

# Plant varieties

# Highlights

## Plant variety applications surpass 20,000

Around 20,210 plant variety applications were filed worldwide in 2018, up 8.9% on 2017 – the third year in a row of positive growth and the first time plant varieties have exceeded 20,000 applications in a single year (figure 4.1). The offices of China, Colombia, the Community Plant Variety Office of the European Union (CPVO), Spain, Ukraine and the United Kingdom (U.K.) accounted for most of this growth.

## China received 28.5% of all plant variety applications filed worldwide

China remained the top filing office in 2018, receiving 5,760 applications. The China office now accounts for over a quarter of the plant varieties filed worldwide. The CPVO received 3,554 applications, accounting for 17.6% of global filings. The CPVO was followed by the national offices of the United States of America (U.S.) (1,609), Ukraine (1,575) and Japan (880) (figure 4.2). Filings in China represent a 29% year-on-year growth, driven almost entirely by resident filings. Among the other top five offices, the CPVO (+3.9%), the U.S. (+3.3%) and Ukraine (+17.1%) experienced growth, while Japan (-13.6%) was the only one to experience a decline. Resident filings drove growth in China and the U.S., whereas an increase in non-resident filings drove growth in Ukraine. The decline in filings at the Japan office was the result of a sharp fall in non-resident filings, in addition to a relatively smaller decrease in resident filings.

The combined share of applications received at the top five offices worldwide increased, from 63.7% in 2017 to 66.2% in 2018, due to the pronounced growth experienced by China and Ukraine.

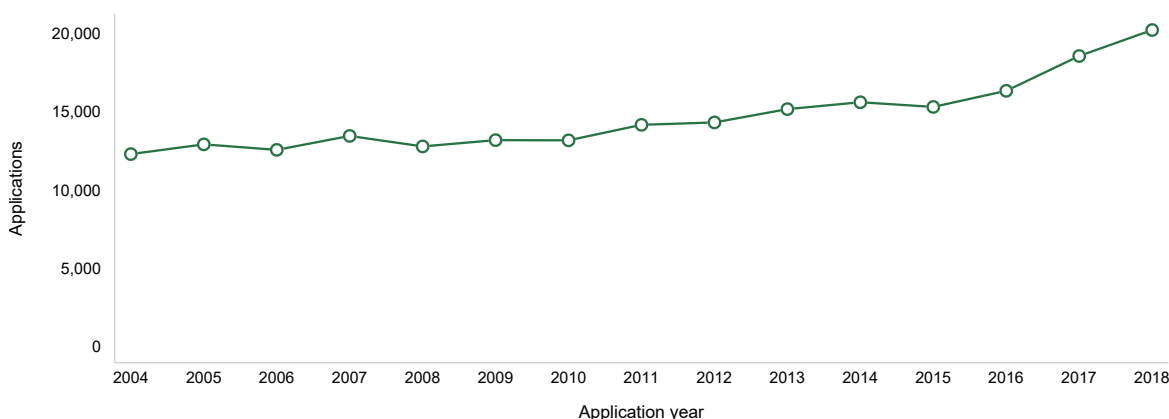
Seven of the top 10 offices received more applications from residents than from non-residents. China's resident share (90.7%) was the highest among these offices. In contrast, Australia, Canada and Ukraine received more than half their filings from non-resident applicants.

Offices of high-income economies accounted for the largest proportion (47.4%) of plant variety applications received in 2018. However, this figure is down markedly from 72.7% a decade earlier in 2008 (figure 4.3). Offices in the upper middle-income group have, on the other hand, seen their combined share increase from 24.7% in 2007 to 42.0% in 2018, mostly driven by an increase of filings in China. The share held by the lower middle-income group has likewise increased, from 2.6% in 2008 to 10.5% in 2018, led by Morocco, Ukraine and Viet Nam.

For the first time, offices in Asia received the most filings, representing 39.4% of all plant variety applications in 2018. Filings at Asian offices more than doubled as compared to 2008, when their share was 23.6% (figure 4.4). Despite its total filings actually increasing over this period, Europe has seen its share decrease from 45.1% in 2008 to 38.7% in 2018. Latin America and the Caribbean (LAC) (7.3%) and Africa (2.5%) also experienced growth in total filings between 2008 and 2018, but not at the same pace as Asia; shares for both declined slightly as a result. North America (9.6%) and Oceania (2.5%) experienced small decreases in their total filings in 2018 as compared to 2008; this is reflected in their shares, which fell by 5.8 and 1.7 percentage points respectively.

## Applications grew by 8.9%

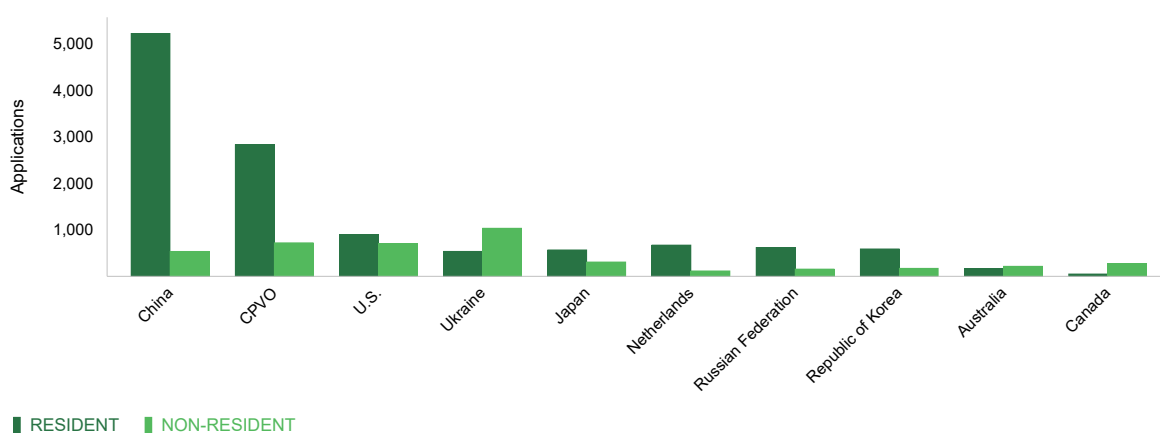
### 4.1. Plant variety applications worldwide, 2004–2018



Source: Figure D1.

