS		
9	Austria	11	40	AT	AUT		
10	Azerbaijan	52	31	AZ	AZE	1992	
11	Bahamas	12	44	BS	BHS		
12	Bahrain	13	48	BH	BHR		
13	Bangladesh	16	50	BD	BGD		
14	Barbados	14	52	BB	BRB		
15	Belarus	57	112	BY	BLR	1992	
16	Belgium	255	56	BE	BEL	2000	
17	Belgium-Luxembourg	15	58	F15	F15		1999
18	Belize	23	84	BZ	BLZ		
19	Benin	53	204	BJ	BEN		
20	Bhutan	18	64	BT	BTN		
21	Bolivia (Plurinational State of)	19	68	BO	BOL		
22	Bosnia and Herzegovina	80	70	BA	BIH	1992	
23	Botswana	20	72	BW	BWA		
24	Brazil	21	76	BR	BRA		
25	Brunei Darussalam	26	96	BN	BRN		
26	Bulgaria	27	100	BG	BGR		
27	Burkina Faso	233	854	BF	BFA		
28	Burundi	29	108	BI	BDI		
29	Cabo Verde	35	132	CV	CPV		
30	Cambodia	115	116	KH	KHM		
31	Cameroon	32	120	CM	CMR		
32	Canada	33	124	CA	CAN		
33	Central African Republic	37	140	CF	CAF		
34	Chad	39	148	TD	TCD		
35	Chile	40	152	CL	CHL		
36	China, Hong Kong SAR	96	344	HK	HKG		
37	China, Macao SAR	128	446	MO	MAC		
38	China, mainland	41	156	CN	CHN		
39	China, Taiwan Province of	214	158	TW	TWN		
40	Colombia	44	170	CO	COL		
41	Comoros	45	174	KM	COM		
42	Congo	46	178	CG	COG		
43	Cook Islands	47	184	CK	COK		
44	Costa Rica	48	188	CR	CRI		
45	Cote d'Ivoire	107	384	CI	CIV		
46	Croatia	98	191	HR	HRV	1992	

47	Cuba	49	192	CU	CUB		
48	Cyprus	50	196	CY	CYP		
49	Czechia	167	203	CZ	CZE	1993	
50	Czechoslovakia	51	200	F51	F51		1992
51	Democratic People's Republic of Korea	116	408	KP	PRK		
52	Democratic Republic of the Congo	250	180	CD	COD		
53	Denmark	54	208	DK	DNK		
54	Djibouti	72	262	DJ	DJI		
55	Dominica	55	212	DM	DMA		
56	Dominican Republic	56	214	DO	DOM		
57	Ecuador	58	218	EC	ECU		
58	Egypt	59	818	EG	EGY		
59	El Salvador	60	222	SV	SLV		
60	Equatorial Guinea	61	226	GQ	GNQ		
61	Eritrea	178	232	ER	ERI	1993	
62	Estonia	63	233	EE	EST	1992	
63	Eswatini	209	748	SZ	SWZ		
64	Ethiopia	238	231	ET	ETH	1993	
65	Ethiopia PDR	62	230	F62	F62		1992
66	Faroe Islands	64	234	FO	FRO		
67	Fiji	66	242	FJ	FJI		
68	Finland	67	246	FI	FIN		
69	France	68	250	FR	FRA		
70	French Guyana	69	254	GF	GUF		
71	French Polynesia	70	258	PF	PYF		
72	Gabon	74	266	GA	GAB		
73	Gambia	75	270	GM	GMB		
74	Georgia	73	268	GE	GEO	1992	
75	Germany	79	276	DE	DEU		
76	Ghana	81	288	GH	GHA		
77	Greece	84	300	GR	GRC		
78	Grenada	86	308	GD	GRD		
79	Guadeloupe	87	312	GP	GLP		
80	Guatemala	89	320	GT	GTM		
81	Guinea	90	324	GN	GIN		
82	Guinea-Bissau	175	624	GW	GNB		
83	Guyana	91	328	GY	GUY		
84	Haiti	93	332	HT	HTI		
85	Honduras	95	340	HN	HND		
86	Hungary	97	348	HU	HUN		
87	Iceland	99	352	IS	ISL		
88	India	100	356	IN	IND		
89	Indonesia	101	360	ID	IDN		
90	Iran (Islamic Republic of)	102	364	IR	IRN		
91	Iraq	103	368	IQ	IRQ		
92	Ireland	104	372	IE	IRL		
93	Israel	105	376	IL	ISR		
94	Italy	106	380	IT	ITA		
95	Jamaica	109	388	JM	JAM		

