

DIRECTORATE-GENERAL FOR INTERNAL POLICIES

**POLICY DEPARTMENT**  
STRUCTURAL AND COHESION POLICIES **B**

**Agriculture and Rural Development**

Culture and Education

Fisheries

Regional Development

Transport and Tourism



**THE EU SEED AND PLANT  
REPRODUCTIVE MATERIAL  
MARKET IN PERSPECTIVE: A  
FOCUS ON COMPANIES AND  
MARKET SHARES**

NOTE







**DIRECTORATE-GENERAL FOR INTERNAL POLICIES**  
**POLICY DEPARTMENT B: STRUCTURAL AND COHESION POLICIES**

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**NOTE**

This document was requested by the European Parliament's Committee on Agriculture and Rural Development.

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**Abstract:**

This short note will focus first on the EU seed and Plant Reproductive Material (PRM) market, insisting on the size of seed companies, as well as on its segmentation, which has to be taken into account in market shares analysis. Market shares will be assessed in different seed segments. In a second section, the EU sector will be placed in a global perspective, which will highlight some of the European specificities, such as the non-GM nature of its seed market.



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## EXECUTIVE SUMMARY

France, Germany and Italy account for more than half of the EU seed and plant reproductive material market, which is the **third biggest in the world**. EU seed companies are **highly diversified**, according to their **size** (turnover, number of employees), **crops** portfolio, **geographical area** covered and **activities** carried out.

**Small and Medium-Sized Enterprises** (SMEs) still represent a **high share** of the EU seed sector (for example, the overwhelming majority of Italy's seed companies are SMEs). Moreover, it seems that the **concentration process** of the seed industry has gone **less far in Europe** than in the rest of the world. However, situations may **differ on specific markets**, as seed markets are **highly segmented** (e.g. in France, seed markets for sugar beet, vegetables and oilseed crops are much more concentrated than the national seed market for field crops).

**Furthermore, unlike seed markets in the rest of the world, the EU market has remained a conventional one (i.e. non-GM). Experts have described the emergence of biotechnologies as the key driver of the consolidation process that has taken place in the global seed industry.**



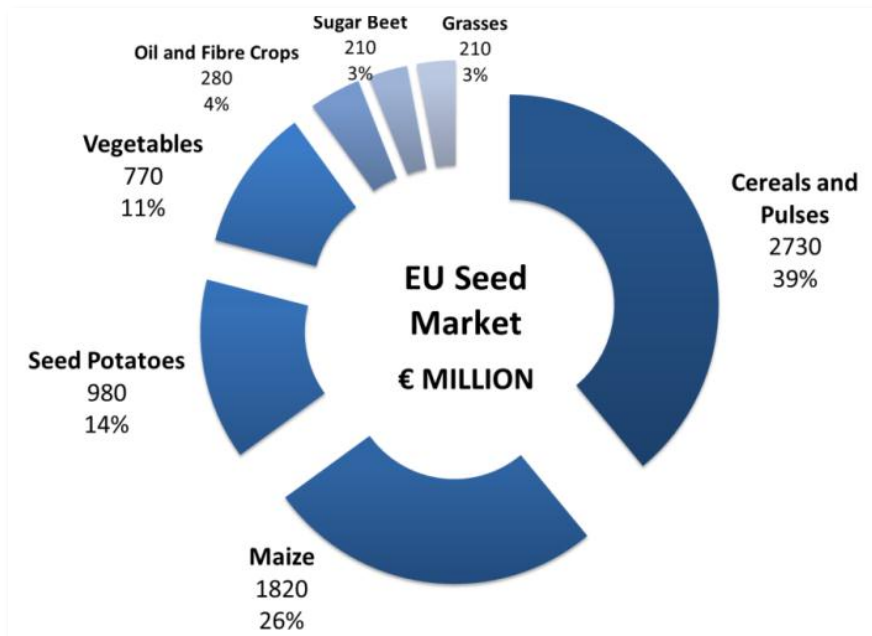
## INTRODUCTION

This short note will **focus first on the EU seed and Plant Reproductive Material (PRM) market<sup>1</sup>**, insisting on the size of seed companies, as well as on its segmentation, which has to be taken into account in market shares analysis. Market shares will be assessed in different seed segments. In a second section, the EU sector will be **placed in a global perspective**, which will highlight some of the European specificities, such as the non-GM nature of its seed market.

### 1. STRUCTURAL ANALYSIS OF THE SECTOR IN THE EU: A HIGHLY DIVERSIFIED LANDSCAPE

#### 1.1. The third seed market in the world

**Figure 1: Breakdown of the EU seed market per crop**



**Source:** Elaboration by EP PolDep B, based on data from the European Seed Association.

In 2012, the value of the EU seed market reached around **€ 7 billion**. The EU market represents **20% of the global market**. It ranks **n°3** after the United States (27%) and China (22%), well ahead of the fourth market (Brazil, 6%) (Annex 1a). In an expanding world seeds market (+76%), the EU market grew by **+45%** between 2005 and 2012. **France** is by far the biggest market of the EU (nearly **one third**). A group of **five Member States** (France, Germany, Italy, Spain and the Netherlands) represents **two thirds** of the EU market (Annex 1b).

<sup>1</sup> It should be highlighted that information on the seed and PRM market structure, as well as on market shares, represents **sensitive business information**. Therefore, it is **made public only in rare occasions** and the industry remains reluctant to communicate data (for example, in annual reports, sales are rarely broken down precisely on a geographical basis). This note relies on information published in a wide range of articles, studies and documentation released by seed companies (annual reports, press releases, websites, etc.). **Figures should be handled with care.**

## 1.2. The four parameters of diversity: size, crops, geography and activity

The seed and PRM industry is composed of **very diverse companies**, be it in terms of **size** (turnover, employees), **crops** or **geographical area** covered. They may also be active in **one or several stages** of the seed industry: **plant breeding**, **seed production**, **seed conditioning**, and **seed marketing and distribution**.

