

Opium/Heroin

Cultivation of opium poppy in selected countries, 1998-2015 (hectares)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
SOUTH-WEST ASIA																
Afghanistan	82,171	7,606	74,100	80,000	131,000	104,000	165,000	193,000	157,000	123,000	123,000	131,000	154,000	209,000	224,000	183,000
minimum										102,000	104,000	109,000	125,000	173,000	196,000	163,000
maximum										137,000	145,000	155,000	189,000	238,000	247,000	202,000
Pakistan (best estimate)	260	213	622	2,500	1,500	2,438	1,545	1,701	1,909	1,779	1,721	362	382	493	217	372
Subtotal (best estimate)	82,431	7,819	74,722	82,500	132,500	106,438	166,545	194,701	158,909	124,779	124,721	131,362	154,382	209,493	224,217	183,372
SOUTH-EAST ASIA																
Lao People's Democratic Republic ^a (best estimate)	19,052	17,255	14,000	12,000	6,600	1,800	2,500	1,500	1,600	1,900	3,000	4,100	6,800	3,900	6,200	5,700
minimum						904	2,040	1,230	710	1,100	1,900	2,500	3,100	1,900	3,500	3,900
maximum						2,890	2,990	1,860	2,700	2,700	4,000	6,000	11,500	5,800	9,000	7,600
Myanmar ^a (best estimate)	108,700	105,000	81,400	62,200	44,200	32,800	21,500	27,700	28,500	31,700	38,100	43,600	51,000	57,800	57,600	55,500
minimum			65,600	49,500	38,500	..	..	22,500	17,900	20,500	17,300	29,700	38,249	45,710	41,400	42,800
maximum			97,500	71,900	49,600	..	..	32,600	37,000	42,800	58,100	59,600	64,357	69,918	87,300	69,600
Thailand ^b	890	820	750	842	129	119	157	205	288	211	289	289	209	265	..	..
Viet Nam ^b (best estimate)																
Subtotal (best estimate)	128,642	123,075	96,150	75,042	50,929	34,719	24,157	29,405	30,388	33,811	41,389	47,989	58,009	61,965	64,065	61,465
SOUTH AND CENTRAL AMERICA																
Colombia (best estimate)	6,500	4,300	4,153	4,026	3,950	1,950	1,023	715	394	356	341	338	313	298	387	..
Mexico ^c (best estimate)	1,900	4,400	2,700	4,800	3,500	3,300	5,000	6,900	15,000	19,500	14,000	12,000	10,500	11,000	17,000	24,800
minimum																21,500
maximum																28,100
Guatemala (best estimate)	..	..	..	..	330	100	..	..	..	..	..	..	220	310	640	..
Subtotal (best estimate)	8,400	8,700	6,853	8,826	7,780	5,350	6,023	7,615	15,394	19,856	14,341	12,338	11,033	11,608	18,027	25,827

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
OTHER																
Other countries ^d (best estimate)	2,479	2,500	2,500	3,074	4,731	4,993	4,275	3,979	8,312	7,489	10,211	15,811	11,471	12,225	10,400	10,400
TOTAL (best estimate)	221,952	142,094	180,225	168,600	195,940	151,500	201,000	235,700	213,003	185,935	190,662	207,500	234,895	295,291	316,709	281,064
minimum										152,935	149,762	170,000	189,444	245,201	269,809	243,264
maximum										211,835	233,662	249,400	287,952	338,309	372,209	319,364
TOTAL best estimate (rounded)	222,000	142,100	180,200	168,600	195,900	151,500	201,000	235,700	213,000	185,900	190,700	207,500	234,900	295,300	316,700	281,100

Source: Afghanistan: before 2003: UNODC; since 2003: national illicit crop monitoring system supported by UNODC. Pakistan: annual report questionnaire, Government of Pakistan, United States Department of State. Lao People's Democratic Republic before 2000: UNODC; since 2000: national illicit crop monitoring system supported by UNODC. Myanmar: before 2001: United States Department of State; since 2001: national illicit crop monitoring system supported by UNODC. Colombia: before 2000: various sources, since 2000: national illicit crop monitoring system supported by UNODC. Mexico: Before 2015: estimates derived from United States Government surveys (INCSR); since 2015: national illicit crop monitoring system supported by UNODC. Guatemala: United States Department of State (INCSR 2016).