### China is the top destination for plant variety applications

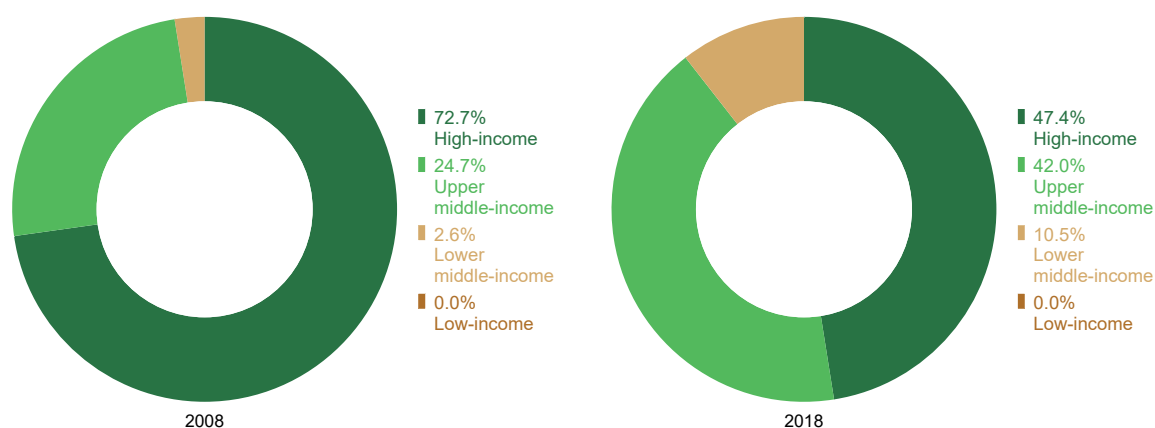
4.2. Plant variety applications for the top 10 offices, 2018



Source: Figure D5.

### Offices of high-income economies received 47.4% of all applications filed worldwide

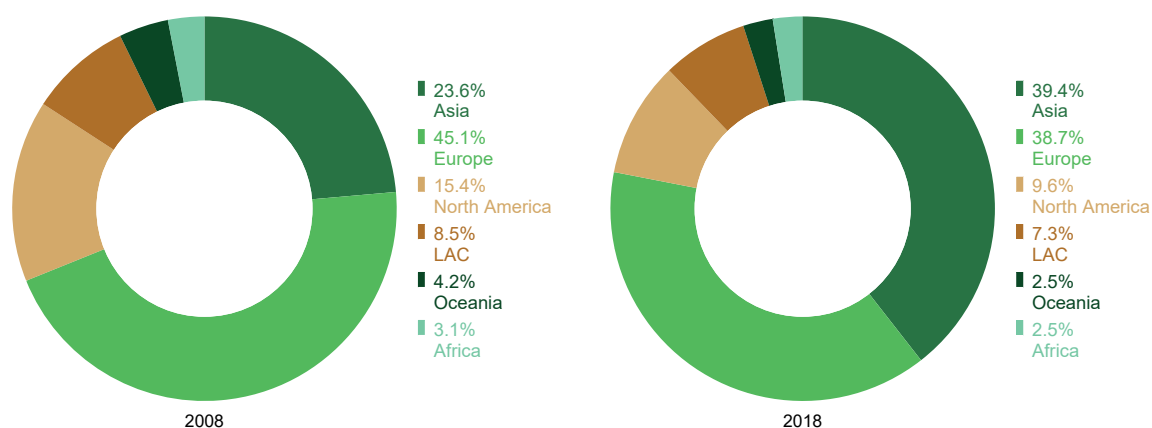
4.3. Plant variety applications by income group, 2008 and 2018



Source: Figure D3.

### Asia overtook Europe as top region with 39.4% of all applications

4.4. Plant variety applications by region 2008 and 2018



Source: Figure D4.

Plant varieties

## Applicants from China 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 global picture. Note that for applicants domiciled in European Union (EU) member states, filing at the CPVO regional office is regarded as a resident filing.

Applicants from China were the most active applicants in the world in 2018, filing 5,254 plant variety applications. This represents a 30.0% growth on the previous year – the fastest recorded among the top 10 origins. Chinese applicants were followed by applicants from the Netherlands, who filed 3,616 applications. The U.S. (2,308), France (1,066) and Germany (1,046) were the next three largest origins, respectively. Germany (+20.4%), the U.S. (+9.5%) and the Netherlands (+7.5%) all saw growth, whereas France declined by 1.8%. Germany’s rapid growth was driven by a strong increase (32.8%) in resident filings that accounted for three quarters of its total growth. France, conversely, saw its resident filings fall by –5.8%, while its non-resident filings rose by a similar amount (5.3%).