96	Japan	110	392	JP	JPN		
97	Jordan	112	400	JO	JOR		
98	Kazakhstan	108	398	KZ	KAZ	1992	
99	Kenya	114	404	KE	KEN		
100	Kiribati	83	296	KI	KIR		
101	Kuwait	118	414	KW	KWT		
102	Kyrgyzstan	113	417	KG	KGZ	1992	
103	Lao People's Democratic Republic	120	418	LA	LAO		
104	Latvia	119	428	LV	LVA	1992	
105	Lebanon	121	422	LB	LBN		
106	Lesotho	122	426	LS	LSO		
107	Liberia	123	430	LR	LBR		
108	Libya	124	434	LY	LBY		
109	Lithuania	126	440	LT	LTU	1992	
110	Luxembourg	256	442	LU	LUX	2000	
111	Madagascar	129	450	MG	MDG		
112	Malawi	130	454	MW	MWI		
113	Malaysia	131	458	MY	MYS		
114	Maldives	132	462	MV	MDV		
115	Mali	133	466	ML	MLI		
116	Malta	134	470	MT	MLT		
117	Marshall Islands	127	584	MH	MHL	1991	
118	Martinique	135	474	MQ	MTQ		
119	Mauritania	136	478	MR	MRT		
120	Mauritius	137	480	MU	MUS		
121	Mexico	138	484	MX	MEX		
122	Micronesia (Federated States of)	145	583	FM	FSM	1991	
123	Mongolia	141	496	MN	MNG		
124	Montenegro	273	499	ME	MNE	2006	
125	Morocco	143	504	MA	MAR		
126	Mozambique	144	508	MZ	MOZ		
127	Myanmar	28	104	MM	MMR		
128	Namibia	147	516	NA	NAM		
129	Nauru	148	520	NR	NRU		
130	Nepal	149	524	NP	NPL		
131	Netherlands	150	528	NL	NLD		
132	New Caledonia	153	540	NC	NCL		
133	New Zealand	156	554	NZ	NZL		
134	Nicaragua	157	558	NI	NIC		
135	Niger	158	562	NE	NER		
136	Nigeria	159	566	NG	NGA		
137	Niue	160	570	NU	NIU		
138	North Macedonia	154	807	MK	MKD	1992	
139	Norway	162	578	NO	NOR		
140	Oman	221	512	OM	OMN		
141	Pakistan	165	586	PK	PAK		
142	Palestine	299	275	F299	PSE		
143	Panama	166	591	PA	PAN		
144	Papua New Guinea	168	598	PG	PNG		

145	Paraguay	169	600	PY	PRY		
146	Peru	170	604	PE	PER		
147	Philippines	171	608	PH	PHL		
148	Poland	173	616	PL	POL		
149	Portugal	174	620	PT	PRT		
150	Puerto Rico	177	630	PR	PRI		
151	Qatar	179	634	QA	QAT		
152	Republic of Korea	117	410	KR	KOR		
153	Republic of Moldova	146	498	MD	MDA	1992	
154	Réunion	182	638	RE	REU		
155	Romania	183	642	RO	ROU		
156	Russian Federation	185	643	RU	RUS	1992	
157	Rwanda	184	646	RW	RWA		
158	Saint Kitts and Nevis	188	659	KN	KNA		
159	Saint Lucia	189	662	LC	LCA		
160	Saint Vincent and the Grenadines	191	670	VC	VCT		
161	Samoa	244	882	WS	WSM		
162	Sao Tome and Principe	193	678	ST	STP		
163	Saudi Arabia	194	682	SA	SAU		
164	Senegal	195	686	SN	SEN		
165	Serbia	272	688	RS	SRB	2006	
166	Serbia and Montenegro	186	891	CS	SCG	1992	2005
167	Seychelles	196	690	SC	SYC		
168	Sierra Leone	197	694	SL	SLE		
169	Singapore	200	702	SG	SGP		
170	Slovakia	199	703	SK	SVK	1993	
171	Slovenia	198	705	SI	SVN	1992	
172	Solomon Islands	25	90	SB	SLB		
173	Somalia	201	706	SO	SOM		
174	South Africa	202	710	ZA	ZAF		
175	South Sudan	277	728	SS	SSD	2012	
176	Spain	203	724	ES	ESP		
177	Sri Lanka	38	144	LK	LKA		
178	Sudan	276	729	SD	SDN	2012	
179	Sudan (former)	206	736	F206	F206		2011
180	Suriname	207	740	SR	SUR		
181	Sweden	210	752	SE	SWE		
182	Switzerland	211	756	CH	CHE		
183	Syrian Arab Republic	212	760	SY	SYR		
184	Tajikistan	208	762	TJ	TJK	1992	
185	Thailand	216	764	TH	THA		
186	Timor-Leste	176	626	TL	TLS		
187	Togo	217	768	TG	TGO		
188	Tokelau	218	772	TK	TKL		
189	Tonga	219	776	TO	TON		
190	Trinidad and Tobago	220	780	TT	TTO		
191	Tunisia	222	788	TN	TUN		
192	Türkiye	223	792	TR	TUR		
193	Turkmenistan	213	795	TM	TKM	1992	