Note: Figures in italics are preliminary and may be revised when updated information becomes available. Information on estimation methodologies and definitions can be found in the methodology section of the online version of the present report.

^a May include areas that were eradicated after the date of the area survey.

^b Owing to continuing low cultivation, figures for Viet Nam as of 2000 were included in the category "Other countries".

^c The Government of Mexico does not validate the estimates provided by the United States Department of State over the 1998-2014 period, as they are not part of its official figures and it does not have information on the methodology used to calculate them. The Government of Mexico has implemented a monitoring system in collaboration with UNODC to estimate illicit cultivation for 2015. The figures prior to 2015 are - for methodological reasons - not comparable with previous estimates. More information on the opium poppy cultivation estimates and the statistical ranges for 2015 (actually referring to the period July 2014 - June 2015) are contained in a joint report by the Government of Mexico and UNODC entitled "Resultados del Proyecto de Monitoreo de Cultivos Ilícitos en Territorio Mexicano" ("Results of the Project on Monitoring Illicit Cultivations on Mexican territory").

^d Eradication and plant seizure reports from different sources indicate that illicit opium poppy cultivation also exists in the following subregions: North Africa, Central Asia and Transcaucasia, Near and Middle East/South-West Asia, South Asia, East and South-East Asia, Eastern Europe, South-Eastern Europe, Central America and South America. Starting in 2008, a new methodology was introduced to estimate opium poppy cultivation and opium/heroin production in these countries. These estimates are higher than the previous figures but have a similar order of magnitude. A detailed description of the estimation methodology is available in the online version of the World Drug Report.

Global potential production of oven-dry opium in selected countries, 2000-2015 (tons)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
SOUTH-WEST ASIA																
Afghanistan	3,276	185	3,400	3,600	4,200	4,100	5,300	7,400	5,900	4,000	3,600	5,800	3,700	5,500	6,400	3,300
minimum											3,000	4,800	2,800	4,500	5100	2,700
maximum											4,200	6,800	4,200	6,500	7800	3,900
Pakistan (best estimate)	8	5	5	52	40	36	39	43	48	44	43	9	9	12	5	9
Subtotal (best estimate)	3,284	190	3,405	3,652	4,240	4,136	5,339	7,443	5,948	4,044	3,643	5,809	3,709	5,512	6,405	3,309
SOUTH-EAST ASIA																
Lao People's Democratic Republic ^a (best estimate)	167	134	112	120	43	14	20	9	10	11	18	25	41	23	92	..
minimum						7.2	16.3	7.4	4.3	6.6	11.4	15	18	11	51	84
maximum						23.1	23.9	11.2	16.2	16.2	24	36	69	35	133	176
Myanmar ^a (best estimate)	1,087	1,097	828	810	370	312	315	460	410	330	580	610	690	870	670	647
minimum										213	350	420	520	630	481	498
maximum										445	820	830	870	1,100	916	815
Thailand ^b	6	6	9	6	2	2	2	3	5	3	5	6	3	4	..	..
Viet Nam ^b (best estimate)																
Subtotal (best estimate)	1,260	1,237	949	936	415	328	337	472	424	345	603	641	734	897	766	781
SOUTH AND CENTRAL AMERICA																
Colombia (best estimate)	88	80	52	50	49	24	13	14	10	9	8	8	8	11	12	..
Mexico ^c (best estimate)	21	91	58	101	73	71	108	150	325	425	300	250	220	225	360	475
minimum																275
maximum																641
Guatemala (best estimate)	..	..	..	..	12	4	..	..	..	..	..	..	4	6	14	..
Subtotal (best estimate)	109	171	110	151	134	75	121	164	335	434	308	258	232	242	386	501

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
OTHER																
Other countries ^d (best estimate)	38	32	56	50	61	82	16	15	139	134	181	281	156	159	175	175
TOTAL (best estimate)	4,691	1,630	4,520	4,783	4,850	4,620	5,810	8,091	6,841	4,953	4,730	6,983	4,831	6,810	7,732	4,766
minimum											3,898	5,789	3,738	5,558	6,202	3,771
maximum											5,581	8,220	5,539	8,052	9,420	5,746
TOTAL best estimate (rounded)	4,690	1,630	4,520	4,780	4,850	4,620	5,810	8,090	6,840	4,950	4,730	6,980	4,830	6,810	7,730	4,770

