



RAFI

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World Seed Conference: Shrinking Club of Industry Giants Gather for Wake or Pep Rally?


RAFI Releases Newly Updated *Seed Industry Giants: Who Owns Whom?*

An inauspicious gathering of the 1999 World Seed Conference takes place 6-8 September in Cambridge UK to mark the 75th anniversary of the international seed trade. RAFI takes this opportunity to release its 1999 update on seed industry consolidation. A shrinking number of colossal companies – the Gene Giants - dominate global sales of seeds, agrochemicals and pharmaceuticals. “Given the dramatic rate of consolidation in the global seed trade, membership is evaporating and all of the seed industry CEO’s could probably meet for a weenie roast on someone’s patio,” remarks Pat Mooney, Executive Director of RAFI, who is among the featured speakers at next week’s World Seed Conference.

According to RAFI, the top five Gene Giants (AstaZeneca, DuPont, Monsanto, Novartis, and Aventis) account for nearly two-thirds of the global pesticide market (60%), almost one-quarter (23%) of the commercial seed market, and virtually 100% of the transgenic (genetically modified) seed market. “The Gene Giants’ portfolio extends far beyond plant breeding,” explains Mooney, “From plants to animals, to human genetic material the Gene Giants are fast becoming monopoly monarchs over all the life kingdoms,” said Mooney. Five years ago, none of top five Gene Giants appeared on the list of leading seed corporations. In fact, three of the top five companies didn’t even exist (Zeneca + Astra merged to form AstraZeneca; Rhone Poulenc + Hoechst became Aventis; Ciba Geigy + Sandoz became Novartis. DuPont swallowed Pioneer Hi-Bred earlier this year).

A few short years ago, many would have predicted that the 1999 World Seed Conference would be a gala event to reap the profits and promise of genetically modified (GM) seeds. After all, sales of transgenic seeds grew twenty-fold from 1995-1998; analysts predicted industry revenues would surpass \$3 billion in 2000 and explode to \$25 billion in 2010. But much has changed in the past year. The Cambridge gathering is rapidly taking on the trappings of a wake, and the group might forego their patio picnic to hunker down in a bunker instead. The civil society organizations who plan to protest in Cambridge under the banner “Seeds of Resistance,” will reinforce the message that GMOs are under siege.

Seed Industry Top 10

 Company	Seed Sales (US) Millions - 1998
DuPont (USA)	\$1,835+
Monsanto (USA)	\$1,800 (estimate)
Novartis(Switzerland)	\$1,000
Groupe Limagrain (France)	\$733
Savia S.A. de C.V. (Mexico)	\$428
AstraZeneca (UK and Neth.)	\$412
KWS (Germany)	\$370
AgriBiotech, Inc. (USA)	\$370
Sakata (Japan)	\$349
Takii (Japan)	\$300 (estimate)

Top 10 Agrochemical Companies

Company	Pesticide Sales (US) Millions 1998
Aventis (Germany)	\$4,676
Novartis (Switzerland)	\$4,152
Monsanto (USA)	\$4,032
DuPont (USA)	\$3,156
AstraZeneca (UK and Neth.)	\$2,897
Bayer (Germany)	\$2,273
American Home Products	\$2,194
Dow (USA)	\$2,132
BASF (Germany)	\$1,945
Makhteshim-Agan (Israel)	\$801

Source: RAFI and Agrow No. 335 August 27 1999. Note: 1998 sales figures were not available for some seed companies

In the words of U.S. Secretary of Agriculture Dan Glickman,, opposition to genetically engineered foods and seeds, once confined to Europe, has spread like “an infectious disease.” The list of food processors, retailers, farmers,

consumers, and governments who give a thumbs down to GMOs is mushrooming. Earlier this year, the world's largest food processors, Unilever and Nestle, said they would reject GM ingredients in their European products. Europe's largest grocery store chains followed suit. Last week, Japanese brewers, Kirin and Sapporo, announced they would begin using only non-genetically engineered maize to brew their beer. The Japanese government now requires companies to label genetically engineered products.

In the dog house: Mexico's biggest tortilla maker, Grupo Maseca, says it will stop importing genetically modified grain. After Greenpeace disclosed that commercial baby food contains GMOs, U.S.-based Gerber (Novartis) and H.J. Heinz vowed to reject genetically engineered corn and soya. Adding insult to injury, U.S. pet food company Iams recently announced that GMO maize isn't acceptable for dog food!

