



Supporting the ethical development and stewardship of seed

Board of Directors

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Beth Benjamin
Hort Consort
Boulder Creek, CA

Legal Policy Section
Antitrust Division
U.S. Department of Justice
450 5th Street, NW, Suite 11700
Washington, DC 20001

Jim Gerritsen
Wood Prairie Farm
Bridgewater, ME

Via Electronic Delivery

Steve Harris
Stephen D. Harris, Attorneys at Law
Colorado Springs, CO

Subject: Seed industry concentration and issues of concern

Frederick Kirschenmann
Leopold Center for Sustainable Ag
Ames, IA

Thank you for the opportunity to submit comments regarding competition in the seed industry. Your work to explore the consequences of consolidation is significant and comes at a pivotal time for farmers, seed businesses, and plant breeders. We appreciate your efforts.

Frank Morton
Wild Garden Seed
Philomath, OR

Some of the organizations and companies signing this letter have submitted comments to your department about what they see as troubling trends in the seed industry. The attached comments differ from previous comments in that this particular analysis serves as a rebuttal to comments submitted by Monsanto. We've highlighted what we see as the most salient issues relevant to your investigation and point out where our analysis differs dramatically from the multinational company. Our findings include:

Zea Sonnabend
California Certified Organic Farmers
Watsonville, CA

Frank Stonaker
Colorado State University
Fort Collins, CO

- The rapid consolidation of the seed industry has led to less choice for American farmers – biotech, conventional, and organic.
- While crops such as corn, soy, and cotton are highly impacted by consolidation in the seed industry there are troubling trends in other field crops such as sugar beets, and increasingly in vegetable crops.
- Independent seed companies are at an economic and competitive disadvantage due to restrictive licensing agreements and pricing structures.
- The current intellectual property regime of patenting eliminates the free exchange of a once public resource, greatly inhibits innovation, and is used as a pre-emptive tool to build and reinforce monopoly.

- Monsanto's comments do not mention the public sector. Once a competitor in the release of varieties, the public sector has been decimated by concentration in seed ownership, and the use of patents to restrict competition.

To that end, within the framework of the U.S. Department of Justice Antitrust Division and the U.S. Department of Agriculture's (USDA) joint public workshops to explore competition issues affecting the

agricultural sector in the 21st century, we encourage you to broaden your investigation beyond biotech trait competition and include a serious examination of the concentrated ownership of germplasm. It is equally important to examine how patents facilitate unfair market advantage for the largest firms and inhibit important research and farmers' rights.

The following seed companies and organizations endorse the attached comments and thank the departments again for closely examining our concerns. It's important to note that some companies relayed their full support of the comments herein but were uncomfortable signing their name due to fears of retaliation. Overcoming this culture of fear is perhaps the biggest obstacle we face as we begin to confront these problems.

We hope you will contact us should you have questions.

Sincerely,



Matthew Dillon
Director of Advocacy
Organic Seed Alliance

With the following co-signers:

Seed Industry

Arid Crops Seed Cache
Family Farmer Seed Cooperative
High Mowing Organic Seeds, Inc.
Johnny's Selected Seeds
Lakeview Organic Grain
Organic Seed Growers and Trade Association
Southern Exposure Seed Exchange
Wild Garden Seed
Wood Prairie Farm

Organizations

Arkansas Rice Growers Association
Center for Food Safety
Center for Rural Affairs
Colorado Independent CattleGrowers Association
Cuatro Puertas
Dakota Resource Council
Family Farm Defenders
Farmer to Farmer Campaign on Genetic Engineering
Grand Forks County Citizen Coalition
Hawai'i Public Seed Initiative
Institute for Agriculture and Trade Policy
Iowa Farmers Union
Montana Organic Association

Midwest Organic and Sustainable Education Service
New England Farmers Union
Non-GMO Project
Organic Farming Research Foundation
Organic Seed Alliance
Northern Plains Sustainable Agriculture Society
Pennsylvania Association for Sustainable Agriculture
Pesticide Action Network North America
Rural Advancement Foundation International - USA
South Agassiz Resource Council
Washington Sustainable Food & Farming Network
Western Organization of Resource Councils

Food Companies

Nature's Path
Organic Valley
Organically Grown Company
United Natural Foods Inc.