## 1.3. A focus on the size issue: SMEs are particularly numerous in the EU-12, but not only

There is **still little information** available on the structure of the seed sector in the EU, **in particular in terms of the share of micro- or, small and medium-sized enterprises (SMEs)** (see annex 2 for an overview of the criteria used at EU level to define SMEs). **Small seed companies** are generally active at a more **local level**.

There are around **7 000 seed companies** in the EU, of which 97% are located in ten Member States. It seems that the **number of SMEs** in the sector is **quite high, particularly in the EU-12**.

**Table 1: Number of seed companies in Member States**

Member States	Number of seed companies
Poland, Romania	Around 2000
Hungary	Around 800
United Kingdom	Around 600
France, Italy, Germany, Netherlands, Slovakia	Between 120 and 350
Other Member States	Less than 60

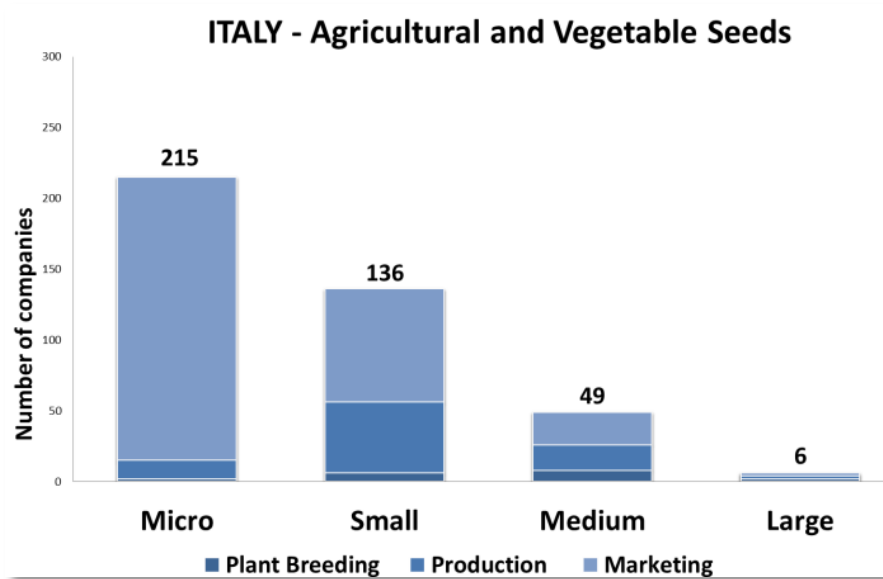
**Source:** Elaboration by EP PolDep B, based on data from the European Commission [Impact Assessment SWD\(2013\)162](#), 2013.

**In Poland, Romania and Hungary, more than 90%** of seed companies **are SMEs**. A **concentration process** is probably taking place in these countries. However, **no information is available on their market shares**.

Seed companies employ **around 50 000 people** (80% in those ten Member States). The countries with the highest number of people employed are France, Romania, the Netherlands, Poland, Germany and Italy (in decreasing order).

A situation combining a high number of people employed in the sector with a more limited number of seed companies reflects the impacts of a **consolidation process** (e.g. in France, with around 9 000 employees and around 260 companies, or in the Netherlands). The following graphs show that **small enterprises** are also highly prevalent in the sector in **Italy** and in **France**.

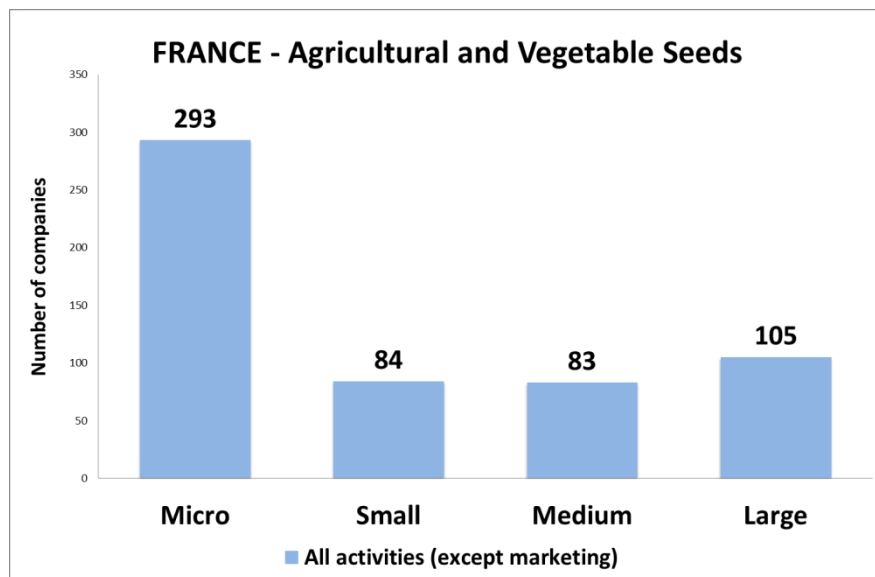
**Figure 2: Size of seed companies in Italy**