A federal judge in Brazil, the world's second largest exporter of soybeans, barred the planting of GM soybeans until environmental impact assessments are prepared. The Brazilian state of Rio Grande do Sul has declared itself a GM-free state.

Farmers Defecting: Peasants and farmers worldwide, from France to India to Brazil have successfully protested the introduction of GM seeds. Now, even U.S. farmers may be defecting from a genetically modified future. A Deutsche Bank study entitled "GMOs Are Dead" sent tremors through the international investment community with its prediction in May, 1999 that price premiums for GMO seeds could collapse. In a desperate attempt to rescue a sinking ship, Deutsche Bank reports that Monsanto began offering free RoundUp herbicide to farmers who use the company's new RoundUp Ready (herbicide tolerant) maize seed.

In growing numbers, American farmers resent being guinea pigs for GMO crops that nobody wants to buy or eat. An uncharacteristically bold press release issued by the American Corn Growers Association last week said that "GMOs have become the albatross around the neck of farmers" and urged its members to plant non-GM seed. The Corn Growers struck at the guts of the issue when it asked, "How does the monopolistic practice of a handful of companies controlling the entire GMO process effect the future of U.S. food production?" <http://www.acga.org>

Reaping what you sow: "It's too soon to declare that GMOs are dead," cautions RAFI's Hope Shand. The fight for food is just beginning. The Gene Giants may soon become bargain buys for bigger fish – the food processors or insurance companies. "When Terminator technology was unveiled 18 months ago, we were all shocked by the extravagance of corporate greed and the specter of self-destructing, suicide seeds. Now, GMO markets are self-destructing. Maybe the Gene Giants are reaping what they sow," said Shand.

Consolidation: Vital Statistics

- The top 10 seed companies control approximately 33% of the \$23 billion seed trade worldwide.
- The top 3 seed companies (DuPont, Monsanto, Novartis) account for 20% of the global seed trade.
- The top 10 agrochemical companies control 91% of the \$31 billion agrochemical market.
- The top 5 Gene Giants (AstraZeneca, DuPont, Monsanto, Novartis and Aventis) account for nearly two-thirds of the global pesticide market (60%), almost one-quarter (23%) of the global seed market, and virtually 100% of the transgenic seed market.

RAFI's newly updated chart, *Seed Industry Consolidation: Who Owns Whom?* will be available on RAFI's web site, <http://www.rafi.org>

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RAFI, the Rural Advancement Foundation International, is an international civil society organization headquartered in Canada. RAFI is dedicated to the conservation and sustainable use of biodiversity, and to the socially responsible development of technologies useful to rural societies. RAFI is concerned about the loss of agricultural biodiversity, and the impact of intellectual property on farmers and food security.



The Seed Giants --Who Owns Whom?

September, 1999 Update

Parent Company	Subsidiaries	Comment
Advanta (UK) see AstraZeneca		
AgrEvo (German) see Aventis		
Agribiotech, Inc. (USA)	<ul style="list-style-type: none"> • Peterson Seed Co. • Geo. W. Hill & Co. • Fine Lawn Research, Inc. • Willamette Seed Co. • Kinder Seed Inc. • Olsen-Fennell • W-L Research • Burlingham • Germain's • Clark Seeds • Lofts Seed • Great Western • Green Seed • Sunbelt • Budd • Sexauer • Halsey Seed Co. • Seed Mart Inc. • Arnold-Thomas • Beachley-Hardy • Seed Resource Inc. • Hobart Seed • Sphar Seed • Scott Seed Co. • Seed Corp. of America • Seed Resource • Seedbiotics • LaCrosse Seed Corp. • Azjac Performance Seed • Ohio Seed Co. • Van Dyke Seed Co. • Kinder Seed, Inc. • J&M Seed Co. • Oseco, Inc. • Allied Seed Co. • Willamette Seed Co. 	The company's goal is to achieve 45% market share in forage and turfgrass by the year 2000. The company has completed 34 acquisitions since January, 1995. With 1998 annual revenues of \$370 million, Agribiotech ranks 8 th largest seed company in the world. The company had no seed-related interests prior to December, 1994.
Anheuser-Busch (USA)	<ul style="list-style-type: none"> • Busch Agricultural Resources 	Major US brewery and food corporation.
AstraZeneca (Sweden and UK)	<ul style="list-style-type: none"> Advanta • AgriPro • VanderHave • Garst • ICI Seeds 	In 1999 Zeneca Group and Astra A.B. became AstraZeneca. Advanta is the 6th largest seed company in the world, with 1998 annual sales of US \$412 million.

