

## SECTION D

# PLANT VARIETY PROTECTION

The International Union for the Protection of New Varieties of Plants (UPOV) was established in 1961 by the International Convention for the Protection of New Varieties of Plants (the “UPOV Convention”). UPOV provides and promotes an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society.

In order to obtain protection, a breeder must file an individual application with each authority entrusted with the granting of breeders’ rights. A breeder’s right is only granted where the variety is new, distinct, uniform, stable and has a suitable denomination.

In the United States of America (US), there are two legal frameworks for protecting new plant varieties: the Plant Patent Act (PPA) and the Plant Variety Protection Act (PVPA). According to the PPA, whoever invents or discovers and asexually reproduces any distinct and new variety of plant, including cultivated sports, mutants, hybrids, and newly found seedlings, other than a tuber propagated plant (in practice, Irish potato and Jerusalem artichoke) or a plant found in an uncultivated state, may obtain a patent therefor. Under the PVPA, the US protects all sexually reproduced plant varieties and tuber propagated plant varieties excluding fungi and bacteria.

This section covers plant variety protection statistics relating to applications, grants and grants in force, based on data collected from 66 offices.

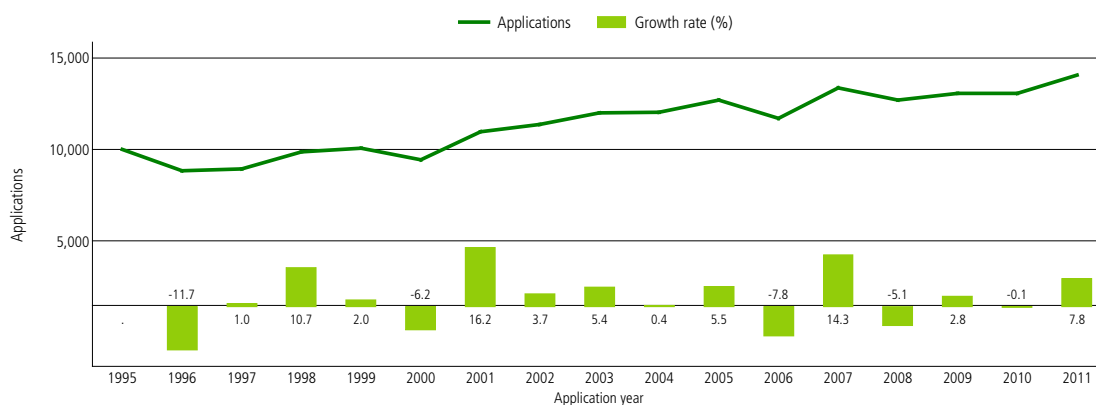
## D.1

### PLANT VARIETY APPLICATIONS AND GRANTS

#### D.1.1 Applications worldwide

Figure D.1.1 depicts the total number of plant variety applications worldwide between 1995 and 2011. World totals are WIPO estimates covering data for 66 offices. Between 1995 and 2011, the total number of applications increased from 10,000 to over 14,000. This growth occurred in the face of substantial year-on-year fluctuation in application numbers; for example, since 2003, growth in applications in a given year was followed by a drop the next year. However, after a modest decline in 2010, plant variety applications worldwide grew by 7.8% in 2011 – the fastest growth since 2007. Together, growth in applications at the office of Israel and the Community Plant Variety Office (CPVO) of the European Union (EU) accounted for three-fifths of total growth in 2011.<sup>1</sup>

<sup>1</sup> In relation to plant varieties, this publication uses the term “office” to refer to reporting authorities and “origin” to indicate the origin of applicants.

