

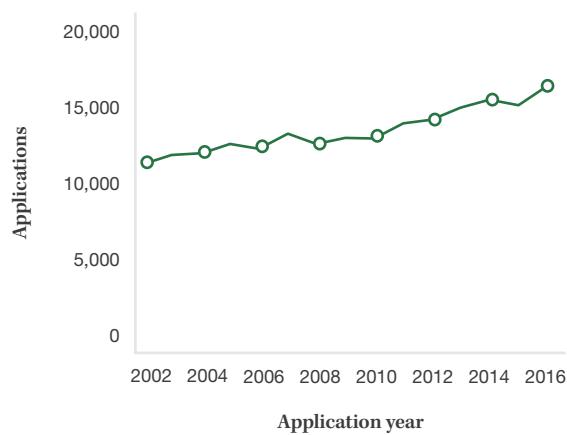
Plant varieties

Highlights

Plant variety applications grew at their fastest rate in 15 years

Around 16,510 plant variety applications were filed worldwide in 2016, up 8.3% on 2015 – the largest increase in applications in 15 years (figure 21). The offices of China, the Republic of Korea, Ukraine and the Community Plant Variety Office (CPVO) of the European Union (EU) accounted for most of this growth.

Figure 21 **Plant variety** **applications worldwide**



Source: Standard figure D1.

Offices with the most plant variety filings

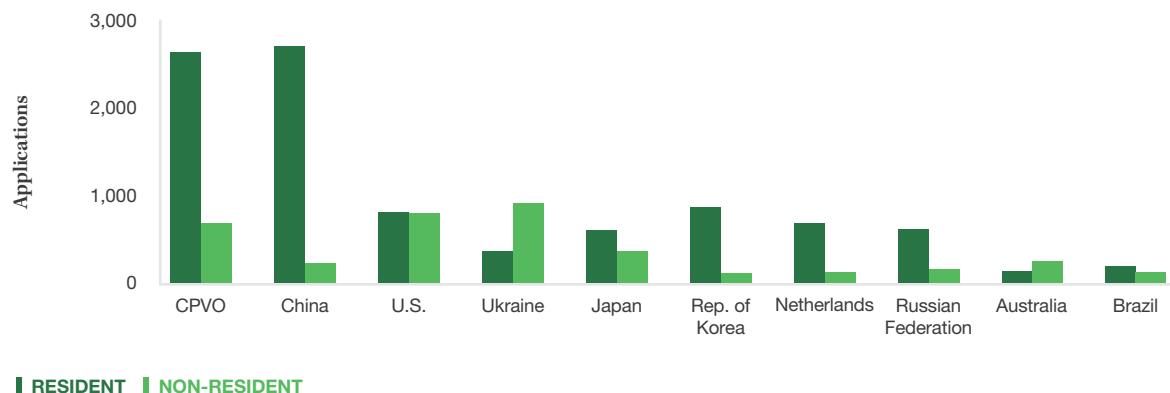
The CPVO remained the top filing office in 2016, receiving 3,299 applications. China was second with 2,923, followed by the United States of America (U.S.; 1,604), Ukraine (1,274) and Japan (977) (figure 22).¹ Among these top five offices, China (+24.8%), the CPVO (+6.0%), Japan (+6.9%) and Ukraine (+18.5%) experienced growth, while the U.S. (-1.8%) was the only top-five office to experience a decline. Growth in China and at the CPVO was driven by resident filings, whereas a large increase in non-resident filings drove growth in Ukraine. The decline in filings in the U.S. was caused by a decrease in resident filings which outweighed a year-on-year increase in non-resident filings.

The combined share of applications received at the top five offices worldwide increased marginally, from around 60% in 2015 to 61% in 2016, due to the growth experienced by China and Ukraine.

Eight of the top 10 offices received more applications from residents than from non-residents. Among these offices, China's resident share (91.9%) was the highest. In contrast, Australia and Ukraine received more than half their filings from non-resident applicants.

Offices of high-income economies accounted for the largest proportion (57.5%) of plant variety applications received in 2016, but this was down from 73.6% a decade earlier in 2006 (figure 23). Offices in the upper middle-income group, however, saw their combined share increase from 19.6% in 2006 to 31.9% in 2016, mostly driven by the increase in filings in China. The share held by the lower middle-income group likewise increased, from 6.8% in 2006 to 10.6% in 2016.

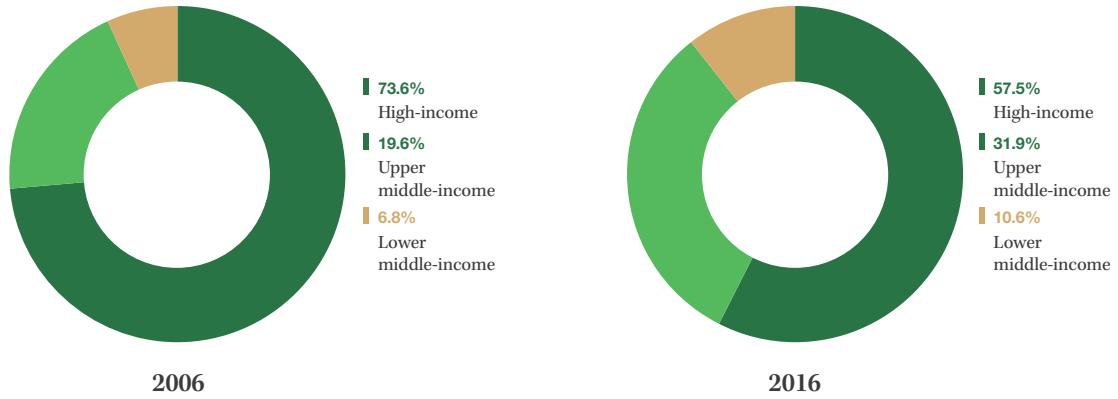
Figure 22
Plant variety applications for the top 10 offices, 2016



■ RESIDENT ■ NON-RESIDENT

Source: Standard figure D5.