Parent Company	Subsidiaries	Comment
	<ul style="list-style-type: none"> • Interstate Payco • Olds Seed • Michigan State Seeds • Advanta Seed West • Shamrock Seed • Zenco • Mogen • Sharpes International 	
Aventis (Germany) (Hoechst + Rhone Poulenc)	<ul style="list-style-type: none"> • AgrEvo • Plant Genetic Systems • Nunhems • Sunseeds • Cannon Roth • Pioneer Vegetable Genetics • Dessert Seed • Castle Seed • Keystone Seed • AgrEvo Cotton Seed Intl. (Australia) • Sementes Ribeiral (Brazil) • Mitla Pesquisa Agricola (Brazil) • Sementes Fartura (Brazil) • Granja 4 Irmaos (Brazil) 	AgrEvo was formerly owned by Hoechst and Schering. In 1999, Hoechst and Rhone Poulenc merged to form Aventis. Nunhems is #4 ranking vegetable seed company in the world. AgrEvo had 1998 seed revenues of \$134 million.
Ball Horticultural. (USA)	<ul style="list-style-type: none"> • Pan American Seeds • Ball Seeds • ColorLink • Seed Technology • Linda Vista (Costa Rica) • Vegmo Plant (Netherlands) 	
Barenbrug Holding B.V. (The Netherlands)	<ul style="list-style-type: none"> • Barenbrug Belgium • Barenbrug China RO • Barenbrug France • Barenbrug Holland BV • Barenbrug Luxembourg • Barenbrug Polska • Barenbrug South East • Barenbrug UK • Barenbrug USA • Garfield Williamson; called Barenbrug North East • Barenbrug Production • Heritage Seeds Pty • Modern Forage Systems Inc • New Zealand Agriseeds • Palaversich y Cia (Argentina) 	Barenbrug had 1997 revenues of approximately \$200 million. The company is privately-held.
BASF (Germany) (see separate listing for Svalöf Weibull)	<ul style="list-style-type: none"> • Svalöf Weibull (Sweden) • SunGene (Germany) • Metanomics 	In 1998 BASF acquired a 40% stake in Svalöf Weibull (Sweden) and founded plant biotech breeding companies Metanomics and SunGene in Germany.
Bayer (Germany) (Germany)	<ul style="list-style-type: none"> • Gustafson (50% stake in seed treatment business) 	Bayer's Crop Protection Business Group acquires 50% stake in the seed treatment business of Gustafson (USA).
Cargill (USA)	<ul style="list-style-type: none"> • Cargill Hybrid Seeds 	In 1998, Monsanto acquired Cargill's international seed business. In September 1998 AgrEvo (Aventis) announced that it would acquire Cargill's North American seed business for \$650 million. AgrEvo