**Figure D.1.1 Trend in plant variety applications worldwide**

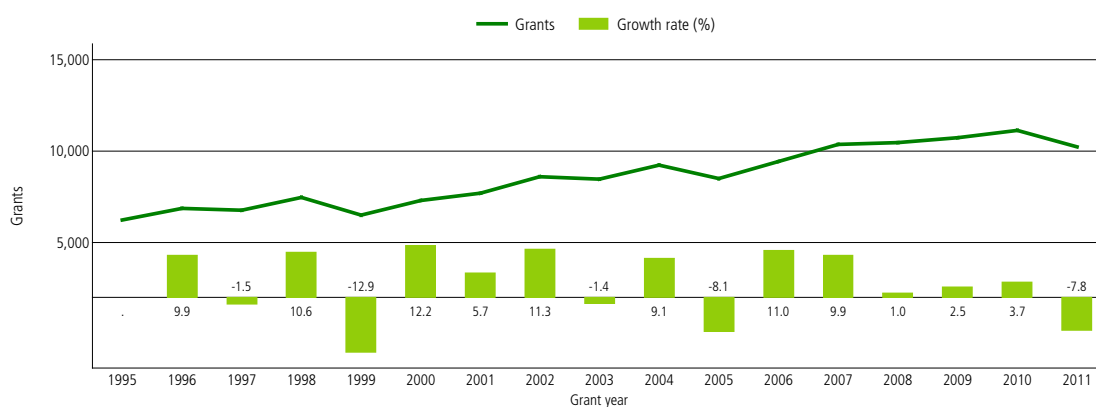
Note: World totals are WIPO estimates covering data for 66 offices.

Source: WIPO Statistics Database, October 2012

### D.1.2 Grants worldwide

As was the case for applications, the long-term trend of plant variety grants is upwards.<sup>2</sup> Grants worldwide increased from around 6,200 in 1995 to a peak of 11,100

in 2010. In 2011, the number of grants worldwide was estimated at around 10,200, representing a 7.8% decrease on 2010. This decrease in grants followed five years of continuous growth, and was mainly due to substantial declines in grants at the offices of China and Ukraine.

**Figure D.1.2 Trend in plant variety grants worldwide**

Note: World totals are WIPO estimates covering data for 66 offices.

Source: WIPO Statistics Database, October 2012

<sup>2</sup> For simplicity, this publication uses the term “grant” rather than the formal term “titles issued”.

## D.2

### PLANT VARIETY APPLICATIONS AND GRANTS BY OFFICE

This subsection provides detailed data on plant variety applications and grants by national and regional offices. In relation to plant varieties, this publication uses the term “office” to refer to reporting authorities and “origin” to indicate the origin of applicants.

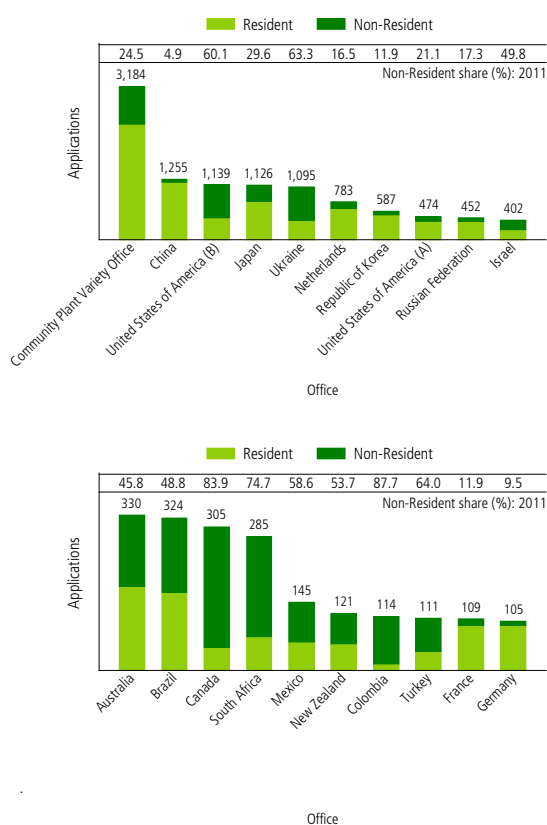
#### D.2.1 Applications for the top 20 offices

Figure D.2.1 shows the number of plant variety applications broken down by resident and non-resident filings for the top 20 offices. The CPVO received the most applications in 2011, followed by the offices of China, the US (B, PPA data) and Japan.<sup>3</sup> Apart from the CPVO, four other offices received more than 1,000 applications each in 2011.