Figure 23
Plant variety applications by income group

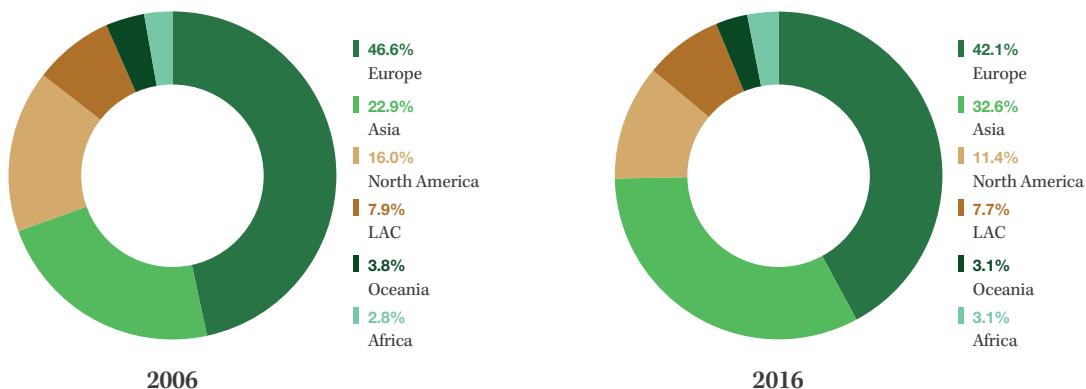


Source: Standard figure D3.

Offices in Europe received 42.1% of all plant variety applications in 2016, somewhat less than their share a decade earlier (46.6%) (figure 24). Asia saw its share increase from 22.9% in 2006 to 32.6% in

2016 at the expense of a drop of 4.6 percentage points in North America. Shares for Latin America and the Caribbean (LAC; 7.7%), Africa (3.1%) and Oceania (3.1%) were largely unchanged.

Figure 24
Plant variety applications by region



Source: Standard figure D4.

Applicants from the Netherlands filed the most worldwide

Applications received by offices from resident and non-resident applicants are referred to as office data, whereas applications filed by applicants at a national/regional office (resident applications) or at a foreign office (applications abroad) are referred to as origin data. Here, plant variety statistics based on the origin of residence are reported in order to complement the picture of activity worldwide. Note that for applicants domiciled in EU member states, filing at the CPVO regional office is also regarded as a resident filing.

Applicants from the Netherlands remained the most active applicants in the world in 2016, filing 3,129 plant variety applications at various offices.

They were followed by applicants from China, who filed 2,720 applications. The U.S. (2,035), France (1,050) and Germany (934) were the third, fourth and fifth largest origins, respectively. Among the top five origins, China (+29.5%) and the Netherlands (+15%) experienced the largest annual growth in filings. France (+1.2%) and the U.S. (+0.4%) also saw modest growth, while Germany declined slightly by 0.8%.

While applicants from four of the top five origins filed most of their applications abroad or at the regional office, only those from China filed almost exclusively at home. Similarly, applicants from Japan, the Republic of Korea, the Russian Federation and Ukraine also filed predominantly at their home offices, reflecting lower interest in seeking protection internationally.

Equivalent count

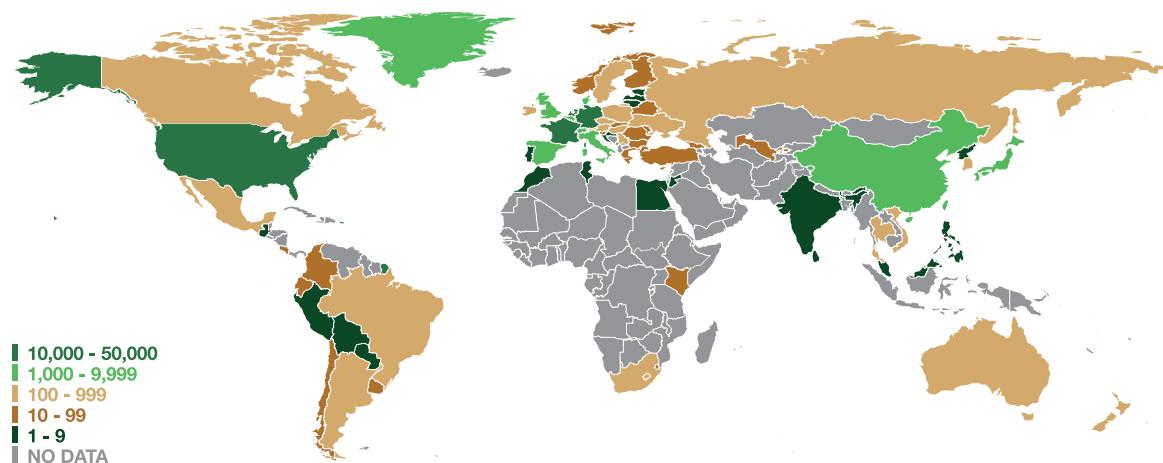
Origin data are compiled using two different counting methods – absolute counts and equivalent counts. The difference between the two lies in the treatment of regional office (CPVO) data. For absolute counts, an application received by the CPVO is counted only once. For the equivalent count, a single application filed at the CPVO is equivalent to multiple applications. To calculate the number of equivalent applications at the CPVO in 2016, each application has been multiplied by the corresponding number of member states. If the applicant resided in one of the 28 EU member states, the application was counted as one resident filing and 27 filings abroad. If the applicant did not reside in an EU member state, the application was counted as 28 filings abroad.

Equivalent counts take multiple members of the regional office into account. One would expect to see those country origins whose applicants filed intensively at the CPVO move up the ranking when this counting method is applied. Not surprisingly, European countries and the U.S. topped the list of origins based on equivalent counts. Applicants from the Netherlands remained number one, with 37,716

equivalent applications filed worldwide. They were followed by applicants from France (13,659), Germany (11,599) and the U.S. (10,463). China (3,000) was the only other non-European country among the top 10 origins despite the fact that only 10% of its applicants' filings were equivalent filings abroad. This is in marked contrast to the Netherlands, for which the share was 95%.

Map 4

Equivalent plant variety applications by origin, 2016



Source: Standard figure D9.

The number of titles issued increased for the fourth consecutive year

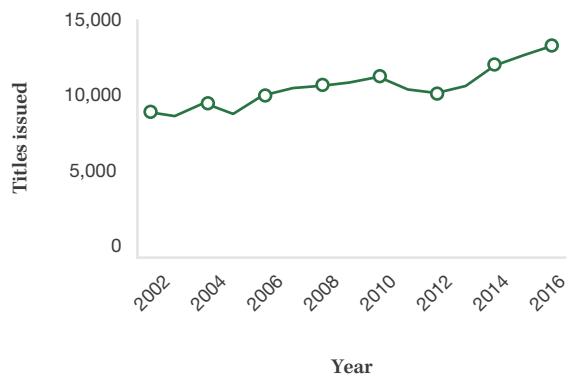
The total number of plant variety titles issued rose by 5.2% in 2016 to reach 13,280 (figure 25). China accounted for most of this growth, with titles issued increasing by 34.2%. However, the CPVO issued the largest number of titles (2,980). China (2,132) issued the second most titles, overtaking the U.S. (1,703). They were followed by Japan (941) and the Republic of Korea (834). Together with China, other offices that saw large increases in titles issued were the Republic of Korea (+34.7%), Canada (+26.5%), Brazil (+13.2%) and Japan (+11.1%). The Netherlands (-4.1%) was the only office among the top 10 to issue fewer titles in 2016 than in 2015.