Rebuttal to Monsanto's Comments to the Departments of Justice and Agriculture

In the fall of 2009 the U.S. Departments of Justice (DOJ) and Agriculture (USDA) announced joint workshops on competition in agriculture, with the seed industry as one area of focus. In addition to the workshops, the DOJ initiated an official investigation into antitrust practices in the seed sector.

Monsanto, the largest seed company in the world, is obviously a company the DOJ is examining within the scope of these workshops and investigation. Monsanto has been defending itself via media, social networks, and in its comments to the DOJ and USDA, entitled, "Observations on Competition in the U.S. Seed Industry."¹ Monsanto's observations are limited to soybean, cotton, and corn crops, and do not touch on the company's dominance in other sectors. We have analyzed these observations and share them for the purpose of rebuttal and to question the purported "facts" Monsanto uses to support its four basic propositions.

Those propositions, as quoted from Monsanto's comments (pg. 2) are:

1. The seed market for these crops is competitive today in terms of company shares, number of choices, and prices paid by farmers;
2. Farmer choice is increasing with time;
3. Farmers have benefited economically as a result of change and innovation in the seed industry;
4. The leading seed companies are continuing to invest in new products that they plan to offer to farmers in the future.

Monsanto's focus on only three crops creates a smokescreen regarding the control it wields in other sectors – control that we encourage the DOJ to investigate and curb by whatever legal or regulatory means possible. For example, it is reported that approximately 95% of U.S. sugar beets are now planted with Monsanto's transgenic trait.² In tomatoes, Monsanto may control as more than 70% of the market in the U.S.³ And, Monsanto's latest push to apply for patents in "climate change" traits also threatens the long-term viability, success, and diversity of one of the most important natural resources in agriculture.⁴

1. "The seed market for these crops is competitive today in terms of company shares, number of choices, and prices paid by farmers"

The seed industry demonstrates some of the most troubling concentration trends in agriculture. Monsanto asserts that competition in major crops – corn, soybeans, and cotton – is alive and well. It makes the case of market share balance, company choice, and varietal choice based solely on data provided by the market research firm, dmrkynetec (now known as GfK Kynetec).⁵ This data is in need of analysis and critical questioning by the Department of Justice and state attorneys general, since the public is not provided access to this information. In fact, it appears that independent research on current market shares of seed companies is nonexistent.

Monsanto's relationship to this data warrants further investigation.⁶ Based on phone calls we made to this market research company, we know the data is neither publicly available nor can just anyone access this data. Along with questioning the objective and independent status of this research, we also question the statistical accuracy of the figures based on the little information the company revealed about its data collection protocols.

Monsanto argues that the seed industry is "diversified and dynamic" with natural shifting dominance between large players and an independent sector that assessed cumulatively has a market share that rivals the larger players. Collectively these companies are providing necessary diversity of choice to farmers. This is encapsulated as "shifting shares," "many seed companies to choose from," and "many seeds to choose."

The data: What Monsanto states, doesn't state, and unanswered questions

"Shifting shares" To support its argument that there are "shifting shares" in sales of seed, Monsanto does not name companies in any of the data or charts, citing in the endnotes "proprietary" information that dmrkynetec cannot disclose or "specific company market shares cannot be disclosed." Monsanto also does not include a vertical axis in its charts to indicate the percent of a company's share. One might assume that each line represents 10% market share (from the 11 lines, representing 0-100 in increments of 10). However, if this is the case there are errors. For example, in corn, the five lines total over 100% (the purple being nearly 50%, red at 40%, blue at over 30%, and green and brown each at under 10% – totaling well over 120%).

Leaving the absence of information aside for a moment, one can assume that Monsanto is company A (purple line) with dominance in corn, soy, and cotton. Company A's share of the marketplace in each of the three crops has not been steadily dominant over the years for which it has data, but rather has had fluctuation (at least between one or two of the largest players). The point appears to be that the biggest have not always been the biggest, and might not remain the biggest as in some crops there appears to be a decrease of market share.