Parent Company	Subsidiaries	Comment
		abruptly cancelled the deal when Pioneer Hi-Bred accused Cargill of misappropriating Pioneer germplasm.
Cebeco-Handelsraad (The Netherlands)	<ul style="list-style-type: none"> • Cebeco Saaten GMBH • Cebeco Seeds S.R.O. • Cebeco-Verneuil GMBH & Co. KG • Cebeco Zaden B.V. • International Seeds, Inc. • La Maison Des Gazons S.A. • N.V. Zaden Van Engelen S.A. • Oliver Seeds Ltd. • Proco Sem S.A. • Seed Innovations Ltd. • Wiboltt Fro A/S 	Cebeco Agricultural Seeds Group is a subsidiary of Cebeco-Handelsraad. 1997 seed revenues: \$225 million US
Central Garden & Pet (USA)	<ul style="list-style-type: none"> • Pennington Seeds • Seeds West • Bio-Plus • Mid-South Seeds 	Central Garden & Pet is a major seller of lawn and garden supplies in the USA, with sales of approximately \$830 million. Pennington Seeds and seed subsidiaries are recent acquisitions.
ConAgra (USA)	<ul style="list-style-type: none"> • United AgriProducts • Helm Bean & Seed 	ConAgra is one of the world's largest food corporations.
Dow (USA)	<p>Mycogen</p> <ul style="list-style-type: none"> • Agrigenetics • United Agriseeds • Morgan Seeds (Argentina) • Kelten & Lynks • Delta & Pine Land (corn & sorghum only) • Dinamilho Carol Productos (Brazil) • Híbridos Colorado Ltda. (Brazil) • FT Biogenética de Milho (Brazil) • Phytogen (w/J.G. Boswell) 	Mycogen and its subsidiaries had 1997 seed revenues of \$162 million. Mycogen has 35% stake in Verneuil, French seed co. with sales of approx. \$80 million In Sept., 1998 Dow takes a 10% stake in Illinois Foundation Seeds (Champaign, IL), a corn germplasm and seed company. Illinois Foundation Seeds will hold a 16.4% stake in a company being set up by Dow called Advanced AgriTraits.
DuPont (USA) Dupont continued	<ul style="list-style-type: none"> • Pioneer Hi-Bred Intl.. Operates on every crop producing continent. Markets hybrid maize in nearly 100 countries worldwide (also sorghum, sunflower, soybean, alfalfa, canola, wheat). • Hybrinvoa, S.A., France (hybrid wheat subsidiary) • Dois Marcos (Brazil) 	In early 1999 DuPont paid \$7.7 billion to acquire the rest of Pioneer Hi-Bred Intl. DuPont is now the world's largest seed company, with seed revenues in excess of \$1.8 billion.
George Ball Jr. (USA)	<ul style="list-style-type: none"> • W. Atlee Burpee 	George Ball Jr. was spun off from Ball Horticultural and became separate company.
Golden Harvest (USA)		Approximately \$75 million annual seed revenues, primarily maize and soybeans.
Goldkist (USA)	<ul style="list-style-type: none"> • Agratech 	Goldkist is a major poultry integrator in the US.
Goldsmith Seeds	<ul style="list-style-type: none"> • Resource Seeds 	Largest flower seed business in the US.

Parent Company	Subsidiaries	Comment
(USA)		
Grupo Pulsar/Empresas La Moderna/Seminis (Mexico) (see Savia S.a. de C.V.)		
Hicks, Muse, Tate & Furst, Inc./ Emergent Genetics (USA)	<ul style="list-style-type: none"> • Stoneville Pedigreed • L. Daehnfeldt (Netherlands) • Indusem (Chile) 	Hicks, Muse, Tate & Furst is an investment firm established in 1989.
J.R. Simplot Co. (USA)	<ul style="list-style-type: none"> • Jacklin Seed Co. • Medalist America Turfgrass • JacklinGolf 	Simplot is privately-held agribusiness company with annual sales of \$2.8 billion.
KWS SAAT AG (Germany)	<ul style="list-style-type: none"> • Agrar Consulting GMBH (Germany) • Betamag Vetomag KFT (Hungary) • Betaseed Inc. (USA) • Cambridge Plant Breeders Twyford Ltd (UK) • Great Lakes Hybrids Inc (USA) • Interagrarkooperation GMBH (Germany) • Intersaat AG (Germany) • KWS Austria Saatzucht Gesellschaft MBH (Austria) • KWS Benelux BV (Netherlands) • KWS Chile Ltda (Chile) • KWS France SARL (France) • KWS Italia SPA (Italy) • KWS Polska SPZOO (Poland) • KWS Seeds Inc (USA) • KWS Semena SRO (Slovakia) • KWS Semences SARL (France) • Lochow-Petkus France SARL (France) • Lochow-Petkus GmBH (Germany) • Lochow-Petkus Polska SPZOO (Poland) • Mod Management Organisation Und Datenverarbeitung Consulting GMBH (Germany) • Pan Tohum Islah Ve Uretme AS (Turkey) • Peragis Saatzucht Und Handels-Gesellschaft MBH (Germany) • Planta Angewandte Pflanzengenetik Und Biotechnologie GMBH (Germany) • Ragis Kartoffelzucht Und Handels-Gesellschaft MBH (Germany) • Razes Hybrides SARL (France) • Saka-Ragis Pflanzenzucht GBR (Germany) • Semena AG (Switzerland) 	KWS seed revenues (1997/98) were US \$370 million. It is 7th ranking seed company in the world, AgrEvo (Aventis) has 12% stake in KWS.
KWS continued		