The grant or registration process takes time, so fluctuations in volumes of granted plant variety titles may reflect changes in processing capacities or procedural delays.

Steady growth in plant varieties in force

Around 116,540 plant variety titles were in force at the end of 2016, up 4.8% on 2015. The CPVO (25,148) and the U.S. (24,375) were the two offices with the highest numbers of active titles. Other offices maintaining at least 4,000 active titles included Japan (8,339), the Netherlands (7,937), China (6,781), the Republic of Korea (4,801) and the Russian Federation (4,739).

Figure 25
Plant variety titles issued worldwide



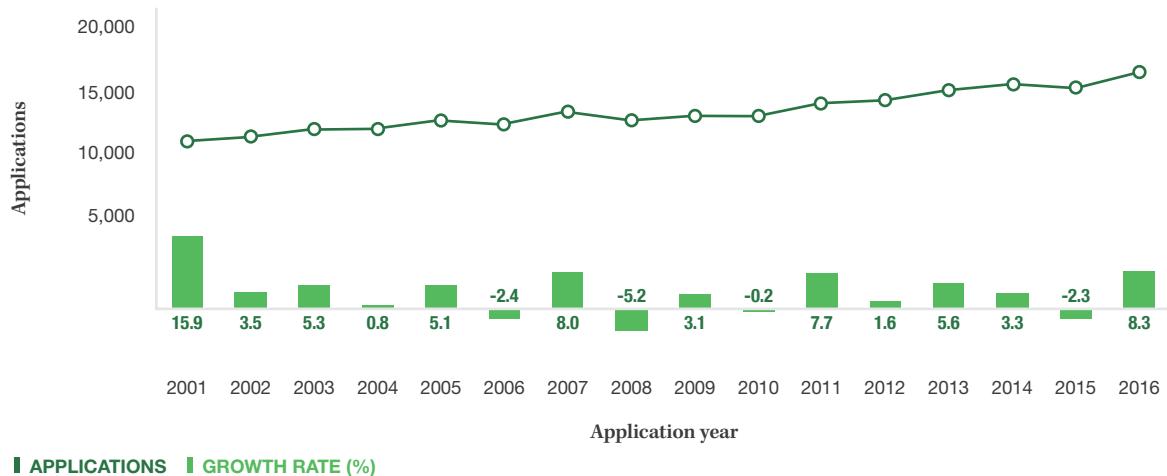
Source: Standard figure D2.

Standard figures and tables

Plant variety applications and titles issued worldwide	192	Plant variety applications and titles issued by origin	196
D1 Trend in plant variety applications worldwide	192	D9 Equivalent plant variety applications by origin, 2016	196
D2 Trend in plant variety titles issued worldwide	192	D10 Plant variety applications for the top 20 origins, 2016	196
Plant variety applications and titles issued by office	193	D11 Plant variety applications abroad for the top 20 origins, 2016	197
D3 Plant variety applications by income group	193	D12 Plant variety titles issued for the top 20 origins, 2016	197
D4 Plant variety applications by region	193	D13 Plant variety titles issued abroad for the top 20 origins, 2016	198
D5 Plant variety applications for the top 20 offices, 2016	194	Plant varieties in force	199
D6 Contribution of resident and non-resident applications to total growth for the top 20 offices, 2015-16	194	D14 Trend in plant varieties in force worldwide	199
D7 Plant variety applications for offices of selected low- and middle-income countries, 2016	195	D15 Plant varieties in force at selected offices, 2016	199
D8 Plant variety titles issued by the top 20 offices, 2016	195	Statistical table	200
		D16 Plant variety applications and titles issued by office and origin, 2016	200

Plant variety applications and titles issued worldwide

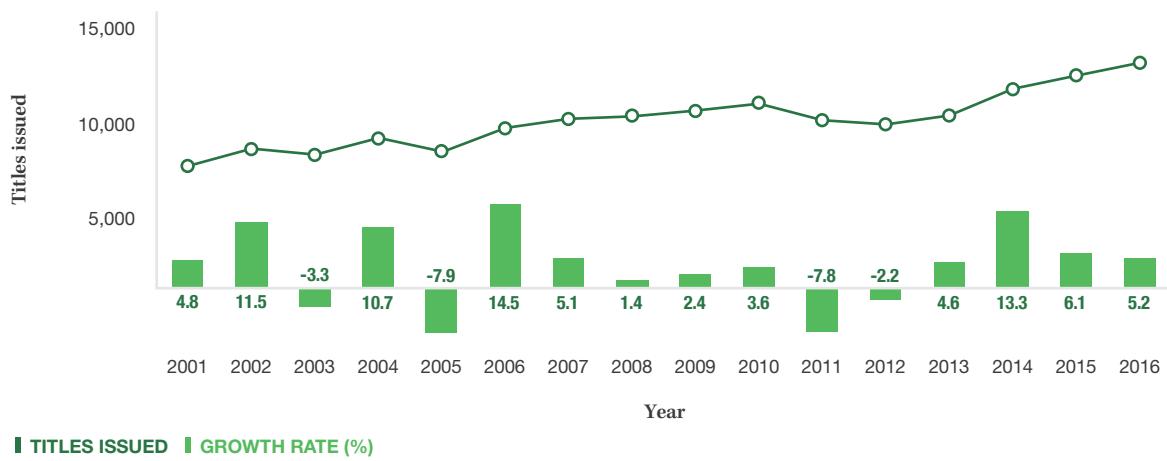
Figure D1
Trend in plant variety applications worldwide



Note: World totals are WIPO estimates using data covering 68 offices.

Source: WIPO Statistics Database, September 2017.

Figure D2
Trend in plant variety titles issued worldwide



Note: World totals are WIPO estimates using data covering 68 offices.

Source: WIPO Statistics Database, September 2017.

Plant variety applications and titles issued by office

Figure D3
Plant variety applications by income group

Income group	Number of applications		Resident share (%)		Share of world total (%)		Average growth (%)
	2006	2016	2006	2016	2006	2016	
High-income	9,122	9,494	64.6	68.2	73.6	57.5	0.4
Upper middle-income	2,430	5,270	73.0	74.0	19.6	31.9	8.0
Lower middle-income	838	1,746	64.0	34.5	6.8	10.6	7.6
World	12,390	16,510	66.3	66.5	100.0	100.0	2.9

Note: Totals by income group are WIPO estimates using data covering 68 offices. Each category includes the following number of offices: high-income countries/economies (37), upper middle-income (21) and lower middle-income (10). The EU's Community Plant Variety Office (CPVO) data are allocated to the high-income group because the majority of EU member states are high-income countries. For information on income group classification, see the Data description section.