The non-resident share in total applications varied from 4.9% in China to 87.7% in Colombia. For 10 of the top 20 offices, non-resident applications accounted for about 50% or more of total applications received. In contrast, non-resident applicants accounted for around one-tenth of all applications filed at the offices of France, Germany and the Republic of Korea.

The majority of offices saw growth in applications between 2010 and 2011. Israel saw the largest increase with 313 additional applications. In contrast, the US (A, PVPA data) saw the largest decrease with 180 fewer applications.

**Figure D.2.1 Plant variety applications for the top 20 offices, 2011**



Note: United States of America (A) refers to PVPA data, and United States of America (B) refers to PPA data.

Source: WIPO Statistics Database, October 2012

<sup>3</sup> The US ranks second if PVPA and PPA data are combined.

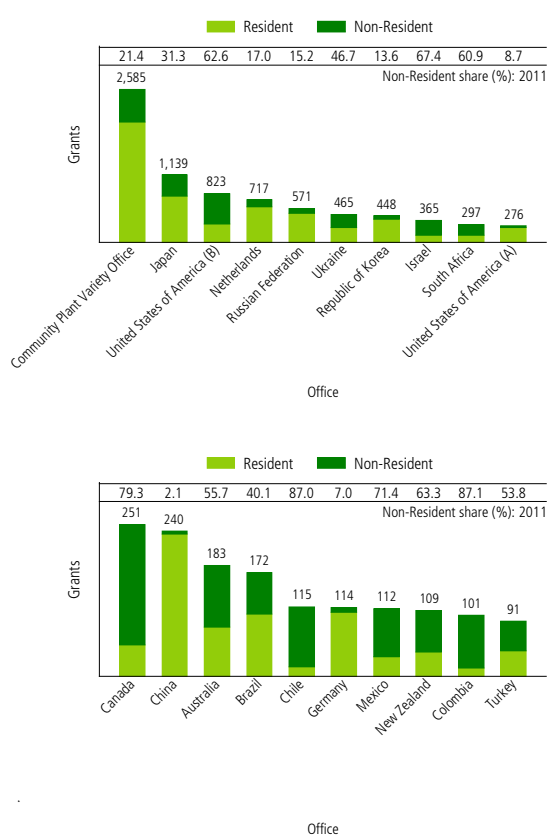
### D.2.2 Grants for the top 20 offices

Similar to applications, the CPVO (2,585) issued the largest number of plant variety grants in 2011, followed by Japan (1,139), the US (B) (823) and the Netherlands (717).

The non-resident share in total grants varied from 2% in China to around 87% in Chile and Colombia. This is of similar magnitude for their application data.

Half of the top 20 offices issued fewer grants in 2010 than in 2011, with the most notable decreases recorded for China (-64%), Ukraine (-55.5%) and the US (A) (-30%). The fastest growth during the same period occurred at the offices of Chile, Israel and the Netherlands.

**Figure D.2.2 Plant variety grants for the top 20 offices, 2011**



Note: United States of America (A) refers to PVPA data, and United States of America (B) refers to PPA data.

Source: WIPO Statistics Database, October 2012

## D.3

### PLANT VARIETY APPLICATIONS AND GRANTS BY ORIGIN

The statistics presented in this subsection offer insight into the origin of demands for plant variety protection. Plant variety activity by origin includes resident applications and applications abroad. Origin is determined based on the residency of the applicant.

This subsection presents application and grant data by origin based on two different counting methods. First, data based on absolute number count are presented, followed by data based on the equivalent count concept. The difference between the two methods lies in the treatment of regional office (CPVO) data. An application at the CPVO is counted only once with the absolute count method, whereas, with the equivalent count method, a single application at the CPVO is treated as equivalent to multiple applications. For instance, to calculate the number of equivalent applications at the CPVO, each application is multiplied by the corresponding number of member states. If the applicant resides in one of the 27 EU member states, the application is counted as one resident filing and 26 filings abroad. However, if the applicant does not reside in an EU member state, the application is counted as 27 applications abroad.