194	Tuvalu	227	798	TV	TUV		
195	Uganda	226	800	UG	UGA		
196	Ukraine	230	804	UA	UKR	1992	
197	United Arab Emirates	225	784	AE	ARE		
198	United Kingdom of Great Britain and Northern Ireland	229	826	GB	GBR		
199	United Republic of Tanzania	215	834	TZ	TZA		
200	United States of America	231	840	US	USA		
201	Uruguay	234	858	UY	URY		
202	USSR	228	810	F228	F228		1991
203	Uzbekistan	235	860	UZ	UZB	1992	
204	Vanuatu	155	548	VU	VUT		
205	Venezuela (Bolivarian Republic of)	236	862	VE	VEN		
206	Viet Nam	237	704	VN	VNM		
207	Yemen	249	887	YE	YEM		
208	Yugoslav SFR	248	890	F248	F248		1991
209	Zambia	251	894	ZM	ZMB		
210	Zimbabwe	181	716	ZW	ZWE		

4. List of crops

	Crop name according to FAOSTAT	Crop group	FAOSTAT code
1	Wheat	Cereals	15
2	Rice	Cereals	27
3	Barley	Cereals	44
4	Maize (corn)	Cereals	56
5	Rye	Cereals	71
6	Oats	Cereals	75
7	Millet	Cereals	79
8	Sorghum	Cereals	83
9	Buckwheat	Cereals	89
10	Quinoa	Cereals	92
11	Fonio	Cereals	94
12	Triticale	Cereals	97
13	Canary seed	Cereals	101
14	Mixed grain	Cereals	103
15	Cereals n.e.c.	Cereals	108
16	Potatoes	Roots	116
17	Sweet potatoes	Roots	122
18	Cassava, fresh	Roots	125
19	Yautia	Roots	135
20	Taro	Roots	136
21	Yams	Roots	137
22	Edible roots and tubers with high starch or inulin content, n.e.c., fresh	Roots	149
23	Sugar cane	Sugar crops	156
24	Sugar beet	Sugar crops	157
25	Other sugar crops n.e.c.	Sugar crops	161
26	Beans, dry	Pulses	176
27	Broad beans and horse beans, dry	Pulses	181
28	Peas, dry	Pulses	187
29	Chick peas, dry	Pulses	191
30	Cow peas, dry	Pulses	195
31	Pigeon peas, dry	Pulses	197
32	Lentils, dry	Pulses	201
33	Bambara beans, dry	Pulses	203
34	Vetches	Pulses	205
35	Lupins	Pulses	210
36	Other pulses n.e.c.	Pulses	211
37	Brazil nuts, in shell	Nuts	216
38	Cashew nuts, in shell	Nuts	217
39	Chestnuts, in shell	Nuts	220
40	Almonds, in shell	Nuts	221
41	Walnuts, in shell	Nuts	222
42	Pistachios, in shell	Nuts	223
43	Kola nuts	Nuts	224
44	Hazelnuts, in shell	Nuts	225
45	Areca nuts	Nuts	226
46	Other nuts (excluding wild edible nuts and groundnuts), in shell, n.e.c.	Nuts	234
47	Soya beans	Oil crops	236

48	Groundnuts, excluding shelled	Oil crops	242
49	Coconuts, in shell	Oil crops	249
50	Oil palm fruit	Oil crops	254
51	Olives	Oil crops	260
52	Karite nuts (sheanuts)	Oil crops	263
53	Castor oil seeds	Oil crops	265
54	Sunflower seed	Oil crops	267
55	Rape or colza seed	Oil crops	270
56	Tung nuts	Oil crops	275
57	Jobba seeds	Oil crops	277
58	Safflower seed	Oil crops	280
59	Sesame seed	Oil crops	289
60	Mustard seed	Oil crops	292
61	Poppy seed	Oil crops	296
62	Melonseed	Oil crops	299
63	Tallowtree seeds	Oil crops	305
64	Kapok fruit	Oil crops	310
65	Seed cotton, unginned	Fibres	328
66	Linseed	Oil crops	333
67	Hempseed	Oil crops	336
68	Other oil seeds, n.e.c.	Oil crops	339
69	Cabbages	Vegetables	358
70	Artichokes	Vegetables	366
71	Asparagus	Vegetables	367
72	Lettuce and chicory	Vegetables	372
73	Spinach	Vegetables	373
74	Tomatoes	Vegetables	388
75	Cauliflowers and broccoli	Vegetables	393
76	Pumpkins, squash and gourds	Vegetables	394
77	Cucumbers and gherkins	Vegetables	397
78	Eggplants (aubergines)	Vegetables	399
79	Chillies and peppers, green (Capsicum spp. and Pimenta spp.)	Vegetables	401
80	Onions and shallots, green	Vegetables	402
81	Onions and shallots, dry (excluding dehydrated)	Vegetables	403
82	Green garlic	Vegetables	406
83	Leeks and other alliaceous vegetables	Vegetables	407
84	Other beans, green	Vegetables	414
85	Peas, green	Vegetables	417
86	Broad beans and horse beans, green	Vegetables	420
87	String beans	Vegetables	423
88	Carrots and turnips	Vegetables	426
89	Okra	Vegetables	430
90	Green corn (maize)	Vegetables	446
91	Mushrooms and truffles	Vegetables	449
92	Chicory roots	Vegetables	459
93	Locust beans (carobs)	Fruits	461
94	Other vegetables, fresh n.e.c.	Vegetables	463
95	Bananas	Fruits	486
96	Plantains and cooking bananas	Fruits	489