"Many seed companies to choose from"

Monsanto says that "seed companies with common ownership are treated as a single company," but we are still uncertain as to how the company defines "independent." We believe that Monsanto's website identifies subsidiary companies as independents that are actually under ownership of the Monsanto holding company, American Seeds Incorporated, as it maintains its own seed label/brand (but are not at all independent financially or in their decisions as to what traits they offer).⁷ In our discussion with a representative from dmrkynetec we asked "Did you define what an 'independent' seed company was for farmers?" Response: "No, we allowed them to define company however they like." And when followed by the question, "Was the word 'independent' the actual word used in asking farmers about their choice of seed companies?" Mr. Malcom responded, "It was up to Monsanto to determine how they wanted to analyze the survey responses." Clearly the statistical accuracy of Monsanto's data is in doubt. However, the numbers it claims appear in Figure 1.

Figure 1

Number of companies selling seed by crop type and classification of company

(Compiled from Monsanto's comments)

Crop	Large players	Independents
Corn	4	169
Soy	4	153
Cotton	3	7 ¹

Our own examination of competition in the seed industry is vastly different from Monsanto's and points to a highly concentrated and complicated playing field.

Economists say an industry has lost its competitive character when the concentration ratio of the top four firms is 40% or higher.⁸ In seed, the top *three* firms exceed this benchmark by accounting for anywhere between 67 to 97% in major field crops (see Figure 2). Acreage also highlights market dominance. Monsanto's traits alone constitute more than 90% of soybean and cotton acreage, and more than 80% of corn acreage.⁹

Figure 2

Market Share in Seed Sales (2008)¹⁰

Concentration Ratio of Top Three Firms (CR3)

Corn	Soybean	Cotton
Monsanto (36%)	Monsanto (29%)	Bayer (46.3%)
Dupont (30%)	Dupont (26%)	Monsanto (41%)
Syngenta (10%)	Syngenta (12%)	Dow AgroSciences (10%)
CR3 = 76%	CR3 = 67%	CR3 = 97.3%

¹ Monsanto never states the total number of independents in cotton, but on page 7 of its comments, the chart lists the total as 10 (the largest companies plus independents). As they state 3 large companies in cotton, this would imply there are 7 independents.

2. “Farmer choice is increasing with time”

On the issue of choice, Monsanto claims that companies acquired by biotechnology trait providers “also offer traits developed by someone other than their owner” (pg. 1). The company also claims “farmers may prefer the higher value seeds but they still have a multitude of choices at many quality and price levels” (pg. 13). A review of product offerings by a number of American Seeds Incorporated subsidiaries shows this is not the case. When Monsanto acquires a regional company, the product options narrow and farmers face less choice. Contrary to Monsanto’s claim, many of its subsidiaries do not carry competitors’ biotech traits. Beyond the absence of competitors’ traits, farmers face significantly less choice in conventional corn and soybean seed, despite growing demand for these less expensive, non-biotech options.¹¹

Trisler Seeds, Inc. in Illinois is one example of how a company’s options narrow once acquired by Monsanto. Trisler is a well-established company with a 70-year history in seed corn, and was bought by Monsanto’s holding company, American Seeds Incorporated, in 2006. Trisler offered 33 conventional corn varieties, about 40% of its seed corn platform, in 2004, and this number remained relatively steady until the years following the acquisition. In 2009, Trisler only offered three conventional varieties, a 91% reduction from five years prior, even in light of renewed interest in conventional corn varieties and increasing biotech seed prices. Furthermore, the company only offered three non-Roundup Ready varieties last year, and more than half of the corn seed offered is the most expensive option available: triple stack varieties.

Heritage Seeds based in Indiana was also part of Monsanto’s 2006 purchasing spree. Heritage’s selection is in line with other subsidiaries, where triple stack varieties comprise nearly 70% of its corn platform. The company did not offer conventional and non-Roundup Ready varieties in its 2009 catalog.¹²

Agricultural media reported shortages of conventional soybean seed in at least four states in 2009. Mississippi’s shortage illustrates the situation well. University extension estimated that if Mississippi growers planted all the conventional seed available, the supply would add up to no more than 3% of the state’s soybean acreage and just 0.5% if only public varieties were planted.¹³

Still, Monsanto asserts in its comments that “conventional seeds continue to be offered and represent a *meaningful* choice for farmers” [emphasis added] (pg. 16).