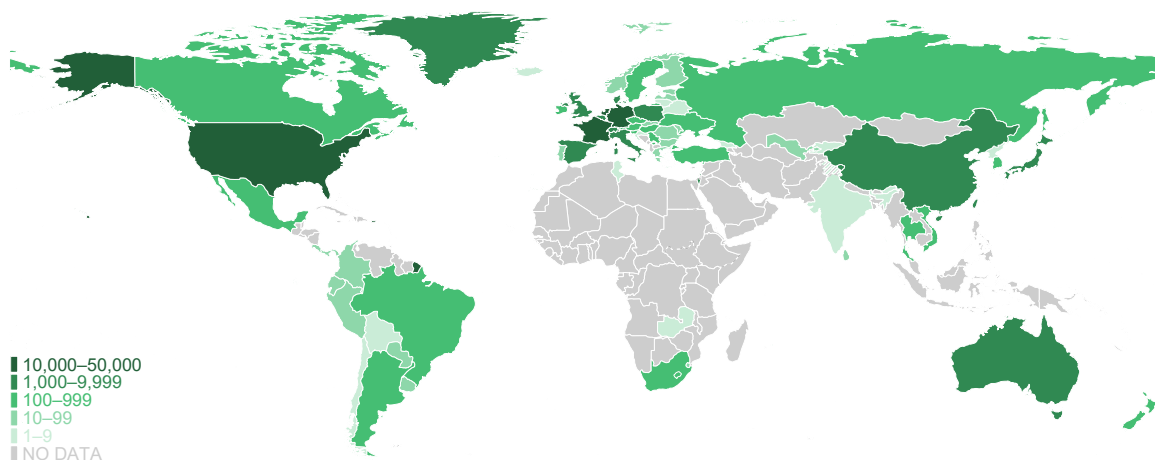
Whereas applicants from four of the top five origins filed most of their applications either abroad or at the regional office, only those from China filed almost exclusively at home. Like China, applicants from Japan, the Republic of Korea, the Russian Federation and Ukraine also filed predominantly at their home offices, reflecting a lesser 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 offices data (the CPVO and the African Intellectual Property Organization (OAPI)). For absolute counts, an application received by a regional office is counted only once. For the equivalent count, a single application filed at a regional office is equivalent to multiple applications. To calculate the number of equivalent applications at a regional office in 2018, each application has been multiplied by the corresponding number of member states for the regional office. For CPVO applications, 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 a EU member state, the application was counted as 28 filings abroad. The same methodology was applied to OAPI member states.

## Applicants from the Netherlands were first by equivalent count

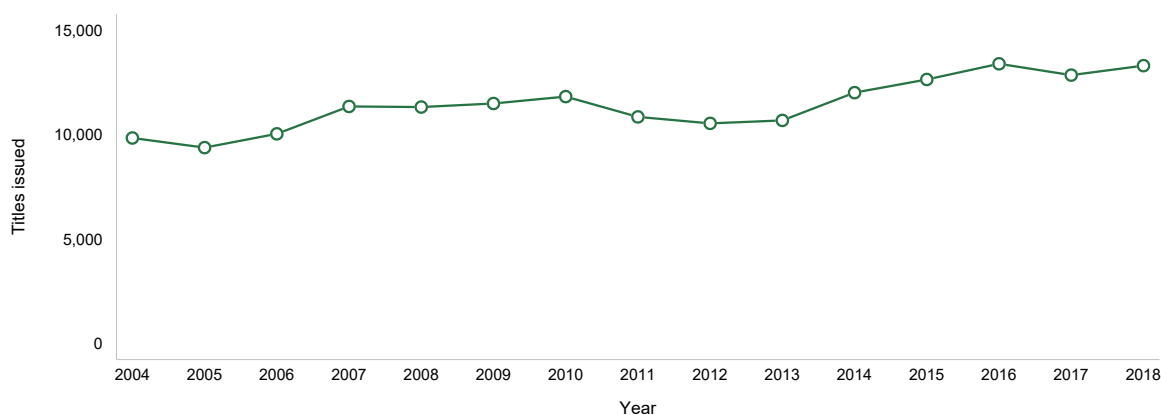
### 4.5. Equivalent plant variety applications by origin, 2018



Source: Figure D9.

## Plant variety titles issued increased by 3.5%

### 4.6. Plant variety titles issued worldwide, 2004–2018



Source: Figure D2.

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 (Figure 4.5). Not surprisingly, therefore, European countries and the U.S. topped the list of origins based on equivalent counts. Applicants from the Netherlands once again ranked first, with 39,850 equivalent applications filed worldwide. They were followed by applicants from Germany (12,791), France (12,784) and the U.S. (11,576). Rounding out the top five origins by equivalent count was China, with 5,310 applications.

Apart from Japan (in 8<sup>th</sup> place, with 2,988 applicants), China was the only other non-European country to be found among the top 10 origins, despite only 1.7% of its applicants' filings being equivalent filings abroad. This is in marked contrast to the Netherlands, for which the abroad share was 95%.

### The number of titles issued returns to growth

The total number of plant variety titles issued increased by 3.5% in 2018, reversing last year's contraction. With 13,300 plant variety titles issued, the total for 2018 was

only just below the highest number ever recorded, which was in 2016 (13,390 titles) (figure 4.6). The CPVO issued the most titles, with 2,757, despite a modest year-on-year decline of 3.8%. China, the primary driver of global growth, issued 2,395 titles, up 45.5% from a year earlier. The CPVO and the China office were followed by the offices of the U.S. (1,424), Ukraine (1,021) and Japan (758). The offices of both the U.S. (-11.2%) and Japan (-6.7%) experienced an overall decline in titles issued. In contrast, the Ukrainian office increased the number of titles it issued by 15.1% in 2018.

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

### Steady growth in plant varieties in force

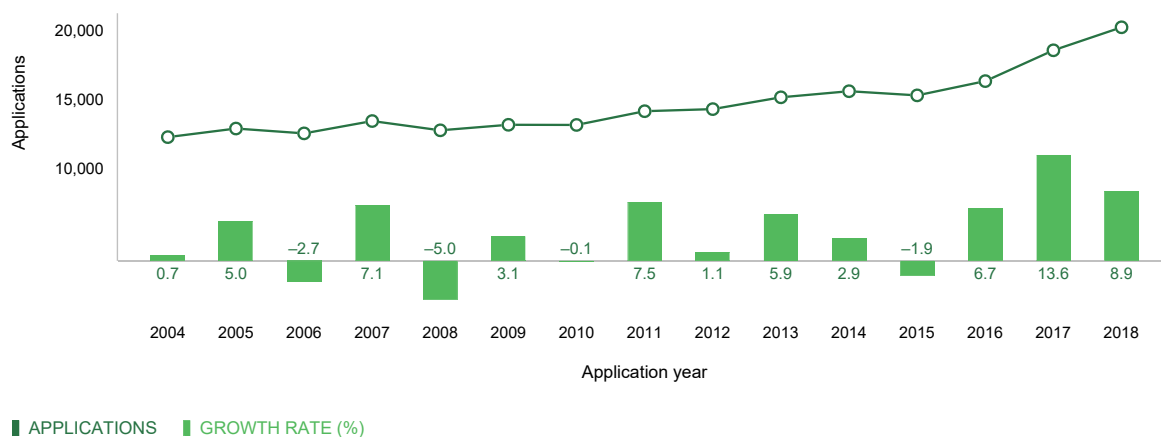
Around 133,190 plant variety titles were in force at the end of 2018, up 5.4% on 2017. The CPVO (26,896) and the U.S. (25,787) were the two offices with the highest number of active titles. Other offices maintaining at least 5,000 active titles included China (9,989), Ukraine (9,039), Japan (8,681), the Netherlands (8,552), the Republic of Korea (5,325) and the Russian Federation (5,313).