Source: WIPO Statistics Database, September 2017.

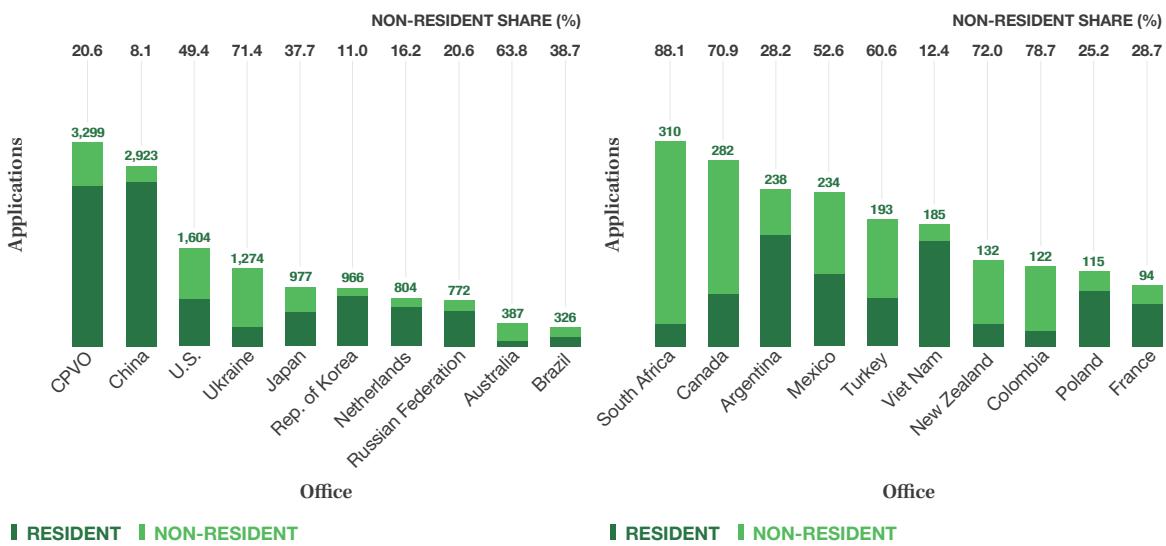
Figure D4
Plant variety applications by region

Region	Number of applications		Resident share (%)		Share of world total (%)		Average growth (%)
	2006	2016	2006	2016	2006	2016	
Africa	352	511	30.1	10.2	2.8	3.1	3.8
Asia	2,838	5,386	75.7	83.5	22.9	32.6	6.6
Europe	5,767	6,931	79.5	68.9	46.6	42.1	1.9
Latin America & the Caribbean	976	1,277	41.7	45.9	7.9	7.7	2.7
North America	1,980	1,886	36.7	47.4	16.0	11.4	-0.5
Oceania	477	519	46.8	34.1	3.8	3.1	0.8
World	12,390	16,510	66.3	66.5	100.0	100.0	2.9

Note: Totals by geographic region are WIPO estimates using data covering 68 offices. Each region includes the following number of offices: Africa (4), Asia (12), Europe (33), Latin America & the Caribbean (14), North America (3) and Oceania (2).

Source: WIPO Statistics Database, September 2017.

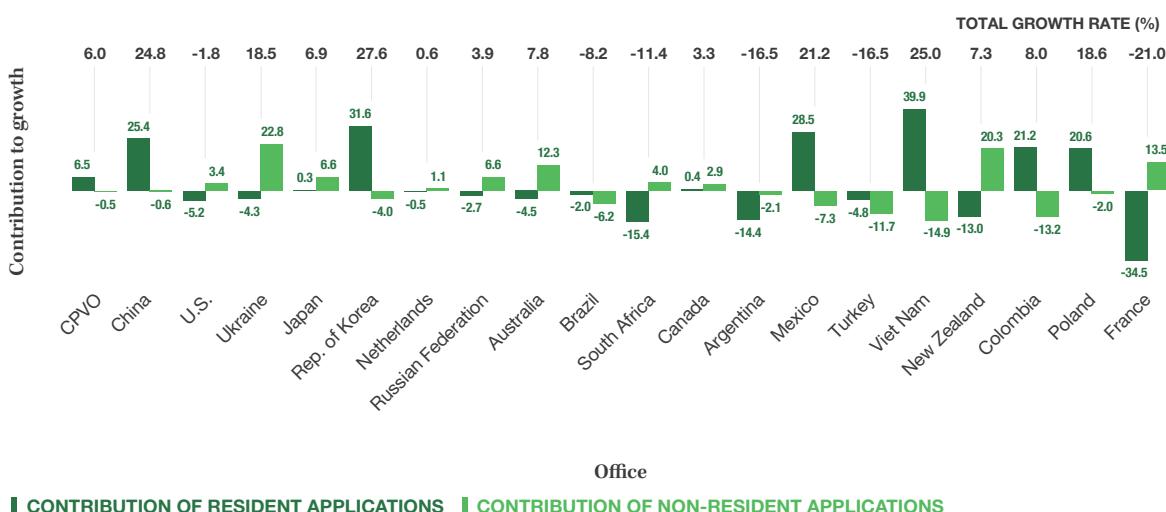
Figure D5
Plant variety applications for the top 20 offices, 2016



Note: CPVO is the Community Plant Variety Office. In general, national offices of CPVO member states receive lower volumes of applications because applicants may apply via the CPVO to seek protection within any CPVO member state.

Source: WIPO Statistics Database, September 2017.

Figure D6
Contribution of resident and non-resident applications to total growth for the top 20 offices, 2015-16