Demand for Roundup Ready soybeans over the last decade is certainly one reason conventional options disappeared from the marketplace. Yet as the industry consolidates, seed options narrow, and farmers lose access to important varieties, especially conventional options. Little attention has been given to this emerging trend.

Similarly, little attention has been given to what we describe as an illusion of choice. In one regard, there exists an illusion of choice among seed varieties available. For example, a catalog from a Monsanto subsidiary might list dozens of corn seed options, yet nearly 70% of them might only be offered with three biotech traits stacked into them. We contacted Monsanto and asked how it tallies unique varieties, and while a company spokesperson responded and told us

she would investigate and provide that information, we have yet to receive an answer after more than a month.

In another regard, farmers suspect the best and newest genetics – the highest yielding – are primarily offered with biotech traits and not as conventional varieties. This does not provide true choice. The lack of conventional corn seed options has led many farmers to believe that high yields can only be achieved by purchasing biotech varieties. Yet research shows that biotech traits are not responsible for significant yield advantages.¹⁴ Though couched as expanding choice, new biotech varieties – such as triple stack – often replace less expensive options, such as conventional and single trait seed. Farmers who have attempted to switch back to conventional seed when biotech traits have not met expectations have found it difficult to find conventional options.¹⁵

Monsanto says independent seed companies number in the “hundreds,” “have held their own,” and “have significant market share in corn, soybeans and cotton” (pg. 12). Monsanto claims its “licensing strategy has facilitated competition and brought greater choice to the farmer” (pg. 13).

The number of seed companies has decreased by roughly two-thirds in just over a decade. The Independent Professional Seed Association recently reported that roughly 100 independent seed companies remain.¹⁶ This number conflicts with Monsanto’s website claim of 180 corn and soybean companies.¹⁷

Licensing agreements with competitors of all sizes provide Monsanto additional market power. In 2008, Monsanto’s trait licensing arm – Corn States Hybrids – accounted for 24% and 33.5% in the corn and soybean market respectively.¹⁸ When combined with direct seed sales, Monsanto has a presence in approximately 60% of the corn and soybean seed market.

With such extensive market share, Monsanto’s licensing agreements have an enormous effect on how business is conducted in the marketplace. Monsanto argues that licensing its traits assists independent seed companies and furthers competition and choice. In truth, Monsanto needs these companies to broadly distribute its technology and has established a restrictive licensing model that ensures it controls how traits are sold by companies it doesn’t even own. The result is independent seed companies that feel more like a Monsanto subsidiary than independent competitors.

Preliminary evidence shows that Monsanto’s licensing strategies are stifling competition by providing incentives that discourage sales of competitors’ products. Confidentiality clauses are tied to severe penalties – such as the removal of licensed inventory – and reduce transparency, including the true cost of trait royalties passed on to farmers.¹⁹ Such onerous agreements do not foster competition and choice, and even state attorneys general are investigating alleged antitrust violations regarding these agreements.

In addition to restrictive terms, Monsanto’s licensing agreements include non-negotiable prices for their traits that have dramatically increased over the years, cutting deeper into independent seed companies’ profits. For example, it is difficult for independent seed companies that license Monsanto’s traits to “hold their own” when biotech trait prices attribute to nearly half the price of a bag of Roundup Ready soybean seed. Monsanto admits that “traits are only a part of the

total value of the seed” and that “the quality of the underlying genetics is the most important component of the value of a seed” (pg. 12).

Yet ever-increasing trait prices mean smaller companies only recoup a fraction of their costs for the underlying genetics they developed independently since much of the price they must charge farmers goes to Monsanto in the form of a royalty for a single trait.

3. “Farmers have benefited economically as a result of change and innovation in the seed industry”

Competitive prices?