# Plant variety statistics

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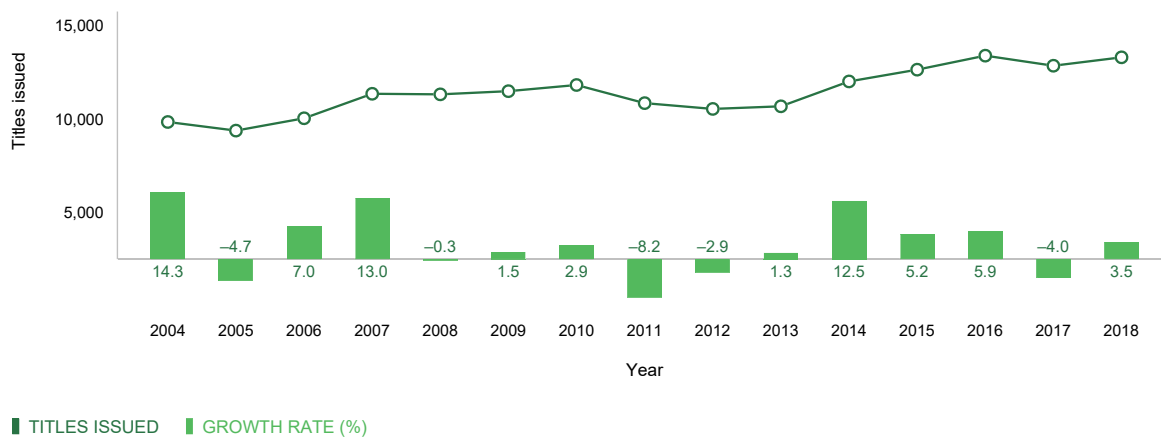
## Plant variety applications and titles issued worldwide

D1. Trend in plant variety applications worldwide, 2004–2018



Note: World totals are WIPO estimates using data covering 70 offices.  
Source: WIPO Statistics Database, September 2019.

D2. Trend in plant variety titles issued worldwide, 2004–2018



Note: World totals are WIPO estimates using data covering 70 offices.  
Source: WIPO Statistics Database, September 2019.

Plant varieties

## Plant variety applications and titles issued by office

### D3. Plant variety applications by income group, 2008 and 2018

Income group	Number of applications		Resident share (%)		Share of world total (%)		Average growth (%)
	2008	2018	2008	2018	2008	2018	2008–2018
High-income	9,296	9,571	64.6	66.3	72.7	47.4	0.3
Upper middle-income	3,153	8,498	67.2	78.2	24.7	42.0	10.4
Lower middle-income	327	2,132	43.4	39.2	2.6	10.5	20.6
Low-income	4	9	0.0	0.0	0.0	0.0	8.4
<b>World</b>	<b>12,780</b>	<b>20,210</b>	<b>64.7</b>	<b>68.4</b>	<b>100.0</b>	<b>100.0</b>	<b>4.7</b>

Note: Totals by income group are WIPO estimates using data covering 70 offices. Each category includes the following number of offices: high-income countries/economies (37), upper middle-income (21), lower middle-income (10) and low-income (2). The EU's Community Plant Variety Office (CPVO) data are allocated to the high-income group, because a 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 2019.

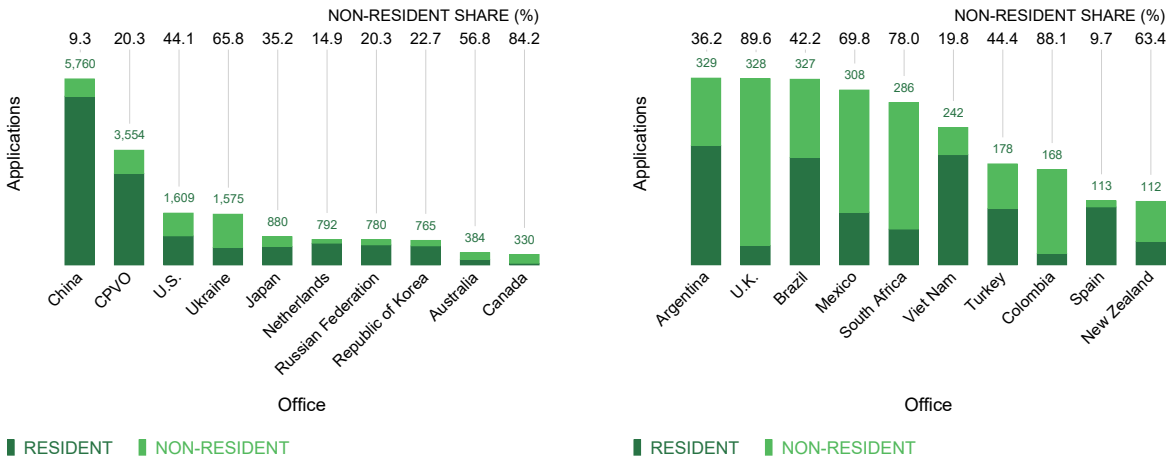
### D4. Plant variety applications by region, 2008 and 2018

Region	Number of applications		Resident share (%)		Share of world total (%)		Average growth (%)
	2008	2018	2008	2018	2008	2018	2008–2018
Africa	397	502	27.2	16.1	3.1	2.5	2.4
Asia	3,022	7,967	73.7	85.0	23.6	39.4	10.2
Europe	5,767	7,824	74.6	66.8	45.1	38.7	3.1
Latin America and the Caribbean	1,091	1,482	44.0	39.7	8.5	7.3	3.1
North America	1,972	1,939	45.3	49.1	15.4	9.6	-0.2
Oceania	531	496	49.2	41.7	4.2	2.5	-0.7
<b>World</b>	<b>12,780</b>	<b>20,210</b>	<b>64.7</b>	<b>68.4</b>	<b>100.0</b>	<b>100.0</b>	<b>4.7</b>

Note: Totals by geographical region are WIPO estimates using data covering 70 offices. Each region includes the following number of offices: Africa (6), Asia (12), Europe (33), Latin America and the Caribbean (14), North America (3) and Oceania (2).