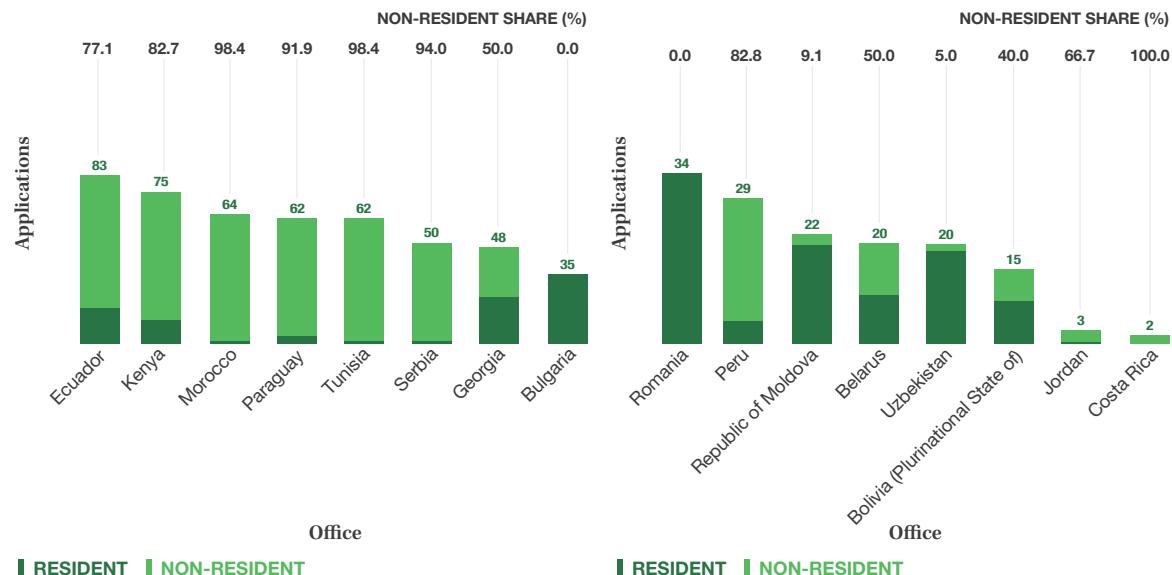


Note: CPVO is the Community Plant Variety Office. This figure shows total growth in plant variety applications broken down by the respective contributions of resident and non-resident filings. For example, applications in Japan grew by 6.9%, and resident applications contributed 0.3 percentage points to this total growth while non-resident applications accounted for the other 6.6 percentage points.

Source: WIPO Statistics Database, September 2017.

Figure D7

Plant variety applications for offices of selected low- and middle-income countries, 2016

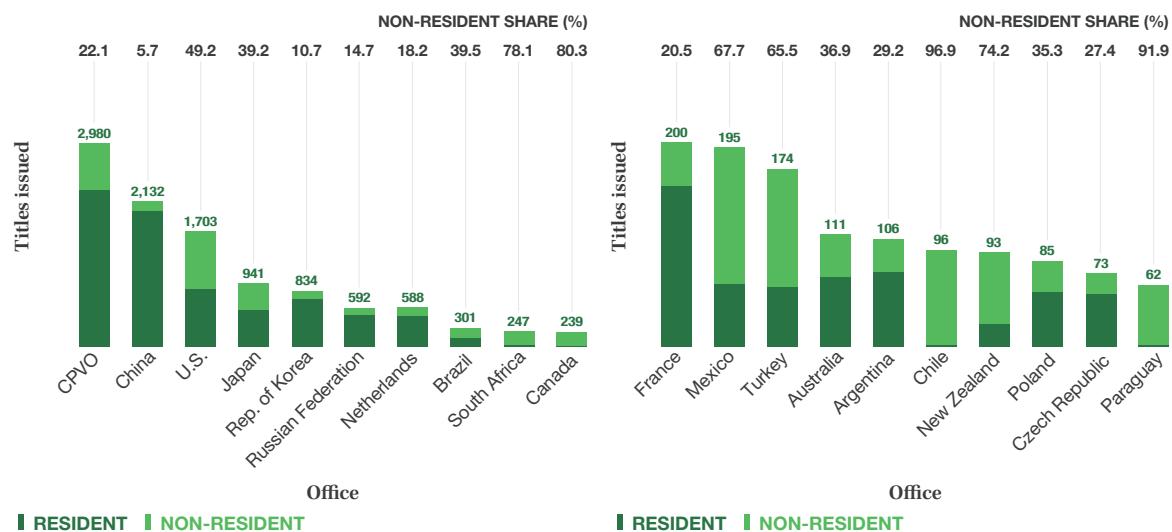


Note: The selected offices are from different world regions and income groups. Where available, data for all offices are in the statistical table at the end of this section.

Source: WIPO Statistics Database, September 2017.

Figure D8

Plant variety titles issued by the top 20 offices, 2016

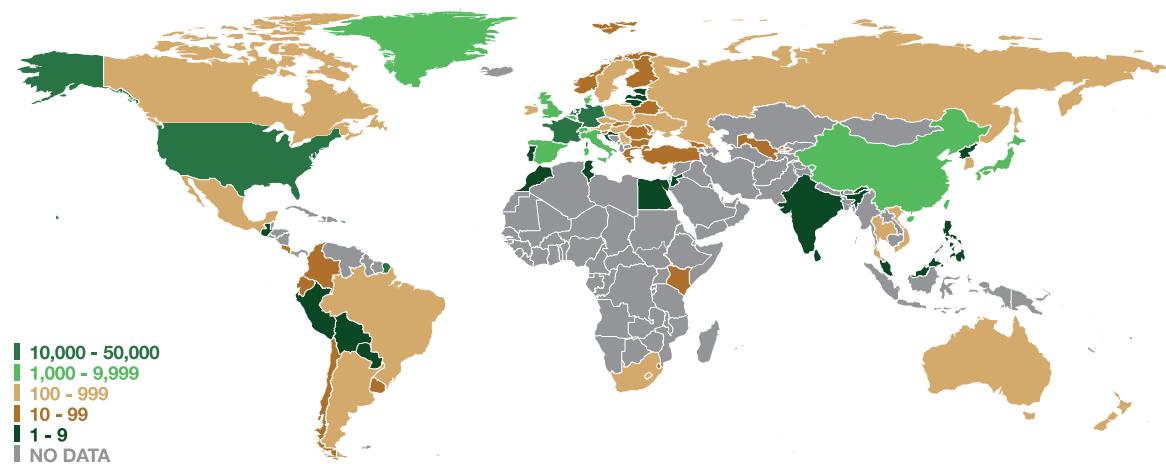


Note: CPVO is the Community Plant Variety Office. The procedure for issuing titles varies across offices, and differences in the numbers of titles issued between offices depend on factors such as examination capacity and procedural delays, so there is a time lag between application and title issue dates. For this reason, data on applications for a given year should not be compared with data on titles issued for the same year.

Source: WIPO Statistics Database, September 2017.