Sources: Afghanistan: before 2003: UNODC; since 2003: national illicit crop monitoring system supported by UNODC. Pakistan: annual report questionnaire Government of Pakistan, United States Department of State. Lao People's Democratic Republic: before 2000: UNODC; since 2000: national illicit crop monitoring system supported by UNODC. Myanmar: before 2001: United States Department of State; since 2001: national illicit crop monitoring system supported by UNODC. Colombia: before 2000: various sources, since 2000: national illicit crop monitoring system supported by UNODC. Since 2008, production was calculated based on updated regional yield figures and conversion ratios from United States Department of State/DEA. Mexico: Before 2015: Estimates derived from United States Government surveys; data for 2015 based on cultivation surveys by the national illicit crop monitoring system supported by UNODC; yield ratios based on United States yield studies, conducted 2001-2003 in Mexico; Guatemala: United States Department of State (INCSR 2016).

Note: The opium production estimates for Afghanistan for 2006 to 2009 were revised after data quality checks revealed an overestimation of opium yield estimates in those years. Figures in italics are preliminary and may be revised when updated information becomes available. Information on estimation methodologies and definitions can be found in the online methodology section of the present report.

^a May include areas eradicated after the date of the area survey. 2014 figures are not comparable to 2013 because two provinces were added to the survey and the timing of the survey was different.

^b Because of continuing low levels of cultivation, figures for Viet Nam (as of 2000) were included in the category "Other countries."

^c The Government of Mexico does not validate the estimates provided by the United States until 2014, as they are not part of its official figures and it does not have information on the methodology used to calculate them. The Government of Mexico has established, as of 2015, a system to monitor the area under opium poppy cultivation and is in the process of implementing a system, in collaboration with UNODC, to also estimate illicit opium production. Opium production estimates for 2015 are based on (i) the area under cultivation, established by the joint project of the Government of Mexico and UNODC and (ii) yield data, based on yield studies conducted by the United States in Mexico over the 2001-2003 period. The opium production figures shown for 2015 are preliminary and, for methodological reasons, are not comparable with the production figures over the 1998-2014 period. The opium production estimates for 2015, calculated by UNODC, have not been validated by the Government of Mexico. The production figures will be adjusted, once yield data from the joint Mexico/UNODC project entitled "Monitoring of the Illicit Cultivation on Mexican Territory" become available.

^d Eradication and plant seizure reports from different sources indicate that illicit opium poppy cultivation also exists in the following subregions: North Africa, Central Asia and Transcaucasia, Near and Middle East/South-West Asia, South Asia, East and South-East Asia, Eastern Europe, Southeast Europe, Central America and South America. Starting in 2008, a new methodology was introduced to estimate opium poppy cultivation and opium/heroin production in these countries. These estimates are higher than the previous figures but have a similar order of magnitude. A detailed description of the estimation methodology is available in the online version of the World Drug Report.

Potential manufacture of heroin (of unknown purity) out of global (illicit) opium production, 2004-2015 (tons)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total potential opium production	4,620	5,810	8,091	6,841	4,953	4,730	6,983	4,831	6,810	7,723	4,770
Potential opium not processed into heroin	1,169	1,786	3,078	2,360	1,680	1,728	3,400	1,850	2,600	2,450	1,360
Potential opium processed into heroin	3,451	4,024	5,012	4,481	3,273	3,002	3,583	2,981	4,210	5,273	3,410
Total potential heroin manufacture	472	553	686	600	427	383	467	377	555	542	327

Notes: The calculation shows the potential amount of heroin that could have been manufactured out of the opium produced in a given year; it does not take into account changes in opium inventories, which may be also used for the manufacture of heroin and which may be important. Only in the case of Afghanistan is the proportion of potential opium production not converted into heroin within the country estimated. For all other countries, for the purpose of this table, it is assumed that all opium produced is converted into heroin. If all of the opium produced in Afghanistan in 2015 had been converted into heroin, the total potential heroin manufacture would have risen to 300 tons in Afghanistan or 447 tons at the global level (the estimates for 2006 to 2009 were revised owing to the revision of opium production figures for Afghanistan).