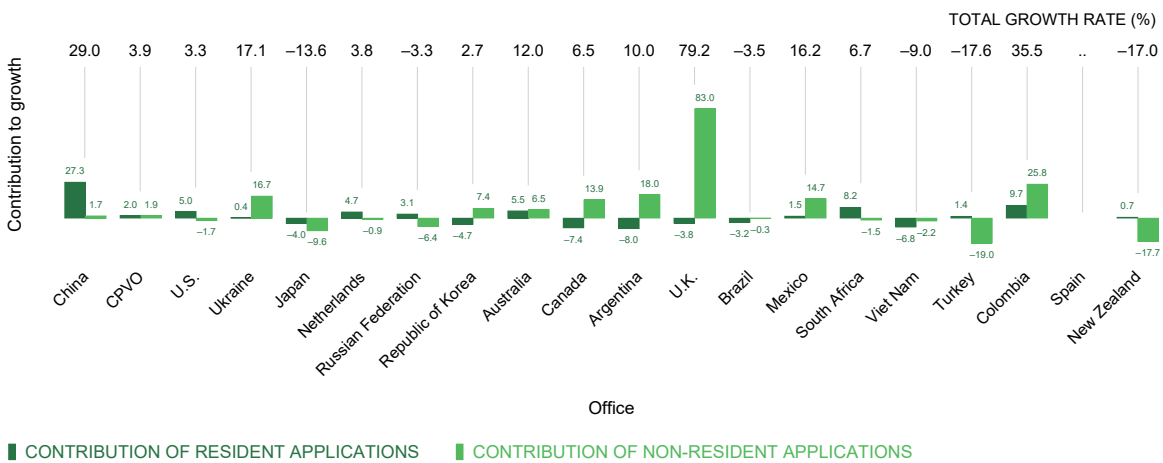
Source: WIPO Statistics Database, September 2019.

### D5. Plant variety applications for the top 20 offices, 2018



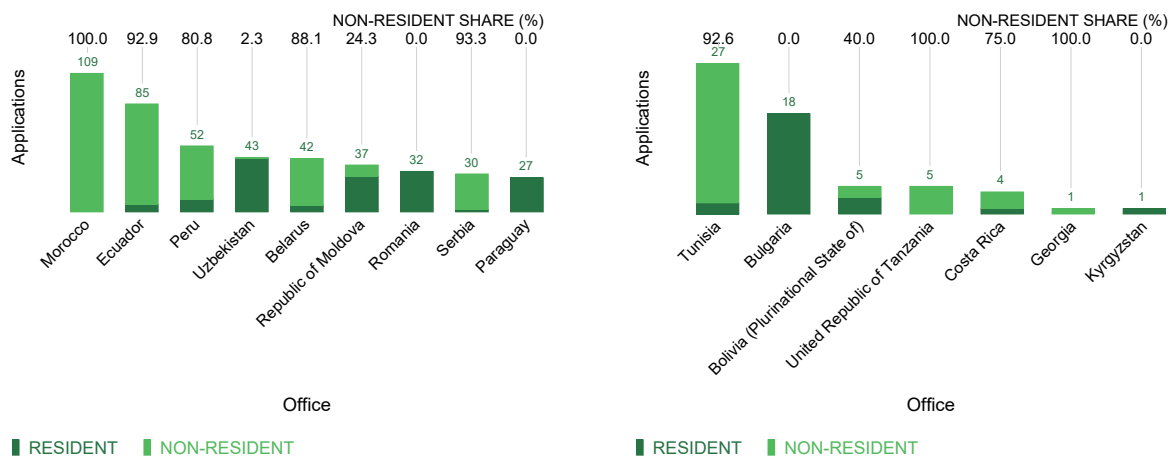
Note: CPVO is the Community Plant Variety Office. In general, national offices of CPVO member states receive lower volumes of applications, because applicants may apply via the CPVO to seek protection within any CPVO member state.  
 Source: WIPO Statistics Database, September 2019.

### D6. Contribution of resident and non-resident applications to total growth for the top 20 offices, 2017–2018



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 the Ukraine grew by 17.1%, and resident applications contributed 0.4 percentage points to this total growth, while non-resident applications accounted for the other 16.7 percentage points.  
 .. indicates not available.  
 Source: WIPO Statistics Database, September 2019.

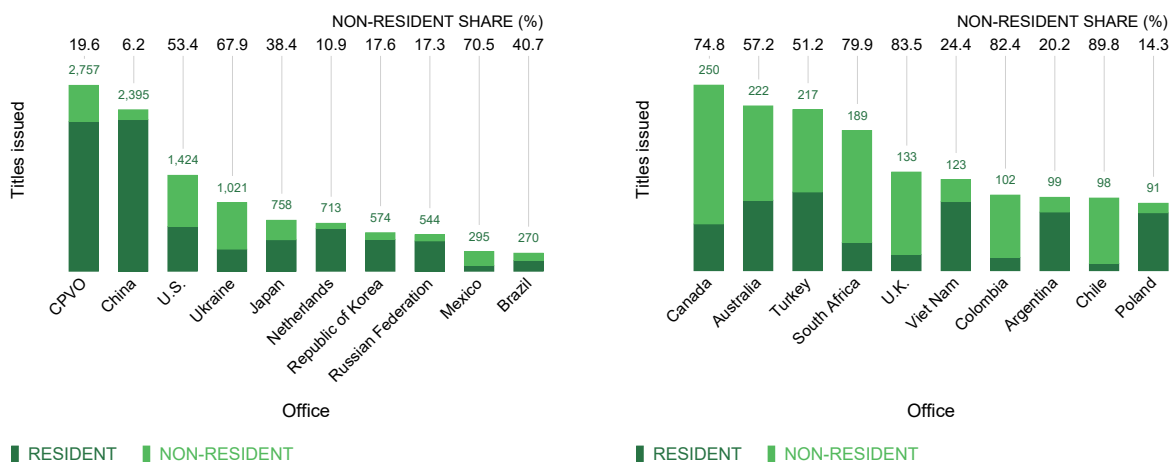
### D7. Plant variety applications for offices of selected low- and middle-income countries, 2018



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 2019.