Plant variety applications and titles issued by origin

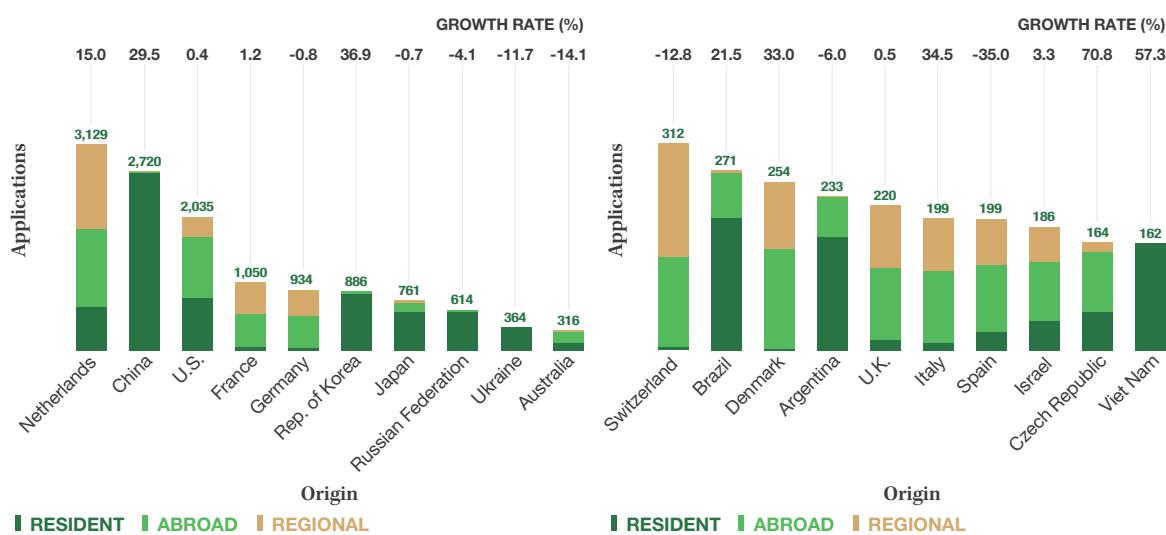
Figure D9
Equivalent plant variety applications by origin, 2016



Note: Equivalent plant variety applications by origin include resident applications and applications filed abroad. The origin of an application is determined by the residence of the applicant. Applications filed at regional offices are considered equivalent to multiple applications in the relevant member states. See the glossary for the definition of equivalent application.

Source: WIPO Statistics Database, September 2017.

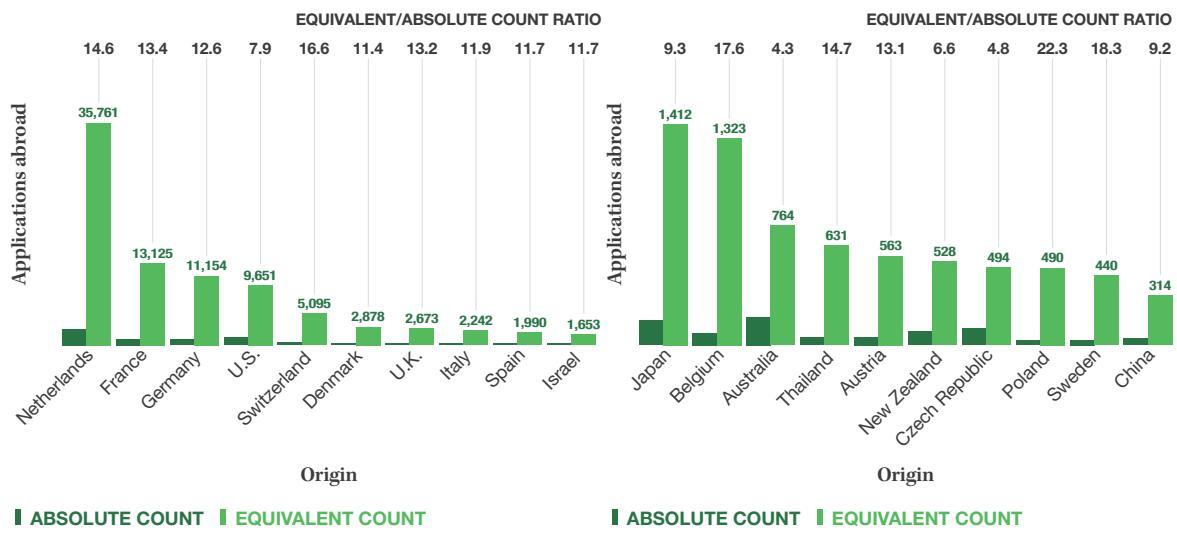
Figure D10
Plant variety applications for the top 20 origins, 2016



Note: Data are based on absolute count, not equivalent count. Applications by origin include resident applications and applications filed abroad. The origin of an application is determined by the residence of the applicant. Regional refers to applications filed at the EU's Community Plant Variety Office.

Source: WIPO Statistics Database, September 2017.

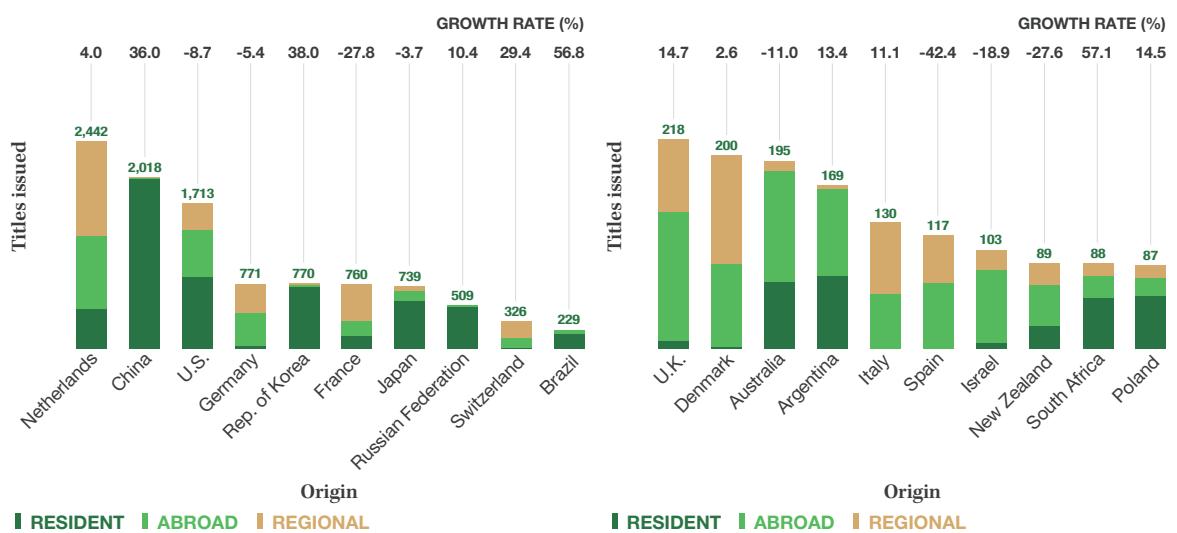
Figure D11
Plant variety applications abroad for the top 20 origins, 2016



Note: The origin of an application is determined by the residence of the applicant. Applications filed at regional offices are considered equivalent to multiple applications in the relevant member states. See the glossary for the definition of equivalent applications.