### D.3.1 Applications and grants by origin

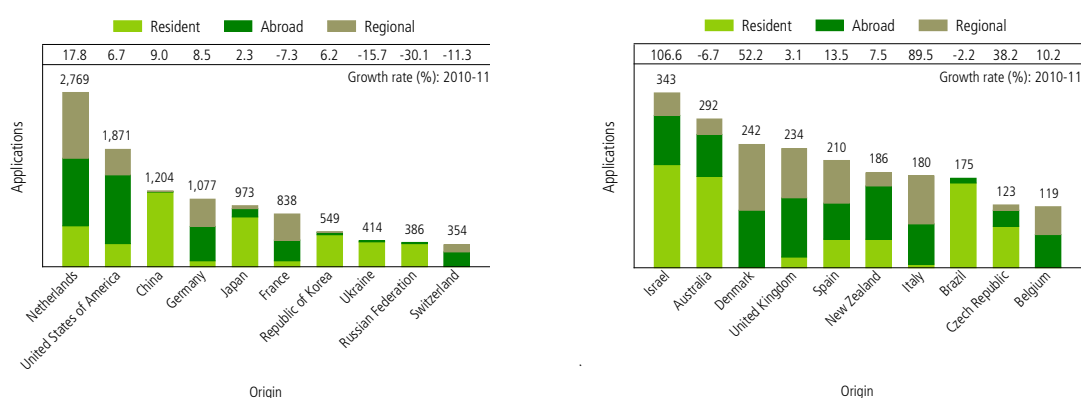
Plant variety application and grant data for the top 20 origins, based on the absolute count method, are presented in Figures D.3.1.1 and D.3.1.2.

The largest number of plant variety applications originated in the Netherlands (2,769), followed by applications filed by residents of the US, China and Germany (Figure D.3.1.1). The majority of origins filed more applications in 2011 than in 2010. Residents of Israel (+106.6%), Italy (+89.5%) and Denmark (+52.2%) saw the largest growth in applications during this period. In contrast, residents of the Russian Federation (-30.1%), Ukraine (-15.7%) and Switzerland (-11.3%) filed considerably fewer applications in 2011 than in 2010.

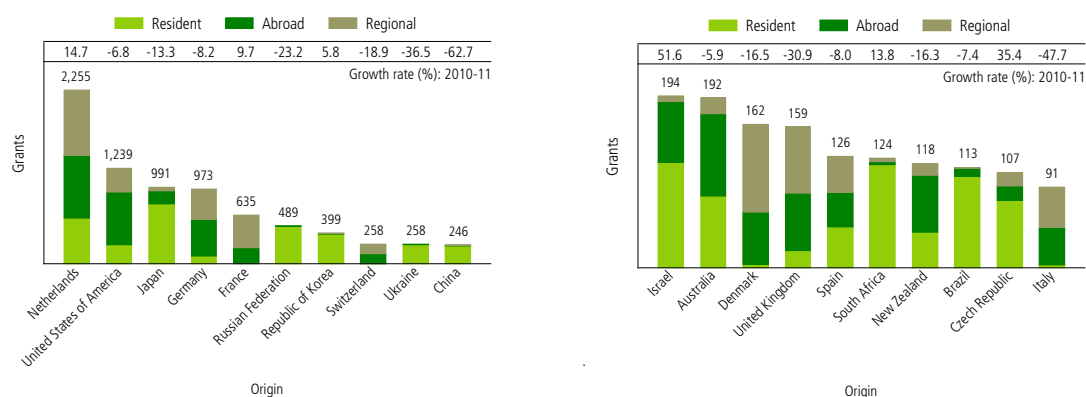
Applicants residing in Brazil, China, the Republic of Korea, the Russian Federation and Ukraine filed the bulk of their applications at their respective national offices. In contrast, applications abroad accounted for more than half of all applications originating in Belgium, Germany, New Zealand, Switzerland and the US.