### D8. Plant variety titles issued by the top 20 offices, 2018

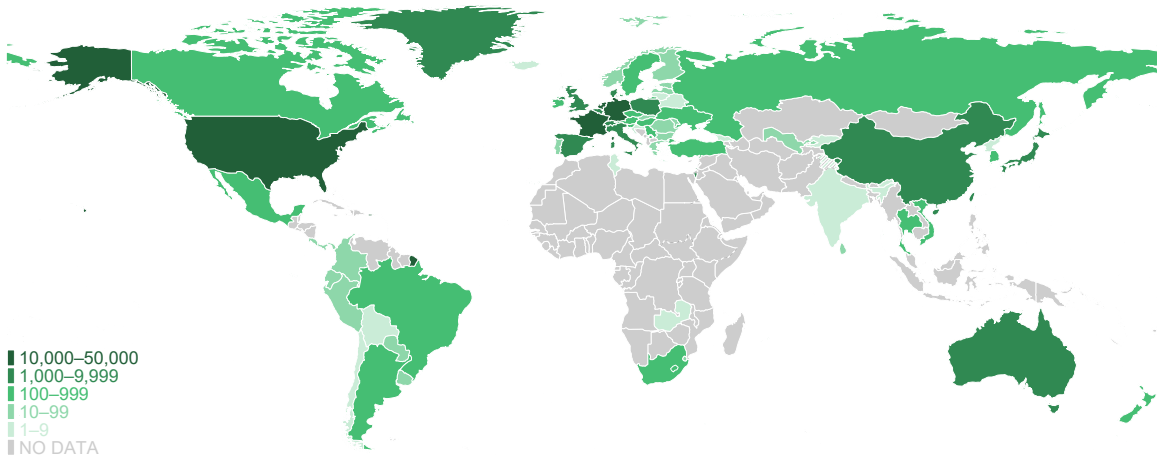


Note: CPVO is the Community Plant Variety Office. The procedure for issuing titles varies across offices, and differences in the numbers of titles issued between offices depend on factors such as examination capacity and procedural delays, therefore there is a time lag between application and title issue 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 2019.

## Plant variety applications and titles issued by origin

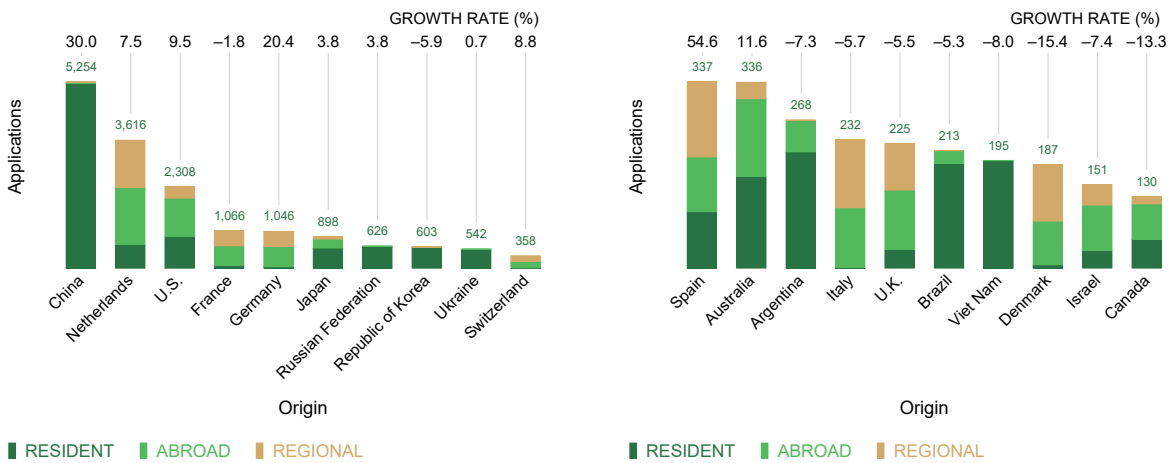
D9. Equivalent plant variety applications by origin, 2018



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 2019.

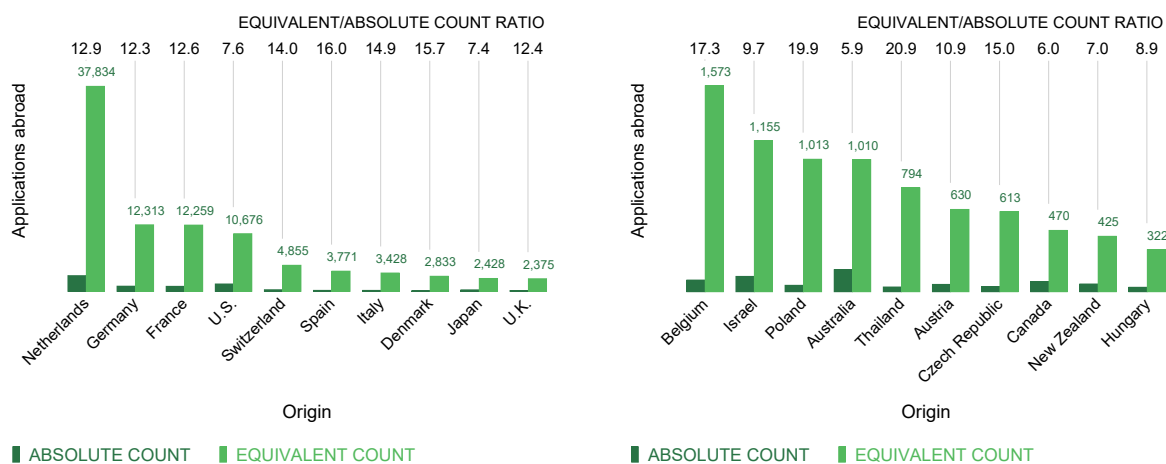
D10. Plant variety applications for the top 20 origins, 2018



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 2019.