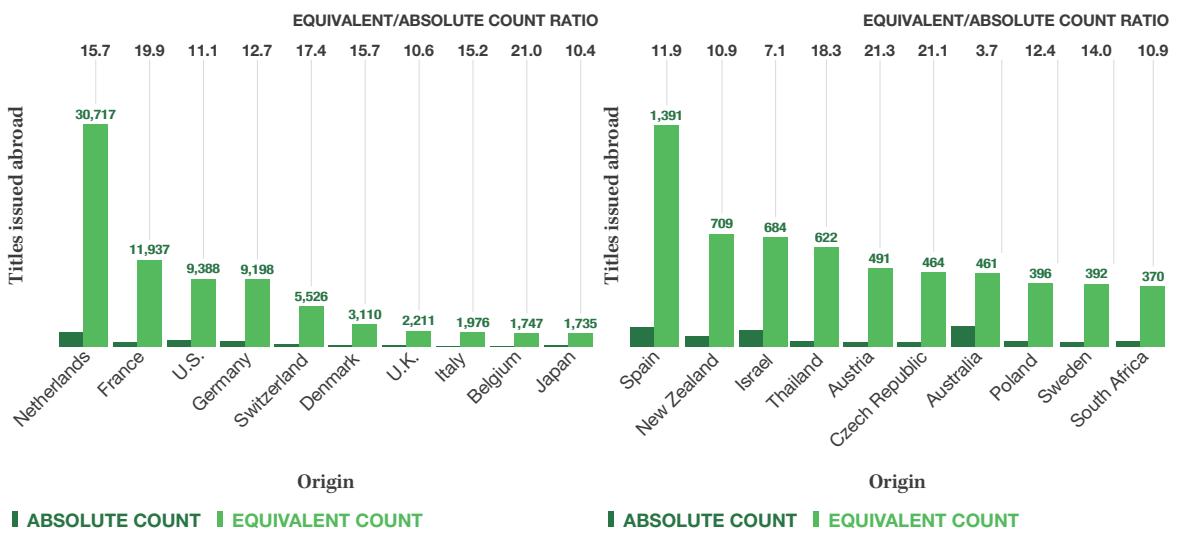
Source: WIPO Statistics Database, September 2017.

Figure D12
Plant variety titles issued for the top 20 origins, 2016



Note: Data are based on absolute count, not equivalent count. The origin of titles issued is determined by the residence of the applicant. Regional refers to titles issued by the EU's Community Plant Variety Office.

Source: WIPO Statistics Database, September 2017.

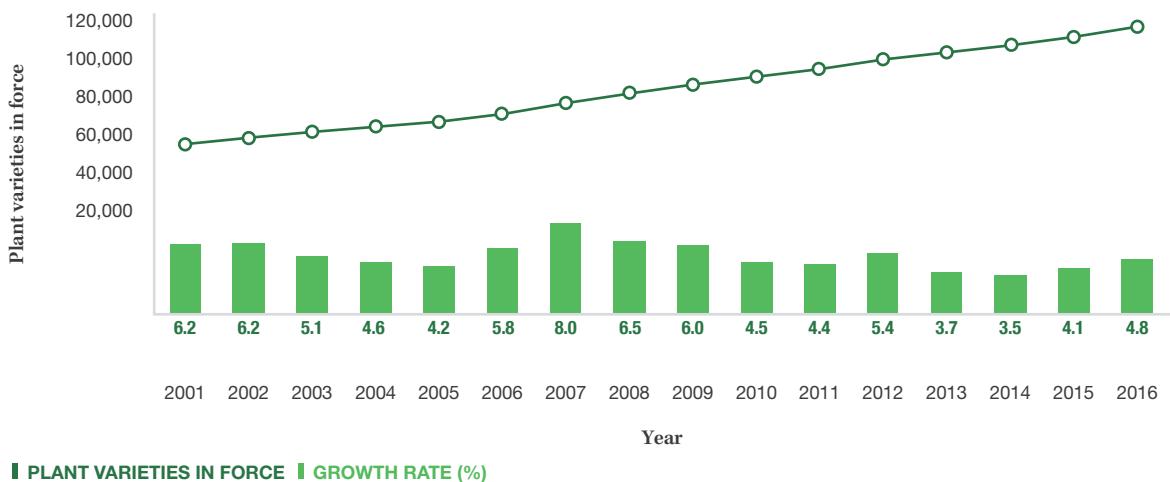
Figure D13**Plant variety titles issued abroad for the top 20 origins, 2016**

Note: The origin of titles issued is determined by the residence of the applicant. Titles issued by regional offices are considered equivalent to multiple titles in the relevant member states. See the glossary for the definition of equivalent count.

Source: WIPO Statistics Database, September 2017.

Plant varieties in force

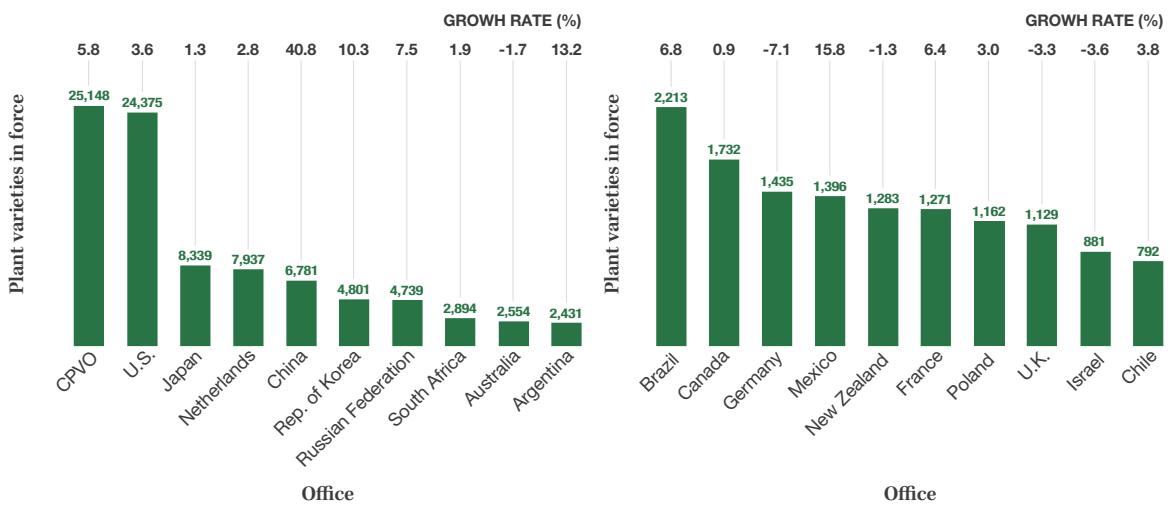
Figure D14
Trend in plant varieties in force worldwide



Note: World totals are WIPO estimates using data covering 68 offices.