Biotechnology traits, and the technology fees tied to them, stand out as the driving force behind increased seed costs. These fees vary by crop type, but all have increased substantially over the years. For example, the Roundup Ready trait in soybeans added \$6.50 per bag in 2000. It has nearly tripled since then, now costing \$17.50 per bag for the same trait.²⁰ This means a farmer who plants one bag of Roundup Ready soybeans per acre on 1,000 acres has seen his production costs increase by \$11,000 in five years due to the trait price increase alone. Farmers say the price hikes in Roundup Ready seed are unjustified because they are paying for the same trait each year without yield advantages to substantiate the higher cost.

The rising cost of seed with biotech traits has contributed to record profits for biotechnology firms, as the most substantial price increases parallel the rise in genetically engineered crop plantings. USDA data shows that the most significant price increases occurred within the last few years, with corn seed prices increasing by 30% in 2009 alone (in some cases this equals \$100 more per bag) and soybean seed prices doubling in some parts of the U.S.²¹ We believe these price increases – the steepest to date – are a result of a marketplace lacking competition. Combined with other high input costs (fertilizer, fuel, and chemicals) and commodity price volatility (farmers will receive barely \$2 more per bushel of corn this year compared to 20 years ago), high seed prices attributed to expensive genetically engineered traits do not translate into higher profits for farmers.²²

It is also important to point out that there are many farmers who receive no benefit from the “change and innovation” Monsanto claims. The leap to patented biotech trait development primarily serves the nation’s largest farmers. Meanwhile the diminishing small and middle-sized farm sector remains underserved. In particular, farms that operate in conventional low-input and organic systems have received no benefit from the changes in the seed industry, especially since the advent of utility patents on plants. In fact a case can be made that the “changes” Monsanto believes are beneficial to farmers have stifled innovation in minor markets with the disappearance of responsive regional seed companies and the severe reduction in competition from public breeding programs.

4. “The leading seed companies are continuing to invest in new products that they plan to offer to farmers in the future”

There is no denying that agrochemical/biotech firms, including Monsanto, continue to invest in future seed products. Monsanto states, “Ongoing investment on the part of trait developers is reflected in a robust new product pipeline featuring a wide array of traits coming from diverse

developers. The farmer will be the primary beneficiary of this increase in new product offerings as companies compete with each other to bring him increasing value, but the environment and society at large will benefit as well” (pg. 25). We think these statements are quite inflated given the diversity of crops in the marketplace and pipeline for regulatory approval.

After decades of research, the biotech industry has only delivered a handful of traits that mostly provide herbicide-tolerance and insect-resistance. These are not traits that increase the intrinsic yield of crops or improve nutritional qualities of food and feed, but rather increase sales of accompanying herbicides and lead to worse agronomic challenges (e.g., herbicide-resistant weeds).

Of the 20 petitions pending non-regulatory status approval before USDA, only three appear to offer unique traits (by each of the three largest biotech firms): Monsanto (drought-tolerant corn), Pioneer (high oleic acid corn), and Syngenta (enzyme to facilitate ethanol production in corn).²³ More than half of the “new” products in the pipeline offer more of the same: herbicide-tolerant crops developed by agrochemical/biotech companies to sell more pesticides. This is neither good for the environment nor society.

Furthermore, contrary to biotech industry claims, concentrated economic power in seed does not lead to more options for farmers. USDA’s own research found that fewer companies engaged in researching and marketing seed means less choice for farmers. As the seed industry became more concentrated, private research “dropped or slowed,” and those companies that survived consolidation are “sponsoring less research relative to the size of their individual markets than when more companies were involved.”²⁴

As small companies struggle to compete, new entrepreneurs face even greater barriers to entering the seed market.²⁵ The dominance by top players in the markets is one barrier, but it is the specific protectionist tool of patents that acts as the larger barrier.