Parent Company	Subsidiaries	Comment
	<ul style="list-style-type: none"> • Semillas Seleccionadas De Remolacha SA (Spain) • Societe Des Mais Europeens SARL (France) 	
Landec (USA)	<ul style="list-style-type: none"> • Intellicoat • Fielder's Choice 	
Limagrain (France)	<ul style="list-style-type: none"> • Akin (USA) • Akin Callahan (USA) • Auvergne Creations (France) • Belloy (France) • Biocem (France) • Biocem Lab. De Biologie Moleculaire (France) • Biocem Lab. De technologies des semences (France) • Biogemma (France) • Biogemma les Cezeaux (France) • Biogemma Toulouse (France) • Biotechnical/LG Seeds (USA) • Ble Or (France) • Cave St. VERNY (France) • Clause (UK) • Clause Semences (France) • Cooperative Limagrain (France) • Elidia (France) • Ferry Morse (USA) • Force Limagrain (France) • GBC Jacquet (France) • Groupe Limagrain Holding (France) • Harris Moran (USA) • Jacquet Belgique (Belgium) • Jacquet Cereales Technologies (France) • King Agro (Canada) • Limagrain Canada Seeds (Canada) • Limagrain Genetics Grandes Cultures (France) • Limagrain Genetics Research (USA) • M.C. Technologies (France) • Maicentre (France) • Mais Angevin (France) • Meristem Therapeutics (France) • Mu Laboratoire (France) • Nickerson Biocem (UK) • Nickerson International Research GIE (France) • Nickerson S.A. (France) • Nickerson Seeds (UK) • Nickerson Zwaan Ltd. (UK) • Oxadis (France) • Pain Jacquet (France) • Progalim (France) • Sapa/Dafa Associes (France) • Selia (France) • Semillas Limagrain de Chile (Chile) • Suttons (UK) • Tezier (France) 	<p>Limagrain is a French cooperative; the 4th largest seed company in the world and the world's largest vegetable seed company. The company's 1998 seed revenues were \$733 million.</p>
Limagrain continued		

Parent Company	Subsidiaries	Comment
	<ul style="list-style-type: none"> • ULICE (France) • Valgrain (France) • Vilmorin (France) • Vilmorin (USA) • Vilmorin & Cie (France) 	
M&M-Mars, Inc.	<ul style="list-style-type: none"> • Seeds of Change 	Food giant acquires small, organic seed company in New Mexico.
Marubeni (Japan)	<ul style="list-style-type: none"> • Helena Chemical Co. • Hyperformer Seeds 	
Monsanto (USA)	<ul style="list-style-type: none"> • Asgrow (soybean & corn) • Holden's Foundation • Jacob Hartz • Hybritech • Calgene • Agracetus • Plant Genetics Inc. • Ameri-Can Pedigreed • Monsoy (Brazil) • First Line Seeds (Canada) • Plant Breeding Intl. (UK) • Forage Genetics Inc. (collaborative agreement) • Agroceres (Brazil) <p>Cargill's intl. seed division Dekalb Genetics (USA)</p> <ul style="list-style-type: none"> • Custom Farm Seed <p>Delta & Pine Land</p> <ul style="list-style-type: none"> • Ellis Brothers Seed • Arizona Processing • Mississippi Seed Co. • Hartz Cotton • Sure Grow Seeds • CDM Mandiy 	<p>Monsanto is the 2nd largest seed corporation in the world, with seed revenues estimated at \$1.8 billion.</p> <p>Monsanto's takeover of Delta & Pine Land is still undergoing review by the US Dept. of Justice.</p>
Monsanto continued		
Novartis (Switzerland)	<ul style="list-style-type: none"> • Northup King • Rogers NK Seed • Rogers Seed Co. • Sluis & Groot (S&G) • Funk Seeds Intl. • Vaughn Seeds • Gallatin Valley • Hillehog • Sturdy Grow Hybrids • Agritrading (Italy) • American Sunmelon (US) • Wilson Seeds (50% stake; co-owned w/ Land O'Lake) • Eridania Beghin-Say (France) • Agra (Italy) • Agrosem (France) • Koipesol Semillas (Spain) 	Swiss giants Sandoz and Ciba-Geigy merged in 1996 creating Novartis. With 1997 sales of (US) \$998 million, Novartis is the world's third largest seed company.
Pickseed Group (Canada)	<ul style="list-style-type: none"> • Pickseed Canada Inc. • Mapleseed Inc.(Canada) • Pickseed West, Inc. (US) • Robert's Seed Co. (US) 	
Sakata Seed Corp. (Japan)	<ul style="list-style-type: none"> • Agroflora SA (Brasil) • Chung Won Seed Co. Ltrd. (Korea) • Sakata Centroamerica SA (Costa Rica) • Sakata de Mexico, SA 	Ranks 8th largest seed company in the world. 1996/97 annual sales (US) \$349 million.