Source: WIPO Statistics Database, September 2017.

Figure D15
Plant varieties in force at selected offices, 2016



Note: CPVO is the Community Plant Variety Office.

Source: WIPO Statistics Database, September 2017.

Statistical table

Figure D16
Plant variety applications and titles issued by office and origin, 2016

Name	Applications by office			Applications by origin	Equivalent applications by origin	Grants by office			Plant varieties in force
	Total	Resident	Non-resident			Total	Resident	Non-resident	
African Intellectual Property Organization (a)	..	..	..	..	..	..	..	..	49
Argentina	238	171	67	233	261	106	75	31	2,431
Australia	387	140	247	316	904	111	70	41	2,554
Austria	2	2	0	45	585	..	..	..	24
Belarus	20	10	10	11	39	28	18	10	252
Belgium	4	4	0	79	1,375	1	1	0	53
Bolivia (Plurinational State of)	15	9	6	9	9	15	9	6	57
Brazil	326	200	126	271	327	301	182	119	2,213
Bulgaria	35	35	0	44	44	21	21	0	391
Canada	282	82	200	110	278	239	47	192	1,732
Chile	90	10	80	23	51	96	3	93	792
China	2,923	2,686	237	2,720	3,000	2,132	2,011	121	6,781
Colombia	122	26	96	27	27	42	0	42	561
Community Plant Variety Office	3,299	2,621	678	n.a.	..	2,980	2,320	660	25,148
Costa Rica	2	0	2	6	34	2	1	1	13
Croatia	6	6	0	6	6	10	10	0	58
Czech Republic	68	60	8	164	569	73	53	20	761
Democratic People's Republic of Korea (b)	..	..	..	1	1	..	..	..	..
Denmark	3	2	1	254	2,981	3	2	1	102
Ecuador	83	19	64	24	24	39	4	35	273
Egypt (b)	..	..	..	2	2	..	..	..	..
Estonia	10	3	7	3	3	13	1	12	97
Finland	7	5	2	16	16	21	14	7	206
France	94	67	27	1,050	13,659	200	159	41	1,271
Georgia	48	24	24	24	24	47	37	10	166
Germany	56	50	6	934	11,599	54	49	5	1,435
Greece (b)	..	..	..	2	56	..	..	..	..
Guatemala (b)	..	..	..	2	2	..	..	..	..
Hungary	15	14	1	37	199	17	16	1	151
India (b)	..	..	..	2	2	..	..	..	..
Ireland (a)	..	..	..	23	158	..	..	..	..
Israel	56	45	11	186	1,698	39	7	32	881
Italy	12	11	1	199	2,332	..	..	..	..
Japan	977	609	368	761	2,021	941	572	369	8,339
Jordan	3	1	2	1	1	1	0	1	48
Kenya	75	13	62	19	19	24	1	23	387
Kyrgyzstan (a)	..	..	..	..	..	..	..	..	5
Latvia	10	9	1	9	9	2	1	1	196
Lithuania	2	2	0	2	2	6	2	4	76
Luxembourg (b)	..	..	..	95	95	..	..	..	..
Malaysia (b)	..	..	..	1	1	..	..	..	..
Mexico	234	111	123	125	209	195	63	132	1,396
Morocco	64	1	63	1	1	13	2	11	314
Netherlands	804	674	130	3,129	37,716	588	481	107	7,937
New Zealand	132	37	95	117	565	93	24	69	1,283
Norway	8	2	6	4	32	21	8	13	215
Panama	1	0	1	..	..	..	..	..	19
Paraguay	62	5	57	5	5	62	5	57	461
Peru	29	5	24	7	7	7	4	3	97
Philippines (b)	..	..	..	1	1	..	..	..	..
Poland	115	86	29	108	594	85	55	30	1,162

Name	Applications by office			Applications by origin	Equivalent applications by origin			Grants by office			Plant varieties in force
	Total	Resident	Non-resident		Total	Total	Resident	Non-resident	Office	Office	
Portugal	3	3	0	3	3	1	0	1	12		
Republic of Korea	966	860	106	886	970	834	745	89	4,801		
Republic of Moldova	22	20	2	24	24	37	33	4	184		
Romania	34	34	0	43	70	26	24	2	335		
Russian Federation	772	613	159	614	614	592	505	87	4,739		
Serbia	50	3	47	10	150	38	3	35	246		
Singapore	1	0	1	2	2	5	2	3	5		
Slovakia	21	20	1	26	26	27	24	3	443		
Slovenia (a)	..	..	..	6	60	..	..	..	..
South Africa	310	37	273	88	312	247	54	193	2,894		
Spain	40	29	11	199	2,089	..	..	..	321		
Sri Lanka (b)	..	..	..	1	1	..	..	..	..
Swaziland (b)	..	..	..	21	21	..	..	..	..
Sweden	5	1	4	25	457	6	2	4	137		
Switzerland	72	5	67	312	5,100	62	8	54	691		
Thailand (b)	..	..	..	43	631	..	..	..	..
Tunisia	62	1	61	1	1	13	2	11	128		
Turkey	193	76	117	99	99	174	60	114	737		
Ukraine	1,274	364	910	364	364	..	..	..	..
United Kingdom	54	17	37	220	2,785	33	9	24	1,129		
United Republic of Tanzania (a)	..	..	..	..	..	..	..	..	73		
United States of America (PPA) (c)	1,177	468	709	n.a.	..	1,235	474	761	16,942		
United States of America (PVPA)	427	344	83	2,035	10,463	468	391	77	7,433		
Uruguay	48	14	34	16	44	58	12	46	576		
Uzbekistan	20	19	1	19	19	10	9	1	67		
Viet Nam	185	162	23	162	162	56	35	21	280		
Others/Unknown	..	..	..	28	196	..	..	..	..
Total (2016 estimates)	16,510	11,000	5,510	16,510	n.a.	13,280	7,900	4,000	116,540		

(a) This office did not report data, so applications by origin data may be incomplete.

(b) This country or organization is not a member of the International Union for the Protection of New Varieties of Plants (UPOV).

(c) Applications by origin are reported under "United States of America (PVPA)", as statistics by origin do not distinguish between applications under the Plant Variety Protection Act and those under the Plant Patent Act.

n.a. indicates not applicable

.. indicates not available

Sources: WIPO Statistics Database, September 2017.