Whereas patents were meant to be a tool for sharing information within an industry, while rewarding an early innovator, they now serve as a way to tie-up resources ad infinitum to prevent competitors from research even when the patent applicant has made no significant or novel contribution prior to applying for a patent. Patent applications are often incredibly broad, and while the Patent & Trademark Office wades through the approval process all plant materials or processes described in the patent are off-limits for other researchers to use. One such example is patent application US 2007/0067865 A1. This application was submitted in 2000 by two scientists working for Monsanto, and was actively pending until quite recently. It claimed 463,173 distinct plant genes – 463,173 distinct innovations/inventions.²⁶

This absurdity would be comical if not for the fact that the application restricted other researchers from studying the role of these genes, much less implementing them into a new innovation. This is putting aside the question as to if simply identifying genes, pre-existing bits of life, should actually be grounds for receiving a patent. Regardless, the misuse of patent applications by Monsanto is a hostile tactic, a “pre-emptive strike” against other researchers, which severely curtails new innovators from entering the market. To add injury to insult, the patent process restricts usage of any invention/material that is 80% similar to that which has been claimed by the patent, creating an ever-widening massive wall of protectionism around Monsanto’s patent claims.²⁷ Patents, and even unapproved patent applications, hinder innovation

by removing valuable plant genetic material from the pool of public resources breeders rely on. Breeders are restricted or prohibited from using patented varieties, traits, or tools unless onerous licensing agreements are signed and expensive royalties paid. The result is a public sector that lacks an ability to provide for – and an understanding of the underlying values and needs of – the organic market.

Conclusion

In short, we conclude that neither Monsanto's market data nor its claims that choice and competition is alive and well can be interpreted as factual. Instead, our findings show:

- The rapid consolidation of the seed industry has led to less choice for American farmers – biotech, conventional, and organic.
- While crops such as corn, soy, and cotton are highly impacted by consolidation in the seed industry, there are troubling trends in other field crops such as sugar beets, and increasingly in vegetable crops.
- Independent seed companies are at an economic and competitive disadvantage due to restrictive licensing agreements and pricing structures.
- The current intellectual property regime of patenting eliminates the free exchange of a once public resource, greatly inhibits innovation, and is used as a pre-emptive tool to build and reinforce monopoly.
- Monsanto's comments do not mention the public sector. Once a competitor in the release of new varieties, the public sector has been negatively impacted by concentration in the seed industry and the use of patents to restrict competition.

Discussions on seed industry competition – in agricultural media and at the March 12, 2010, competition workshop in Ankeny, Iowa – focus on the largest players: biotech firms racing to secure the most patent rights that afford exclusive monopolies over plant genetics and the subsequent valuable markets these rights afford. A truly competitive marketplace would better support the contributions of public plant breeding programs as well as smaller companies investing in research and development. To that end, we encourage you to broaden your investigations beyond biotech trait competition and include a serious examination of the concentrated ownership of germplasm. It is equally important to fully examine how patents facilitate unfair market advantage for the largest firms and inhibit important research and farmers' rights.

The speed at which the seed industry has consolidated, and the multifarious consequences that have resulted, warrants a separate DOJ workshop focused solely on the seed industry. We formally request a workshop that fully examines competition issues in seed.

Thank you for your time and consideration of these comments. Please contact us with questions.

Kristina Hubbard – Organic Seed Alliance, Advocacy Program Specialist:
kristina@seedalliance.org

Matthew Dillon – Organic Seed Alliance, Director of Advocacy: matthew@seedalliance.org