Grant data show a profile similar to that for application data for all reported origins. However, there are some differences in the ranking of origins. Applicants from the Netherlands received the largest number of grants, followed by applicants residing in the US, Japan and Germany (Figure D.3.1.2). China ranked in third position for applications but in 10<sup>th</sup> position for grants. The majority of origins received fewer grants in 2011 than in 2010; this is in contrast to the trend observed for application data. The most notable decline (-62.7%) in grants was for applicants residing in China. The distribution of resident grants, grants abroad and regional grants data is similar, for all origins, to that of application data.

**Figure D.3.1.1 Plant variety applications for the top 20 origins, 2011**



Source: WIPO Statistics Database, October 2012

**Figure D.3.1.2 Plant variety grants for the top 20 origins, 2011**

Source: WIPO Statistics Database, October 2012

### D.3.2 Equivalent applications and grants by origin

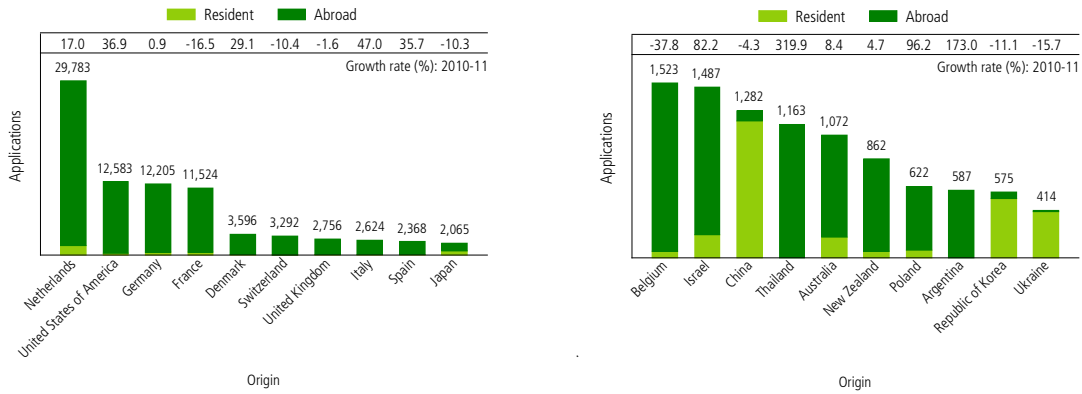
Plant variety application and grant data for the top 20 origins, based on the equivalent count method, are presented in Figures D.3.2.1 and D.3.2.2.

Equivalent application count data show that, in 2011, the largest number of plant variety applications originated in the Netherlands, followed by applications filed by residents of the US, Germany and France. The volume of applications from the latter three were of a similar magnitude; however, the volume of applications filed by Dutch applicants was more than double that filed by US applicants (Figure D.3.2.1).

For the majority of origins, applications abroad accounted for the largest share of total applications. This was partly due to the multiplier applied to regional applications. Applicants residing in China, the Republic of Korea and Ukraine filed the bulk of their applications at their respective national offices.

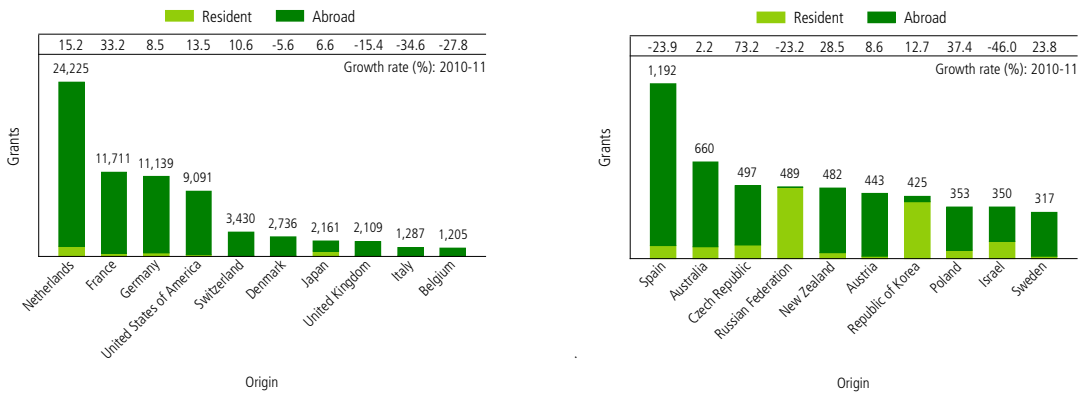
Equivalent grant data for all reported origins show a profile similar to the one for equivalent application data. However, there are some differences in the ranking of origins. Applicants from the Netherlands received the largest number of grants, followed by applicants residing in France, Germany and the US. For all origins, except the Republic of Korea and the Russian Federation, grants issued abroad accounted for the largest share of total grants.