The amount of heroin produced in Afghanistan is calculated using two parameters that may change: (a) the distribution between opium that is not processed and opium processed into heroin; and (b) the conversion ratio. The first parameter is indirectly estimated, based on seizures of opium versus seizures of heroin and morphine reported by neighbouring countries. From 2004 to 2013 a conversion ratio of opium to morphine/heroin of 7:1 was used, based on interviews conducted with Afghan morphine/heroin "cooks"; based on an actual heroin production exercise conducted by two (illiterate) Afghan heroin "cooks", documented by the German Bundeskriminalamt in Afghanistan in 2003 (published in Bulletin on Narcotics, vol. LVII, Nos. 1 and 2, pp. 11-31, 2005); and UNODC studies on the morphine content of Afghan opium (12.3 per cent over the 2010-2012 period, down from 15 per cent over the 2000-2003 period). The ratio was modified to 18:5 kg of opium for 1 kilogram of 100 per cent pure white heroin hydrochloride, equivalent to a ratio of 9.6:1 for heroin at an estimated 52 per cent export quality (see Afghan Opium Survey 2014); based on an estimated export quality of 59 per cent in 2015, the ratio was adjusted to 11:1 for 2015 (range: 10:4:1 to 11.6:1; see Afghan Opium Survey 2015). The estimates of the export quality of Afghan heroin are based on the average heroin wholesale purities reported by Turkey. For countries other than Afghanistan, a "traditional" conversion ratio of opium to heroin of 10:1 is used. The ratios will be adjusted when improved information becomes available. Figures in italics are preliminary and may be revised when updated information becomes available.

Reported opium poppy eradication in selected countries, 2005 to 2015

	Unit of measurement	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Afghanistan	Hectares	5,103	15,300	19,047	5,480	5,351	2,316	3,810	9,672	7,348	2,692	3,760
Algeria	Plants						868	340	204	2,721	7,470	
Azerbaijan	Hectares							2	0.2	0.4	0.5	
Azerbaijan	Plants							201	2,628	34	284	
Bangladesh	Hectares	4					8	22				
Canada	Hectares						7	7				
Canada	Plants						60,000	60,000				
Colombia	Hectares	2,121	1,929	375	381	546	711	299	319	514	813	
Ecuador	Plants	7,500			74,555	115,580	257,306	44,200	4,025,800	2,554,865	2,023,385	
Egypt	Hectares	45	50	98	121	98	222	1		3		
Greece	Plants								192	60	144	
Guatemala	Hectares	489	720	449	536	1,345	918	1,490	590	2,568	1,197	
India	Hectares	12	247	8,000	624	2,420	3,052	5,746	1,332	865	1,636	
Iran (Islamic Republic of)	Hectares						2		1	1	1	
Iran (Islamic Republic of)	Plants								140,000	100,000	120,000	
Italy	Plants						1,797	2,007	6,717			
Kazakhstan	Plants							1,692			2,254	
Lao People's Democratic Republic	Hectares	2,575	1,518	779	575	651	579	662	707	397		809
Lebanon	Hectares	27		8		21	14	4		6	1	
Mexico	Hectares	21,609	16,890	11,046	13,095	14,753	15,491	16,389	15,726	14,662	21,644	25,959
Myanmar	Hectares	3,907	3,970	3,598	4,820	4,087	8,268	7,058	23,718	12,288	15,188	13,450
Nepal	Hectares		1		21	35						
Pakistan	Hectares	391	354	614	0	105	68	1053	592	568	1,010	605
Peru	Hectares	92	88	28	23	32	21					

	Unit of measurement	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Poland	Hectares					9						
Republic of Moldova	Plants							32,413	11,255			
Republic of Korea	Plants									25,369		
Russian Federation	Hectares	4		2		3		1	1	1	1	
Russian Federation	Plants										645	
Tajikistan	Plants							13	5,400	103		
Thailand	Hectares	110	153	220	285	201	278	208	205	264		
Ukraine	Hectares				28		436				39	
Ukraine	Plants						1,185,118		474,000	22,800,000		
Uzbekistan	Hectares							1		1	0.3	
Venezuela (Bolivarian Republic of)	Hectares	154										
Viet Nam	Hectares			38	99	31		38	35	25	19	
TOTAL	Hectares	36,643	41,220	44,302	26,088	29,687	32,392	36,791	52,897	39,551	44,203	
TOTAL	Plants	7,500	-	-	74,555	115,580	1,505,089	140,866	4,666,196	25,483,152	2,154,182	

Source: UNODC annual report questionnaire; Government reports; reports of regional bodies; and the United States International Narcotics Control Strategy Report.