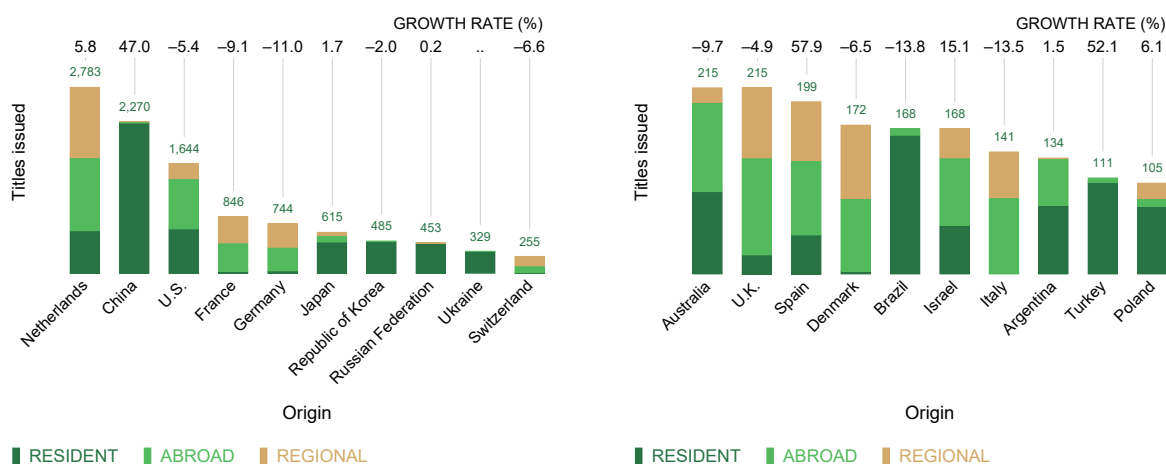
### D11. Plant variety applications abroad for the top 20 origins, 2018



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 2019.

### D12. Plant variety titles issued for the top 20 origins, 2018

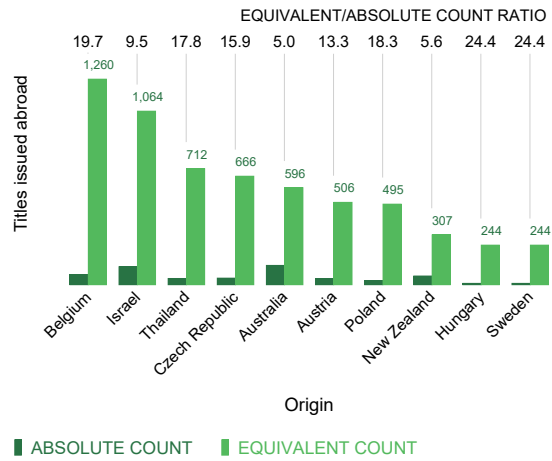
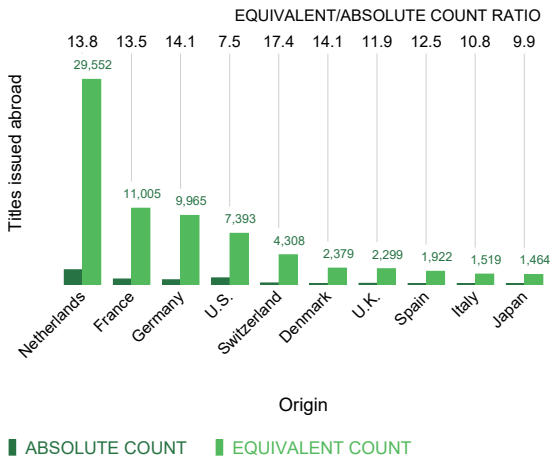


Note: Data are based on absolute count, not equivalent count. The origin of titles issued is determined by the residence of the applicant. Regional refers to titles issued by the EU's Community Plant Variety Office.

.. indicates not available.

Source: WIPO Statistics Database, September 2019.

D13. Plant variety titles issued abroad for the top 20 origins, 2018



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 2019.

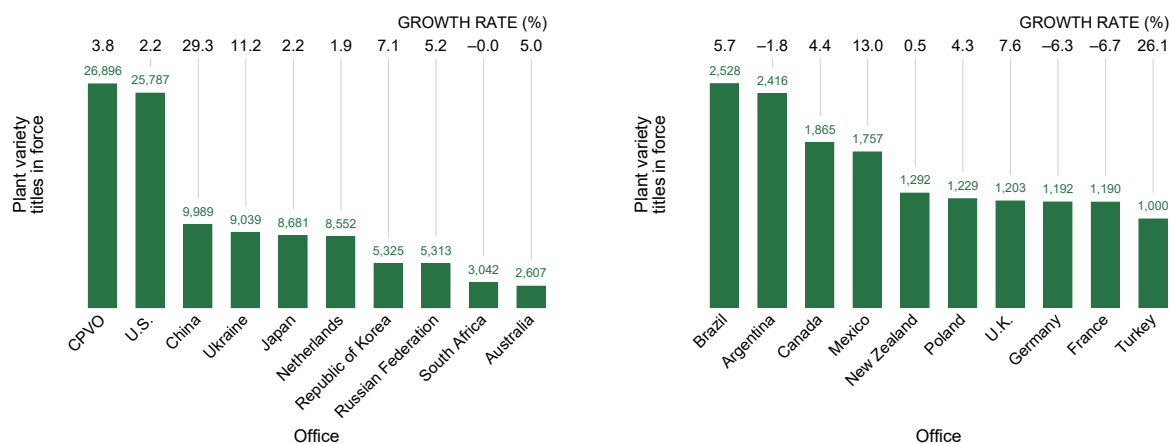
## Plant varieties in force

D14. Trend in plant varieties in force worldwide, 2004–2018



Note: World totals are WIPO estimates using data covering 70 offices.  
Source: WIPO Statistics Database, September 2019.