Figure D.3.2.1 Equivalent plant variety applications for the top 20 origins, 2011



Source: WIPO Statistics Database, October 2012

Figure D.3.2.2 Equivalent plant variety grants for the top 20 origins, 2011



Source: WIPO Statistics Database, October 2012

### D.3.3 Non-resident applications by office and origin

Plant breeders frequently seek protection for their new plant varieties abroad. Table D.3.3 offers an overview of the flow of cross-border filings. The underlying data refer to actual numbers of plant variety applications instead of equivalent counts.

The most popular destinations for plant variety protection by foreign applicants were the CPVO, Ukraine, the US (B) (PPA data), Japan and Canada. Applicants from the Netherlands accounted for the largest non-resident share at nine offices, and had the highest share at the offices of Colombia and Ecuador (68% for each). US applicants accounted for the largest non-resident share at seven offices, including the CPVO and the offices of Chile and Mexico where they accounted for the majority share. Swiss applicants had the highest non-resident share in the Netherlands and the US (A) (PVPA data).

**Table D.3.3 Non-resident plant variety applications by office and origin, 2011**

Office	Origin																				
	AR	AT	AU	BE	CH	CZ	DE	DK	ES	FR	GB	IL	IT	JP	KR	NL	NZ	RS	TH	US	Others
Australia	1	2		2	2	2	18		5	6	9	1	1	11		17	23		1	41	9
Brazil					14	3	9		3	6		3	9	9		79	5			17	1
Canada			5		37	2	18	31		4	1		1	18		47	4			88	0
Chile			1			3	1			4	1		2			17	11			45	1
China				2			2						1	4	9	33				10	1
Colombia							4		1	1		7	7			68	1			9	2
Community Plant Variety Office	20		30		113							44	42	1		26		43	412	50	
Ecuador						13		1	1	1	4	2				57				2	2
Israel			3	2	7		28	5	3	6			2	32		74	3			30	5
Japan					18		48	16	5	13	8	42	17		6	117	1			40	2
Mexico			3		1	2			4			4	2			18	5			44	2
Netherlands					47		19	8		21	9	3								9	13
New Zealand		1	6	3	1	2	1	4		1	12			8		7				18	1
Republic of Korea						3	8	2			6		1	11		24	1			4	10
Russian Federation		2		1			22			3	1		1			27				3	18
South Africa	3		27		1	3	3		7	16	8		2	1		27	10			105	0
Turkey		2		1		1	4		24	14			1			6	1			8	9
Ukraine		21	1	18	38	3	85	1		141	5		7		11	129		58		112	63
United States of America (A)			1		56		8			6				2		17	2				8
United States of America (B)			30	27	1	1	154	44	4	34	50	31	8	40	2	205	24		1		28
Others	43	2	6	8	5	6	109	1	14	54	5	2	17	1	3	94	13	0	0	45	

Note: Argentina (AR), Austria (AT), Australia (AU), Belgium (BE), Switzerland (CH), Czech Republic (CZ), Germany (DE), Denmark (DK), Spain (ES), France (FR), United Kingdom (GB), Israel (IL), Italy (IT), Japan (JP), Republic of Korea (KR), Netherlands (NL), New Zealand (NZ), Serbia (RS), Thailand (TH) and United States of America (US)