**Source:** Elaboration by EP PolDep B, based on data from the seed industry.

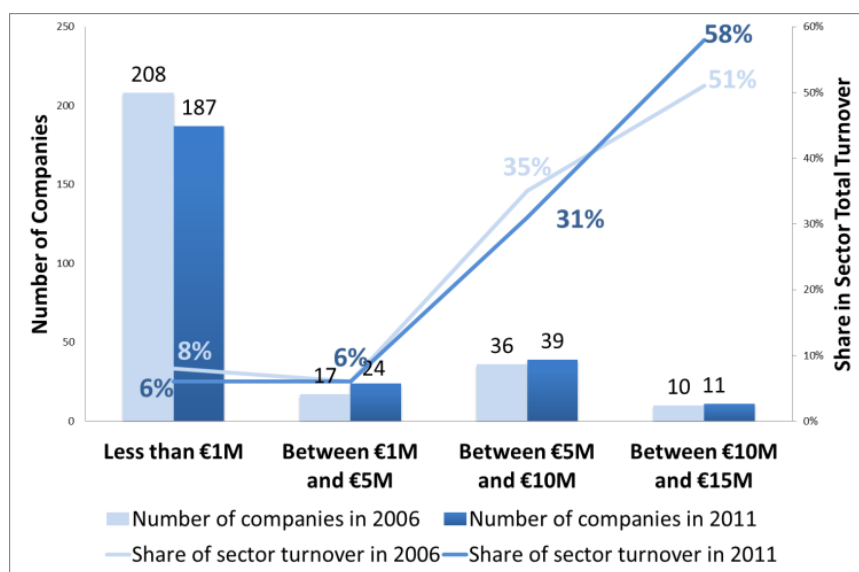
In **Italy**, in the **agricultural and vegetable** seeds sector, **micro-enterprises represent more than half** of the total number of seed companies (53%); one third are small; 12% medium and 1.5% large. In the **fruit and vine propagating material** sector, **almost all companies are micro-enterprises**.

**Figure 3: Size of seed companies in France**



**Source:** Elaboration by EP PolDep B, based on data from the seed industry.

In **France**, in the **agricultural and vegetable** seeds sector, micro-enterprises represent **also more than half** of the total number of seed companies (**52%**). However the **share of medium and large enterprises is much higher than in Italy** (15% and 19% respectively). Therefore, the French market is more consolidated than the Italian one.

**Figure 4: Consolidation in the French seed market (2006-2011)**

**Source:** Elaboration by EP PolDep B, based on data from Gnis.

Not only the number of companies per size category is important, but also the **cumulated market shares**. Figure 4 shows that in France, the **11 largest seed companies** account for **58% of the total turnover of the sector**. This category of company has **gained 7 percentage points** since 2006, indicating a **consolidation** move in the sector.

Furthermore, the graph shows a trend towards **a reduction in the number of the smaller companies** in the total turnover of the sector.

#### **1.4. Seed markets are highly segmented, and concentration of markets varies according to the scale of analysis (EU, national, regional market, and/or crop considered)**

Seeds Markets remain **highly fragmented**, by **crop** and by **geographical area**. The vegetable seed market is a good example of such segmentation.

##### **1.4.1. At EU level**

Table 2 shows some **estimates of the market shares of seed companies at EU level**. As mentioned by some observers, **consolidation levels seem to be lower in the EU than at global level**. However, it should not be forgotten that **in certain segments (crops, geographical areas), markets shares may be much higher**.



**Table 2: Main seed companies on the EU market and rough estimates of their market shares at EU level (based on a €7 billion EU seed market)<sup>2</sup>**

COMPANY	<u>Estimated</u> turnover in the EU or in "Europe" or "Europe +" (€ million)	<u>Estimated</u> share of the total EU market	Number of employees in the EU or in "Europe"
<b>SYNGENTA (Switzerland)</b>	857	<b>12%</b>	12417 employees in Europe, Africa and Middle East
<b>LIMAGRAIN (VILMORIN) (France)</b>	722.5	<b>10%</b>	5304 in Europe
<b>KWS (Germany)</b>	657	<b>9%</b>	2815 in Europe
<b>BAYER CROPSCIENCE (Germany)</b>	310	<b>4%</b>	20800 (worldwide)
<b>DLF-TRIFOLIUM (Denmark)</b>	259	<b>3.5%</b>	649 in 12 countries

**Source:** Elaboration by EP PolDep B, based on companies' annual reports.

Table 3 gives an overview of the **market leaders** in a specific, major, EU market (**field crops**).

**Table 3: Overview of the main seed companies in the EU's field crops market**

Company rank	Straw cereals	Maize	Sunflower	Rapeseed
<b>1</b>	VILMORIN (LIMAGRAIN GROUP)	PIONEER	SYNGENTA	MONSANTO
<b>2</b>	KWS	KWS	PIONEER	NPZ LEMBKE
<b>3</b>	RAGT	VILMORIN (LIMAGRAIN GROUP) and MONSANTO	VILMORIN (LIMAGRAIN GROUP)	VILMORIN (LIMAGRAIN GROUP)
<b>4</b>	-	-	EURALIS	DSV

**Source:** VILMORIN, [Annual Report 2011-2012](#).

<sup>2</sup> Please note that companies hardly ever disclose their sales in the EU (they sometimes refer to "Europe", "Europe, Middle-East and Africa", but without any details). The table should not be considered as exhaustive. Only companies where enough information could be found are mentioned in the table. For instance, MONSANTO does not provide data on its seed sales in the EU.

### 1.4.2. At Member State level: the example of France<sup>3</sup>

**Table 4: Estimated market shares of seed companies in France (2011). These estimates should be considered with caution**

Company Name	Total Turnover in France (€ million)	Estimated market share (all crops)	Cumulated share
<b>LIMAGRAIN</b>	413	19%	19%
<b>SYNGENTA</b>	342	16%	35%
<b>DUPONT-PIONEER</b>	186	8%	43%
<b>RAGT</b>	135	6%	49%
<b>EURALIS</b>	115	5%	54%
<b>DESPREZ</b>	96	4%	58%
<b>MAISADOUR</b>	85	4%	62%
<b>CAUSSADE</b>	80	4%	66%
<b>MONSANTO</b>	74	3%	69%

**Source:** Elaboration by EP PolDep B, based on Gnis data.

In France, five companies **own more than half of the seed market**, which is in line with the fact that a consolidation process has taken place in this Member States.

### 1.4.3. At crop level

**Table 5: Concentration index (Herfindahl-Hirschman Index-HHI ) for some field crops markets in France**

	2006	2011
<b>Straw cereals</b>	271	326
<b>Maize-sorgho</b>	895	916
<b>Forrage crops</b>	939	859
<b>Sugar beets</b>	2391	<b>3353</b>
<b>Oilseeds</b>	894	<b>1908</b>
<b>Vegetable seeds</b>	957	<b>2019</b>
<b>Total</b>	280	541

**Source:** Fugeray-Scarbel and Lemarié, 2013 (to be published).

When market shares are calculated on the whole seed sector, this **may hide specific situations** on some crop markets.