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- ¹ Monsanto. 2009. "Observations on Competition in the U.S. Seed Industry," at http://www.monsanto.com/choice_in_agriculture/monsanto_submission_doj/default.asp
- ² Voosen, Paul. 2010. "Judge allows modified beet planting to continue, if temporarily," *New York Times*, March 17.
- ³ United States of America v. Lsl Biotechnologies; Seminis Vegetable Seeds, Inc.; Lsl Plantscience Lcc, Appellate Reply Brief (11/20/2002).
- ⁴ ETC Group. 2008. *Who owns nature?* November 13, <http://www.etcgroup.org/en/node/706>.
- ⁵ Our information on GfK is a result of a personal phone call conducted on April 6, 2010 between representatives of Organic Seed Alliance and GfK. The call was initiated by Matthew Dillon (Organic Seed Alliance), who spoke to an individual who identified himself as Greg Malcom (GfK Kynetec US – according to their website Mr. Malcom is responsible for market studies and agronomic research).
- ⁶ Mr. Malcom, of GfK, initially refused to say who initiated the research, but during further questioning may have slipped by saying, "It was up to Monsanto to determine how they wanted to analyze the survey responses" when asked if the word "independent" was even used in the survey when asking farmers about the number of seed companies, or if not, what wording was used.)
- ⁷ Monsanto website:
http://www.monsanto.com/monsanto_today/for_the_record/innovation_and_the_competitive_seed_market.asp
- ⁸ U.S. Senate, Democratic Staff of the Committee on Agriculture, Nutrition, and Forestry Economic Concentration and Structural Change in the Food and Agriculture Sector: Trends, Consequences and Policy Options (Washington, DC: October 2004), <http://www.sraproject.org/wp-content/uploads/2007/12/harkinconcentrationwhitepaper.pdf>
- ⁹ Monsanto's Supplemental Toolkit for Investors (June 2009).
- ¹⁰ Monsanto's Supplemental Toolkit for Investors June 2009 (corn, soybean, cotton share); Bryner, Michelle. 2008. "Monsanto and Syngenta Settle GM Seed Disputes; Share Technologies," *Chemical Week*, June 2 (Syngenta soybean share); Gerson Lehman Group. 2008. "Dupont's New Corn Seed Distribution Strategy: Will It Enable Meaningful Market Share Recovery?" December 16 (DuPont corn share). Gillam, Carey. 2010. "DuPont pushing new ag spending, seeds," *Reuters*, March 16 (DuPont soybean share). Cotton 24/7. 2009. "PhytoGen Cotton Seed Reaches 10 Percent of U.S. Market Share," September (Dow cotton share). AgroNews. 2009. "Bayer's Cotton Seed Brands Achieve Largest Market Share in U.S." October 21 (Bayer cotton share).
- ¹¹ Bennett, David. 2009. "More conventional soybean acres?" *Delta Farm Press*, February 10.
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- ¹⁶ Wilde, Matthew. 2009. "Independent seed companies a dying breed," WCF Courier, May 31.
- ¹⁷ Monsanto website:
http://www.monsanto.com/monsanto_today/for_the_record/innovation_and_the_competitive_seed_market.asp
- ¹⁸ Monsanto's Supplemental Toolkit for Investors (June 2009).
- ¹⁹ Leonard, Christopher. 2009. Monsanto squeezes out seed business competition, AP investigation finds, Associated Press, December 13.
- ²⁰ Hubbard, Kristina. 2009. *Out of Hand: Farmers Face the Consequences of a Consolidated Seed Industry*, National Family Farm Coalition.
- ¹⁸ USDA/ERS. 2009. "Farm Income and Costs: 2009 Farm Sector Income Forecast," <http://www.ers.usda.gov/Briefing/FarmIncome/nationalestimates.htm>; personal communication with farmers.
- ²² USDA/ERS. 2010. "Farm Income and Costs: Farm Sector Income," Retrieved March 30, 2010, <http://www.ers.usda.gov/Briefing/FarmIncome/Gallery/AnnualCommodityPrices.htm>.

²³ USDA/APHIS. 2010. "Petitions of Nonregulated Status Granted or Pending by APHIS as of March 30, 2010," http://www.aphis.usda.gov/brs/not_reg.html.

²⁴ Fernandez-Cornejo, Jorge & David Schimmelpfennig. 2004. "Have Seed Industry Changes Affected Research?" *Amber Waves*, February, <http://www.ers.usda.gov/amberwaves/February04/Features/HaveSeed.htm>.

²⁵ Fulton, M., & Giannakas, K. (2001). Agricultural biotechnology and industry structure. *AgBioForum*, 4(2), 137-151.

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http://www.patentlens.net/patentlens/patents.html?patnums=US_2007_67865_A1&returnTo=patentnumber.html%3Fquery%3D%2528US_2007_67865_A1%2Bin%2Bpublication_number%2529

²⁷ Jefferson, Richard. 2010. "Making Sense of Patents," Australian Broadcasting Corporation,

<http://www.abc.net.au/unleashed/stories/s2871426.htm#>.