D15. Plant varieties in force at selected offices, 2018



Note: CPVO is the Community Plant Variety Office.  
Source: WIPO Statistics Database, September 2019.

## Statistical table

D16. Plant variety applications and titles issued by office and origin, and plant variety titles in force by office, 2018

Name	Applications by office			Applications by origin	Equivalent applications by origin	Grants by office			Plant varieties in force
	Total	Resident	Non-resident	Total	Total	Total	Resident	Non-resident	Office
Argentina	329	210	119	268	296	99	79	20	2,416
Australia	384	166	218	336	1,176	222	95	127	2,607
Austria (a)	..	..	..	58	652	..	..	..	18
Belarus	42	5	37	9	9	18	8	10	234
Belgium	1	1	0	92	1,631	..	..	..	43
Bolivia (Plurinational State of)	5	3	2	3	3	5	3	2	59
Brazil	327	189	138	213	241	270	160	110	2,528
Bulgaria	18	18	0	26	26	47	47	0	419
Canada	330	52	278	130	522	250	63	187	1,865
Chile	99	4	95	9	9	98	10	88	875
China	5,760	5,222	538	5,254	5,310	2,395	2,247	148	9,989
Colombia	168	20	148	25	53	102	18	84	578
Community Plant Variety Office	3,554	2,831	723	n.a.	4	2,757	2,218	539	26,896
Costa Rica	4	1	3	5	61	2	0	2	14
Croatia	9	9	0	9	9	8	8	0	62
Czech Republic	70	65	5	106	700	68	61	7	780
Democratic People's Republic of Korea (b)	..	..	..	1	1	..	..	..	..
Denmark	7	6	1	187	2,941	4	3	1	69
Ecuador	85	6	79	13	69	60	17	43	304
Estonia	5	3	2	5	59	4	3	1	97
Eswatini (b)	..	..	..	41	41	..	..	..	..
Finland	7	6	1	13	40	7	7	0	195
France	98	91	7	1,066	12,784	41	33	8	1,190
Georgia	1	0	1	1	1	4	0	4	213
Germany	57	43	14	1,046	12,791	42	35	7	1,192
Greece (b)	..	..	..	12	39	..	..	..	..
Hungary	6	5	1	41	338	16	16	0	162
Iceland (a)	..	..	..	1	1	..	..	..	..
India (b)	..	..	..	2	2	..	..	..	..
Ireland (a)	..	..	..	23	212	..	..	..	..
Israel	68	32	36	151	1,187	82	56	26	822
Italy	3	2	1	232	3,553	..	..	..	..
Japan	880	570	310	898	2,998	758	467	291	8,681
Kyrgyzstan	1	1	0	1	1	1	0	1	5
Latvia	16	12	4	13	13	12	9	3	194
Lithuania	7	4	3	4	4	12	8	4	103
Luxembourg (b)	..	..	..	59	86	..	..	..	..
Mauritius (b)	..	..	..	10	10	..	..	..	..
Mexico	308	93	215	99	127	295	87	208	1,757
Morocco	109	0	109	..	..	73	2	71	408
Netherlands	792	674	118	3,616	39,850	713	635	78	8,552
New Zealand	112	41	71	102	466	76	39	37	1,292
Nicaragua (a)	..	..	..	..	..	3	0	3	15
Norway	14	2	12	4	32	11	1	10	198
Panama (a)	..	..	..	1	29	..	..	..	19

Name	Applications by office			Applications by origin	Equivalent applications by origin	Grants by office			Plant varieties in force
	Total	Resident	Non-resident	Total	Total	Total	Resident	Non-resident	Office
Paraguay	27	27	0	28	28	27	27	0	501
Peru	52	10	42	12	12	53	8	45	217
Poland	103	60	43	111	1,110	91	78	13	1,229
Portugal (a)	..	..	..	3	57	..	..	..	11
Republic of Korea	765	591	174	603	631	574	473	101	5,325
Republic of Moldova	37	28	9	47	47	32	30	2	210
Romania	32	32	0	47	47	45	45	0	410
Russian Federation	780	622	158	626	626	544	450	94	5,313
Serbia	30	2	28	34	314	25	4	21	355
Singapore	8	1	7	1	1	2	0	2	5
Slovakia	8	5	3	10	64	9	7	2	373
Slovenia (a)	..	..	..	6	168	..	..	..	..
South Africa	286	63	223	124	320	189	38	151	3,042
Spain	113	102	11	337	4,009	48	45	3	339
Sri Lanka (b)	..	..	..	2	58	..	..	..	..
Sweden	2	1	1	10	118	1	1	0	106
Switzerland	57	11	46	358	4,866	64	7	57	699
Thailand (b)	..	..	..	38	794	..	..	..	..
Tunisia	27	2	25	2	2	25	3	22	178
Turkey	178	99	79	115	115	217	106	111	1,000
Ukraine	1,575	539	1,036	542	542	1,021	328	693	9,039
United Kingdom	328	34	294	225	2,493	133	22	111	1,203
United Republic of Tanzania	5	0	5	..	..	4	0	4	116
United States of America (PPA) (c)	1,079	439	640	n.a.	..	1,208	493	715	18,266
United States of America (PVPA)	530	461	69	2,308	11,576	216	170	46	7,521
Uruguay	48	8	40	11	11	37	7	30	568
Uzbekistan	43	42	1	42	42	45	45	0	124
Viet Nam	242	194	48	195	195	123	93	30	452
Zambia (b)	..	..	..	1	1	..	..	..	..
Others/Unknown	..	..	..	4	88	..	..	..	..
<b>Total (2018 estimates)</b>	<b>20,210</b>	<b>13,900</b>	<b>6,310</b>	<b>20,210</b>	<b>n.a.</b>	<b>13,300</b>	<b>8,300</b>	<b>3,710</b>	<b>133,190</b>

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

(b) 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).

n.a. indicates not applicable.

.. indicates not available.

Sources: WIPO Statistics Database, September 2019.