For instance, table 2 shows that in **France, seed markets for the sugar beet, vegetables and oilseed crops are much more concentrated than the national market for field crops seeds** (a market with an HHI between 1000 and 1 800 is considered as moderately concentrated, while a market with an HHI of 1800 or higher is considered as concentrated)

<sup>3</sup> Annex 3 shows two examples of mergers in the seed sector that were allowed by the European Commission.

### 1.5. Other factors may limit competition on the seed market

**A single company may own a large number of brands, giving farmers the illusion of having the opportunity to buy from different companies.** For instance, Monsanto owns SEMINIS and DE RUITER in the vegetable seeds market, and DEKALB and ASGROW in the agricultural seeds market. As far as LIMAGRAIN is concerned, it owns HM CLAUSE and VILMORIN.

**Cross-licensing agreements**, in particular for transgenic seed traits have created a **network of relationships** between seed companies. These agreements have increased with the development of adding multiple transgenes in crops. As stated by MONSANTO in its 2012 annual report<sup>4</sup>: *"With the exception of competitors in our Seminis and De Ruiter vegetable seed business, **most of our seed competitors are also licensees of our germplasm or biotechnology traits**"* (p.6).

Another example is the license and cooperation agreement signed in 2011 between RAGT SEMENCES and BAYER CROPSCIENCE<sup>5</sup>, granting BAYER CROPSCIENCE access to winter wheat germplasm and associated molecular markers from RAGT. Furthermore, RAGT may license wheat traits from BAYER CROPSCIENCE.

The number of **agreements between companies** makes the **mapping of the sector extremely difficult** (see annex 4 for a mapping of the sector at the global level).

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<sup>4</sup> [Annual Report](#) / Monsanto, 110 p., 2012.

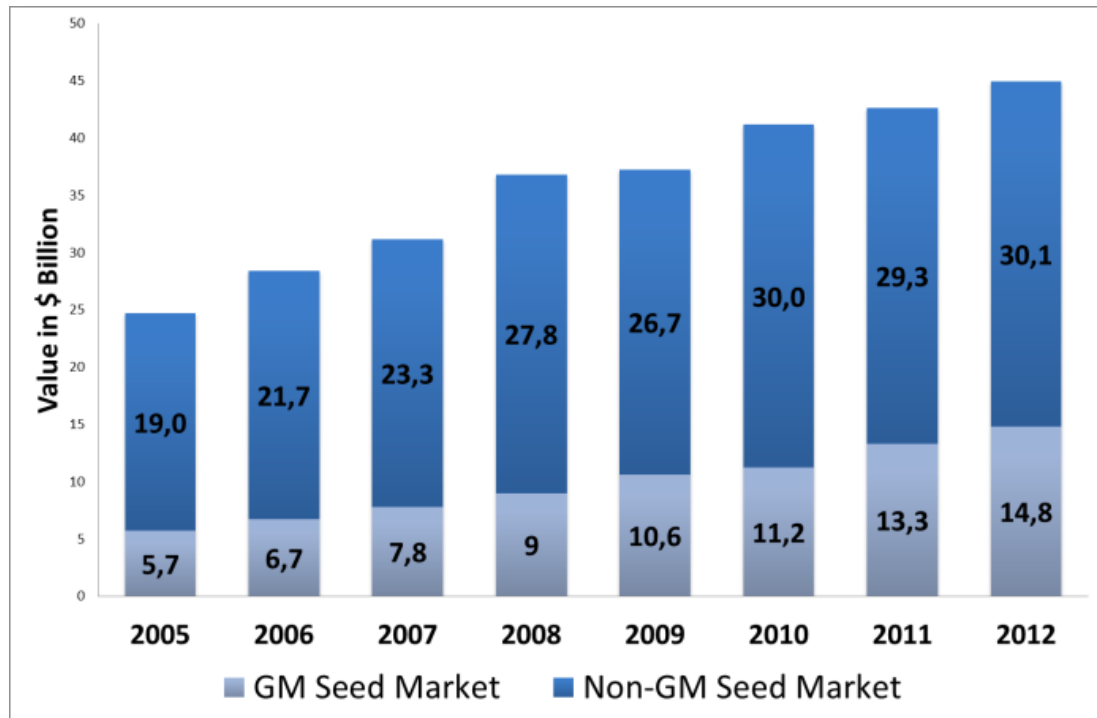
<sup>5</sup> [Bayer CropScience and RAGT Semences sign licensing and cooperation agreement for the improvement of wheat](#) / Press Release, 27 June 2011.



## 2. THE EU SEED AND PRM MARKET IN A GLOBAL PERSPECTIVE

### 2.1. The global seed market has been pulled by genetically modified (GM) seeds

Figure 5: The global seed market (\$ billion)



**Source:** Elaboration by EP PolDep B, based on [International Seed Federation](#) data (for total global seed market) and International Service for the Acquisition of Agri-biotech Applications ([ISAAA](#)) for the GM seed market.

The **global seed market has been expanding**: it has increased by **around 2.5 times since 1985**. According to the International Seed Federation (the leading global seed industry organization) (annex 1a), the value of the global seed market in 2012 reached around \$ 44.9 billion, i.e. **€ 35 billion** (revenues from commercial seed sales; does not include farm-saved seeds).

The global seed market is **pulled by GM field crops**, which have grown by 22% over the last five years (+5% for vegetable seeds and conventional field crops seeds).

Commercial **GM** crops have been **grown since 1996**. Since then, the **share of GM seeds in the global seeds market has been increasing**<sup>6</sup>. In 2012 the global GM seed market reached around \$ 14.8 billion (€ 11.5 billion), and GM seeds represented **one third of the value of the world seed market** (from 23% in 2005). Other estimates of the share of GM seeds in the global seed market reach even higher values: PhilipsMcDougall, consultants to the agribusiness industry, estimated that the share of the GM seed market was **45%** in 2011<sup>7</sup>; according to figures quoted by **VILMORIN, GM seeds represented nearly half of the global seed market in 2012 (49%)**<sup>8</sup>.