Parent Company	Subsidiaries	Comment
	<ul style="list-style-type: none"> • Sakata Seed do Brasil Ltda • Sakata Seed Chile SA • Sakata Seed Europe BV (Holland) • Sakata Seed France SARL • Sakata Seed Iberica SL (Spain) • Sakata Seed NZ Ltd (New Zealand) • Sakata Siam Seed Co. Ltd. (Thailand) • Samuel Yates (UK) 	
Savia S.A. de C.V. (Mexico) Savia continued	<ul style="list-style-type: none"> • Seminis Inc. • Royal Sluis • Petoseed • Asgrow-Bruinisma • Incotec International • Genecorp • Bionova • DNA Plant Technology • FreshWorld • Nath Sluis (India) • Hungnong Seed Co. (S. Korea) • ChoongAng Seed Co. (S. Korea) 	In March, 1999 Empresas La Moderna merged with Seguros Comercial America.. The new company is called Savia. With 1998 annual sales of approximately \$428 million, Savia is the world's 5 th largest seed company. Seminis is the largest producer of fruit & vegetable seed, with approximately 25% of world market.
Svalof Weibull AB (Sweden) (see BASF)	<ul style="list-style-type: none"> • DNA Landmarks Inc. (Canada) • Newfield Seeds Co. Ltd. (Canada) • Plantevolution AB (Sweden) • Riding Valley Agro Ltd. (Canada) • Saatzucht Hadanersleben GmbH (Germany) • Semundo Italia s.r.l. (Italy) • Semundo Ltd. (UK) • Semundo Saatzucht GmbH (Germany) • Sursem S.A. (Argentina) • Svalof Weibull Seed Ltd. (Canada) • Svalof Weibull B.V. (NL) • Svalof Weibull Havefro A/S (Denmark) • Svalof Weibull Semillas S.L. (Spain) • Svalof Weibull Semundo S.A.R.L. (France) • Svalof Weibull SIA (Latvia) • Svalof Weibull Torv (Sweden) • Svalof Weibull Tradgard AB (Sweden) • Svenska Cereallaboratoriet AB (Sweden) • Wheat City Seeds Ltd. (Canada) 	1997 seed revenues \$150 million (US). In 1998, German chemical corporation, BASF acquired 40% of Svalof Weibull.
Takii & Co. (Japan)	<ul style="list-style-type: none"> • American Takii • Takii Europe (The Neth.) • Takii Research France 	Privately-held. Ranks 10th largest seed company in the world with estimated 1997 seed sales of (US) \$300 million.

For further information on the global seed trade, see:

“The Gene Giants: Masters of the Universe?,” *RAFI Communiqué*, March/April, 1999, on the internet:

<http://www.rafi.org>

Seed statistics from ASSINSEL (International Association of Plant Breeders for the Protection of Plant Varieties), on the internet: <http://www.worldseed.org/~assinsel/stat.htm>

Note: RAFI estimates the value of the commercial seed trade at U.S.\$23 billion. ASSINSEL estimates the value of the commercial market for “seed and planting material” at \$22.8 billion for 44 countries, and the total commercial world market at U.S.\$30 billion. RAFI opts for the more conservative figure of \$23 billion because of the ambiguity in the term “seed and planting material.”