Source: WIPO Statistics Database, October 2012



# D.4

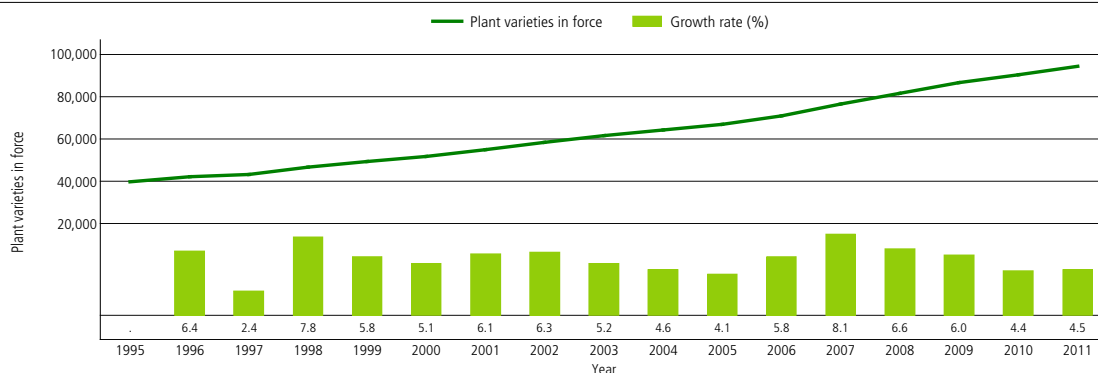
## PLANT VARIETY GRANTS IN FORCE

The protection of plant varieties is granted for a limited period of time, in accordance with the legislation governing plant variety protection in the territory concerned. Figure D.4.1 shows the total number of plant variety grants in force worldwide between 1995 and 2011. World totals are WIPO estimates covering data for 66 offices. There were around 94,300 plant varieties in force in 2011, which is more than double the amount in force in 1995 (around 39,600). There has been a consistent upward trend in the number of plant varieties in force, even though the growth rate has slowed since 2007.

As shown in Figure D.4.2, the CPVO accounted for approximately 20% of all plant variety grants in force worldwide in 2011. This reflects the fact that this office has issued the largest number of grants over the past few years. A high number of grants were also in force at the offices of Japan and the US (B) (PPA data).

The majority of the offices presented in Figure D.4.2 had higher numbers of plant variety grants in force in 2011 than in 2010. The offices of the Netherlands, the Republic of Korea and Ukraine saw double-digit growth. In contrast, France and Italy exhibited substantial declines.

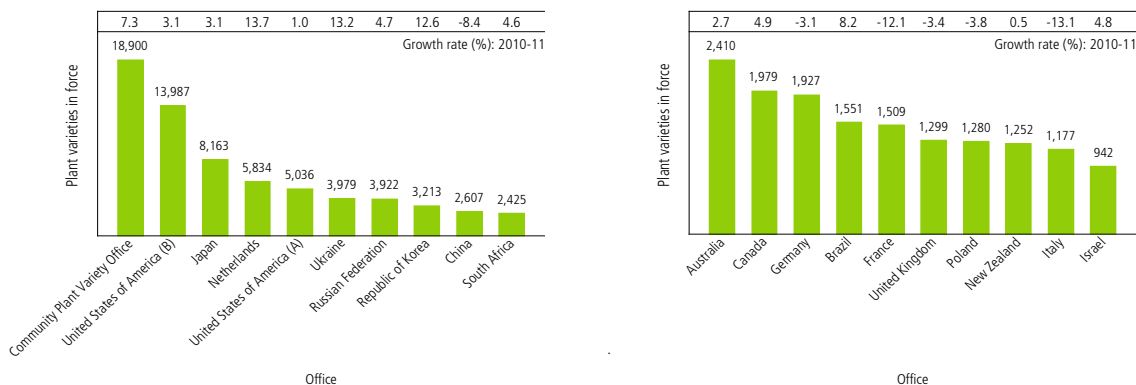
**Figure D.4.1 Trend in plant varieties in force worldwide**



Note: World totals are WIPO estimates covering data for 66 offices.

Source: WIPO Statistics Database, October 2012

**Figure D.4.2 Plant varieties in force for selected offices, 2011**



Note: United States of America (A) refers to PVPA data, and United States of America (B) refers to PPA data.

Source: WIPO Statistics Database, October 2012