<sup>6</sup> GM crops represent an increasing share of acreages in the world. Moreover, GM seeds are generally sold at a higher price than conventional seeds.

<sup>7</sup> [R&D trends in Crop Protection](#) / PhilippsMcDougall, 2012.

<sup>8</sup> [Présentation des résultats annuels 2012-2013](#) / Vilmorin, 2013.

**Market drivers** for the seed market growth are **strong prices of agricultural products** (favouring demand for high-value seeds), **population** growth, greater **economic prosperity in emerging markets, GM traits** (generally sold at a higher price than conventional seeds), etc. These drivers are closely interlinked.

## **2.2. A crucial distinctive feature of the EU seed market: unlike the rest of the world, it has remained a conventional market (i.e. non GM)**

**In the EU, as GM cultivation remains marginal, the GM segment for seed companies on the EU market<sup>9</sup> remains extremely limited. One GM maize** (MON 810 from MONSANTO) is commercially cultivated in the EU, mainly in Spain (116 306 hectares in 2012), Portugal (9 278 hectares), Czech Republic (3 052 hectares), Romania (217 hectares) and Slovakia (189 hectares). These areas represent **1.3% of the area of maize cultivated in the EU**. Furthermore, nine Member States (Austria, Bulgaria, France, Greece, Germany, Hungary, Italy, Luxembourg and Poland) prohibited the cultivation of MON810 on their territories.

In 2010, a GM potato ("Amflora") was authorised for cultivation and industrial processing, but it has no longer been cultivated in the EU since 2011.

The case of MONSANTO illustrates well this situation: this company is highly involved in GM seeds at a global level, however **in the EU its seed business is almost entirely conventional**. In July 2013, MONSANTO announced that it would focus on its operations in the conventional seed business in Europe<sup>10</sup>, particularly in Eastern Europe, and would no longer be pursuing approvals for cultivation of new biotech crops in Europe (but would continue to sell MON810 maize, grown for animal feed).

In 2012, BASF announced that it would transfer its GM activities outside the EU and focus on GM markets in North and South America<sup>11</sup> (BASF moved its Plant Science headquarters from Germany to the United States), putting forward "*uncertainty in the regulatory environment*".

Several EU major seed companies, which **do not sell GM seeds in the EU**, are **increasingly involved in the GM business in third countries**: for instance, in May 2013 FLORIMOND DESPREZ and BIOCERES created a joint-venture, TRIGALL GENETICS<sup>12</sup>, aimed at developing and marketing (in 2016) GM wheat in South America. Moreover, KWS and LIMAGRAIN own a 50:50 joint-venture, AGRELIANT, which develops in particular GM corn for the North American market. AGRELIANT ranks n°3 on the corn market in the United States (market share: 7%).

At world level, **30% of canola, 35% of maize, 81% of cotton and 81% of soybeans** areas were planted with **GM in 2012<sup>13</sup>**.

Adoption rates may be higher in some countries: in the **United States**, adoption of GM crops reached **90% for cotton, 93% for soybeans and 90% for corn<sup>14</sup>**.

<sup>9</sup> However, the EU imports large amounts of GMOs (49 GMOs are authorised for food and feed use).

<sup>10</sup> [Monsanto's Business in Europe](#) / Monsanto Blog, 18 July 2013.

<sup>11</sup> [BASF to concentrate plant biotechnology activities on main markets in North and South America](#) / BASF, Press Release, 16 January 2012.

<sup>12</sup> [Florimond Desprez et Bioceres créent la société TRIGALL Genetics](#) / Press Release, 13 mai 2013.

<sup>13</sup> [International Service for the Acquisition of Agri-Biotech Applications](#)

<sup>14</sup> [Recent Trends in Adoption of Genetically Engineered Crops in the United States](#) / USDA, 2013.

In Argentina almost **100% soybean, 95% of corn, 100% of cotton** are GM.

In **Canada, 95% of canola, 65% of soybean and 71% of corn** are GM.

In **Brazil**, the adoption rate of GM crops was **88% for soybean, 88%** for winter **corn** crop and **65%** for the summer **corn** crop, and **50%** for cotton<sup>15</sup>.

### 2.3. Consolidation in the global seed market: the seed giants

**Table 6: Evolution of the market share of the biggest seed companies in the world<sup>16</sup>**

1985	\$M		1996	\$M		2009	\$M		2012	\$M	
COMPANY	Net sales	% of global seed market	COMPANY	Net sales	% of global seed market	COMPANY	Net sales	% of global seed market	COMPANY	Net sales	% of global seed market
PIONEER	735	4.1	PIONEER	1500	5.0	MONSANTO	7297	17.4	MONSANTO (USA)	9800	21.8
SANDOZ	290	1.6	NOVARTIS	900	3.0	DUPONT-PIONEER	4700	11.2	DUPONT-PIONEER (USA)	7000	15.5
DEKALB	201	1.1	LIMAGRAIN	650	2.2	SYNGENTA	2564	6.1	SYNGENTA (SWITZERLAND)	3200	7.1
UPJOHN-ASGROW	200	1.1	ADVANTA	460	1.5	LIMAGRAIN	1155	2.8	LIMAGRAIN (FRANCE)	1700	3.8
LIMAGRAIN	180	1.0	SEMINIS	375	1.3	KWS	920	2.2	WINFIELD (USA)	1300	3.5
SHELL NICKERSON	175	1.0	TAKII	320	1.1	BAYER	645	1.5	KWS (DENMARK)	1300	2.9
TAKII	175	1.0	SAKATA	300	1.0	DOW	635	1.5	DOW (USA)	1000	2.9
CIBA GEIGY	152	0.8	KWS	255	0.9	SAKATA	485	1.2	BAYER (GERMANY)	0.4	2.2
VANDERH AVE	150	0.8	DEKALB	250	0.8	LAND O'LAKES	?	?	SAKATA (JAPAN)	0.4	1
<b>Share in Global Seed Market (GSM)</b>		<b>12.5 %</b>			<b>16.7 %</b>			<b>&gt;44 %</b>			<b>62%</b>

**Source:** Elaboration by EP Policy Department B, based on [Schenkelaars et al.](#) 2011; Fugeray-Scarbel and Lemarié, 2013 (to be published); [Ducros et al.](#), 2013. Note: for 2011, **ETC Group** reached an even higher market share for the top ten companies (75.3%).