97	Oranges	Fruits	490
98	Tangerines, mandarins, clementines	Fruits	495
99	Lemons and limes	Fruits	497
100	Pomelos and grapefruits	Fruits	507
101	Other citrus fruit, n.e.c.	Fruits	512
102	Apples	Fruits	515
103	Pears	Fruits	521
104	Quinces	Fruits	523
105	Apricots	Fruits	526
106	Sour cherries	Fruits	530
107	Cherries	Fruits	531
108	Peaches and nectarines	Fruits	534
109	Plums and sloes	Fruits	536
110	Other stone fruits	Fruits	541
111	Other pome fruits	Fruits	542
112	Strawberries	Fruits	544
113	Raspberries	Fruits	547
114	Gooseberries	Fruits	549
115	Currants	Fruits	550
116	Blueberries	Fruits	552
117	Cranberries	Fruits	554
118	Other berries and fruits of the genus vaccinium n.e.c.	Fruits	558
119	Grapes	Fruits	560
120	Watermelons	Vegetables	567
121	Cantaloupes and other melons	Vegetables	568
122	Figs	Fruits	569
123	Mangoes, guavas and mangosteens	Fruits	571
124	Avocados	Fruits	572
125	Pineapples	Fruits	574
126	Dates	Fruits	577
127	Persimmons	Fruits	587
128	Cashewapple	Fruits	591
129	Kiwi fruit	Fruits	592
130	Papayas	Fruits	600
131	Other tropical fruits, n.e.c.	Fruits	603
132	Other fruits, n.e.c.	Fruits	619
133	Forage and silage, maize	Fodder crops	636
134	Forage and silage, sorghum	Fodder crops	637
135	Forage and silage, rye grass	Fodder crops	638
136	Other grasses for forage	Fodder crops	639
137	Clover for forage	Fodder crops	640
138	Forage and silage, alfalfa	Fodder crops	641
139	Forage and silage, green oilseeds	Fodder crops	642
140	Other legumes for forage	Fodder crops	643
141	Cabbage for fodder	Fodder crops	644
142	Mixed Grasses and Legumes	Fodder crops	645
143	Turnips for forage	Fodder crops	646
144	Beets for fodder	Fodder crops	647
145	Carrots for fodder	Fodder crops	648

146	Swedes for fodder	Fodder crops	649
147	Other forage products, n.e.c.	Fodder crops	651
148	Vegetables and roots fodder	Fodder crops	655
149	Coffee, green	Stimulants	656
150	Cocoa beans	Stimulants	661
151	Tea leaves	Stimulants	667
152	Maté leaves	Stimulants	671
153	Hop cones	Spices	677
154	Pepper (Piper spp.), raw	Spices	687
155	Chillies and peppers, dry (Capsicum spp., Pimenta spp.), raw	Spices	689
156	Vanilla, raw	Spices	692
157	Cinnamon and cinnamon-tree flowers, raw	Spices	693
158	Cloves (whole stems), raw	Spices	698
159	Nutmeg, mace, cardamoms, raw	Spices	702
160	Anise, badian, coriander, cumin, caraway, fennel and juniper berries, raw	Spices	711
161	Ginger, raw	Spices	720
162	Other stimulant, spice and aromatic crops, n.e.c.	Spices	723
163	Peppermint, spearmint	Spices	748
164	Pyrethrum, dried flowers	Others	754
165	Flax, processed but not spun	Fibres	773
166	True hemp, raw or retted	Fibres	777
167	Jute, raw or retted	Fibres	780
168	Kenaf, and other textile bast fibres, raw or retted	Fibres	782
169	Ramie, raw or retted	Fibres	788
170	Sisal, raw	Fibres	789
171	Agave fibres, raw, n.e.c.	Fibres	800
172	Abaca, manila hemp, raw	Fibres	809
173	Other fibre crops, raw, n.e.c.	Fibres	821
174	Unmanufactured tobacco	Others	826
175	Natural rubber in primary forms	Others	836