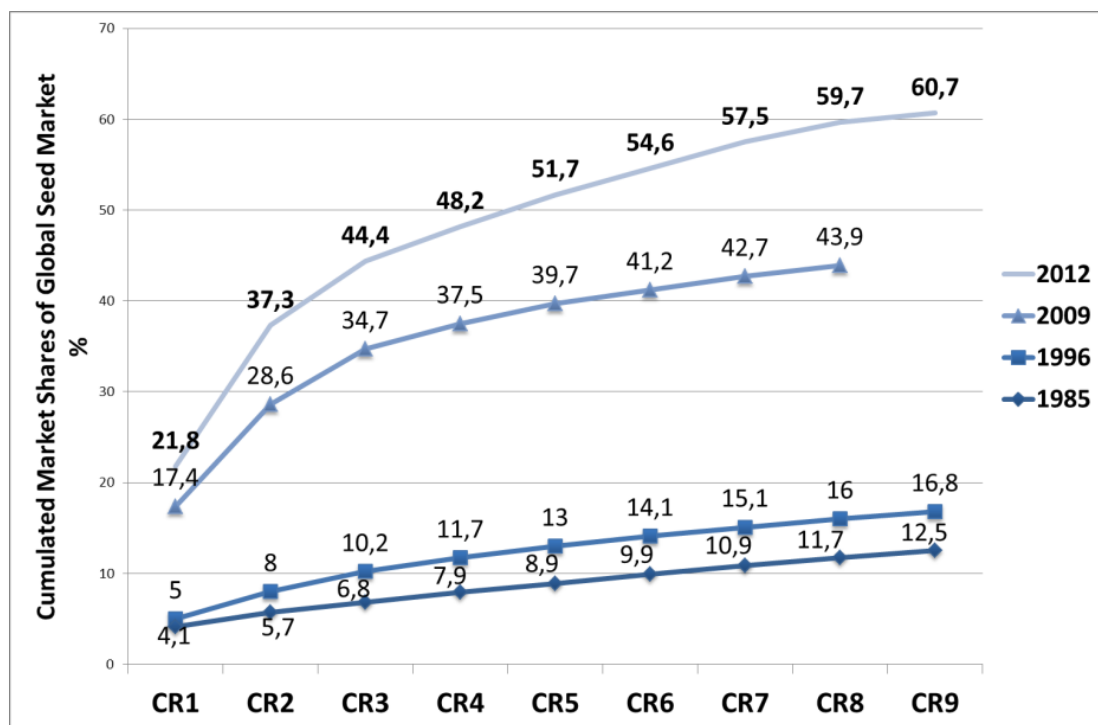
Among the global top ten seed companies, **five are based in Europe**, four are based in the EU and one in Switzerland (table 6). The global market is dominated by **a few large companies, also active in the agrochemical sector**.

<sup>15</sup> USDA'S Global Agriculture Information Network (GAIN).

<sup>16</sup> According to [ETC Group](#) (September 2013), the top ten worldwide companies in the fertilisers sector have a global market share of 41% and 94.5% in the pesticides sector.

Figure 6 below shows in a dynamic way the consolidation process in the global seed industry.

**Figure 6: Evolution of the consolidation process in the global seed industry**



**Source:** Own elaboration based on [Schenkelaars et al.](#), 2011; Fugerey-Scarbel and Lemarié, 2013 (to be published); [Ducros et al.](#), 2013. "CR3" stands for "Concentration Ratio" (cumulated market shares): the cumulated market share of the top two seed firms is CR2, of the top three CR3, etc.

## 2.4. Consolidation in the global vegetable seeds market

In its annual report for 2011-2012, VILMORIN points to **a series of consolidation movements** in the past few years in the **global vegetable seeds sector**, which has **reinforced the main market actors**. The **first six companies now represent around 50%** of the global market for vegetable seeds.



**Table 7: Estimation of companies market shares on the global vegetable seeds market**

Company	Country	Turnover (vegetable seeds, in € million)	Estimated global market share	Cumulated market shares
<b>MONSANTO</b>	United States	655	14%	14%
<b>VILMORIN (Limagrain Group)</b>	France	527	11%	25%
<b>SYNGENTA</b>	Switzerland	468	10%	35%
<b>NUNHEMS (Bayer Crop Science)</b>	Germany	299	6%	41%
<b>RIJK ZWAAN</b>	The Netherlands	229	5%	46%
<b>SAKATA</b>	Japan	220	5%	51%
<b>Other companies*</b>		2400		
<b>Total world market for vegetable seeds*</b>		<b>4800</b>		

**Source:** Elaboration by EP Policy Department B, based on data from VILMORIN, [Annual report 2012](#). \*: "Other companies" and "Total world market for vegetable seeds" were estimated based on information from VILMORIN.

## 2.5. A profitable sector: some examples

In October 2013, DUPONT announced that it would split into two companies, giving up a major segment (performance chemicals) but **keeping the seed business**<sup>17</sup>, considered as a **higher-growth area**.

For example, in the Netherlands **vegetable breeders** are reported to achieve a **net profit margin of 15%**, much higher than the level reached by other companies in the agricultural chain<sup>18</sup>.

<sup>17</sup> [DuPont to Split Into 2 as It Plans to Spin Off a Major Segment](#) / Gelles, Deal Book, New York Times, 24 October 2013.

<sup>18</sup> [Plant reproduction materials, a Dutch motor for export and innovation](#) / LEI Wageningen, Bakker et al., 23 p., 2012

### Box 1: "This is a fabulous business"

Interview of Mr Jai Shroff, Global CEO of United Phosphorus Limited (UPL). UPL owns ADVANTA, a global seed company selling in six continents, including in Europe.

*"Since 2006, we have further diversified with our entry into the seeds business, by acquiring ADVANTA. Obviously, we realised this was an area that could generate future value, and we had been looking at the industry for five years when the opportunity to acquire ADVANTA came up. We decided to enter the bidding process and see if the business model would fit with our model. We saw it could be interesting but difficult; we even questioned whether we should go ahead because we were competing against some of the biggest industry names, and we were a smaller business then. As it has turned out, **this is a fabulous business**. It's not often you get really good assets like that, and valuations have since risen. ADVANTA has grown threefold since we bought it and clearly has the potential to grow 10 times that."*

Source: [McKinsey on Chemicals - Number 4 - Spring 2012](#)

## 2.6. Perspectives

According to **industry analysis**<sup>19</sup>, the **global seed market will continue its growth** to over \$60 billion in 2020, due to **improved seed quality**, hybridisation and **further penetration of GM crops** in the world.

It is generally believed that the **tendency towards more consolidation in the global seed industry will continue**.

The level of **investment** required, the **quality of genetic resources and breeding experience needed** represent some of the high barriers to entry in the seed market for new companies.

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<sup>19</sup> [Our Industry](#) / Syngenta, 82 p., 2013.

## ANNEXES

### ANNEX 1: Domestic Seed Markets

#### ANNEX 1a: A Global Perspective: Sizes of Domestic Seed Markets in the World (in € million)

Country	2005	2006	2007	2008	2009	2010	2011	2012	Market Share (2012)
United States	4 582	5 575	6 202	8 159	8 603	9 052	8 621	9 340	27%
China	2 411	3 584	2 919	4 079	4 302	7 166	6 490	7 744	22%
<b>EU</b>	<b>4 903</b>	<b>4 972</b>	<b>5 839</b>	<b>5 849</b>	<b>6 511</b>	<b>6 974</b>	<b>6 968</b>	<b>7 106</b>	<b>20%</b>
Brazil	965	1 195	1 459	1 360	1 434	1 509	1 886	2 043	6%
Canada	442	438	401	374	394	415	395	1 650	5%
India	482	1 035	1 094	1 020	1 075	1 509	1 437	1 557	4%
Japan	2 009	1 991	1 094	816	896	1 056	1 114	1 051	3%
Argentina	748	741	693	501	498	453	542	771	2%
Turkey	137	199	255	255	287	302	287	584	2%
Rest of the world	3 148	2 870	2 752	2 599	2 709	2 619	2 888	3 121	9%
<b>Total</b>	<b>19 827</b>	<b>22 600</b>	<b>22 711</b>	<b>25 012</b>	<b>26 710</b>	<b>31 054</b>	<b>30 626</b>	<b>34 967</b>	<b>100%</b>

**Source:** PolDep B elaboration based on data received from the International Seed Federation. The data includes field crops, vegetable and flower seeds for planting, which are sold to end users. Seed potatoes are not included. Market values were converted from US dollars to euros using annual exchange rates retrieved from the Eurostat database.

### ANNEX 1b: A European Perspective: Sizes of Domestic Seed Markets in the EU (in € million)

Member States	2005	2006	2007	2008	2009	2010	2011	2012	Share of EU Market (2012)
France	1 101	1 537	1 532	2 040	2 294	2 338	2 586	2 179	31%
Germany	804	796	673	628	811	951	841	911	13%
Italy	522	621	730	510	513	588	514	597	8%
Spain	241	239	328	306	323	339	323	514	7%
Netherlands	241	166	219	204	384	441	420	459	6%
United Kingdom	458	205	292	272	287	302	323	350	5%
Czech Republic	121	159	219	204	215	226	219	237	3%
Hungary	161	159	219	204	215	226	216	233	3%
Poland	322	207	255	238	186	196	187	218	3%
Sweden	161	123	175	163	172	181	180	195	3%
Romania			161	150	158	166	158	171	2%
Denmark	161	135	182	136	118	140	165	170	2%
Greece	113	112	175	163	172	181	172	156	2%
Belgium	104	104	139	129	133	140	133	144	2%
Finland	64	82	117	109	115	121	115	125	2%
Austria	137	135	109	102	108	113	108	113	2%
Bulgaria			88	82	86	91	86	93	1%
Slovakia	72	72	80	75	79	83	79	86	1%
Ireland	48	48	58	54	57	60	57	62	1%
Portugal	48	48	58	54	57	60	57	62	1%
Slovenia	24	24	29	27	29	30	29	31	0%
<b>TOTAL EU</b>	<b>4 903</b>	<b>4 972</b>	<b>5 839</b>	<b>5 849</b>	<b>6 511</b>	<b>6 974</b>	<b>6 968</b>	<b>7 106</b>	<b>100%</b>

**Source:** PolDep B elaboration based on data received from the International Seed Federation. The data includes field crops, vegetable and flower seeds for planting, which are sold to end users. Seed potatoes are not included. Market values were converted from US dollars to euros using annual exchange rates retrieved from the Eurostat database.

## **ANNEX 2: Definition of Small and medium-sized enterprises (as in EU law: EU recommendation 2003/361)**

<b>Company category</b>	<b>Employees</b>	<b>Turnover</b>	<b>or</b>	<b>Balance sheet total</b>
<b>Medium-sized</b>	< 250	≤ € 50 m		≤ € 43 m
<b>Small</b>	< 50	≤ € 10 m		≤ € 10 m
<b>Micro</b>	< 10	≤ € 2 m		≤ € 2 m

**Source:** <http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/>

### **ANNEX 3: Examples of mergers in the seed sector authorised by the European Commission**

**In November 2010, the European Commission cleared SYNGENTA's acquisition of MONSANTO's sunflower seed business, subject to conditions. [IP/10/1515](#).**

*"The decision is conditional upon the divestment of Monsanto's sunflower hybrids, commercialised or under official trial in Spain and Hungary, as well as the parental lines used in the creation of those hybrids or currently under development for the creation of hybrids for Spain and Hungary. This is because the in-depth investigation confirmed the Commission's concerns with respect to the commercialisation of sunflower seeds in Spain and Hungary, where the transaction would have removed a considerable and innovative competitor to Syngenta, reinforcing the latter's market leader position. The transaction also raised concerns with regards to the activities of exchange and licensing of sunflower varieties, insofar as the merging parties would be in a position to restrict the access of competitors to input necessary for the commercialisation of sunflower seeds. In light of the commitments, the Commission concluded that the transaction would not significantly impede effective competition in the internal market or any substantial part of it."*

**In July 2000, the European Commission authorised the merger of agrochemical businesses of ASTRAZENECA and NOVARTIS, subject to substantial divestitures. [IP/00/844](#).**

*"The European Commission has authorised the merger between the agrochemical businesses of Anglo-Swedish firm AstraZeneca Plc and Novartis AG of Switzerland to form Syngenta, the world's leading crop protection business. Regulatory approval is subject to a number of divestments offered by the companies to address concerns about the creation or strengthening of dominant positions on 39 markets for crop protection products, including cereal fungicides and maize herbicides. The commitments offered represent total sales worldwide in excess of €250 million this year and a potential € 500 million in the near future, of which more than half in Europe."*

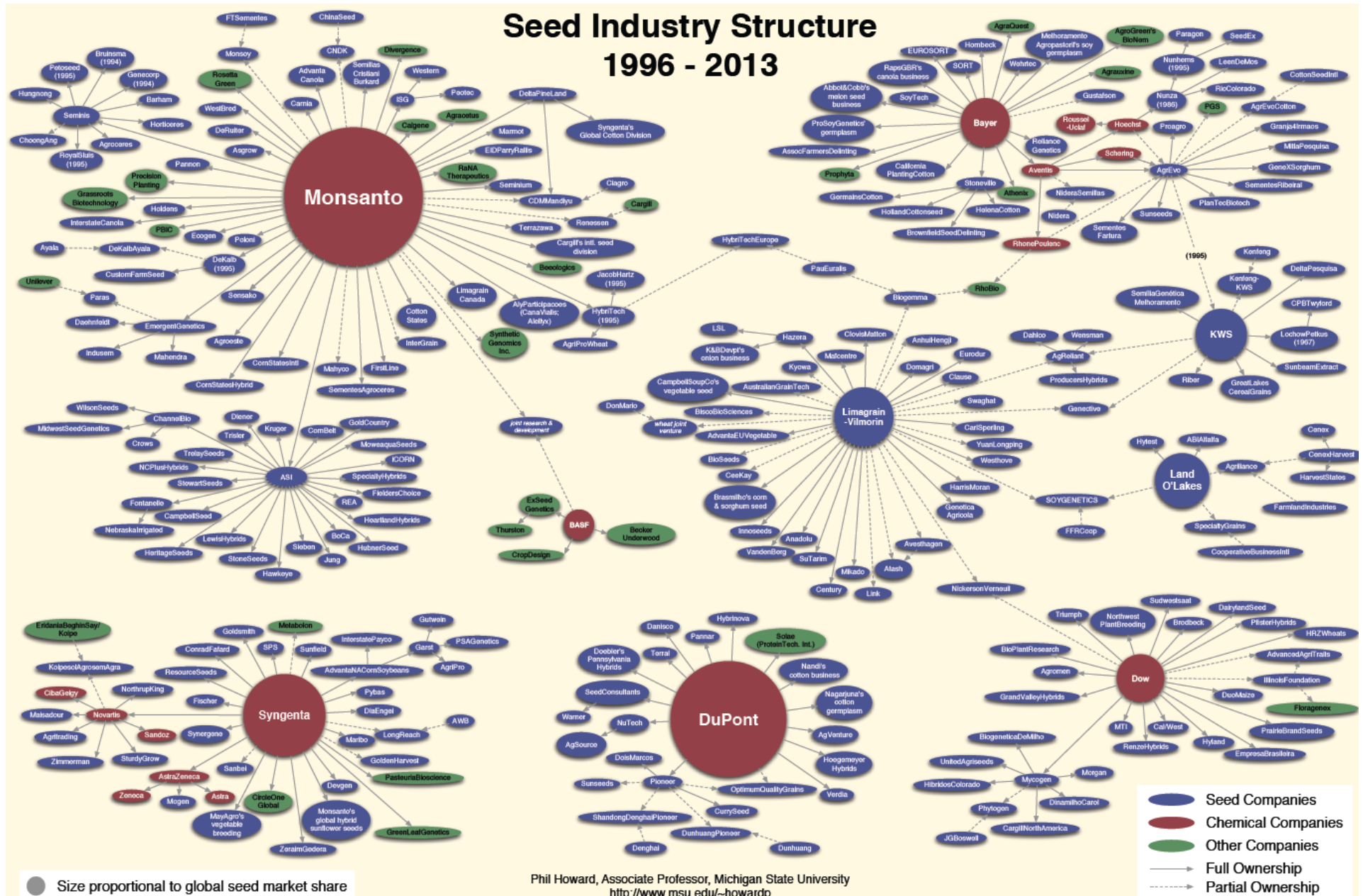
## **ANNEX 4: Global Seed industry Structure, 1996-2013**

*"The chart below depicts changes in **ownership involving major seed companies** and their subsidiaries, primarily occurring from 1996 to 2013. The largest firms are represented as circles, with size proportional to global commercial seed market share.*

*A digital version is available at [this URL](#). Each firm or subsidiary is represented as a circle, and ownership connections, whether full or partial, are represented as gray lines. Pharmaceutical/chemical companies are coloured red, seed companies are coloured blue, and other companies, such as biotechnology firms, are coloured yellow".*











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