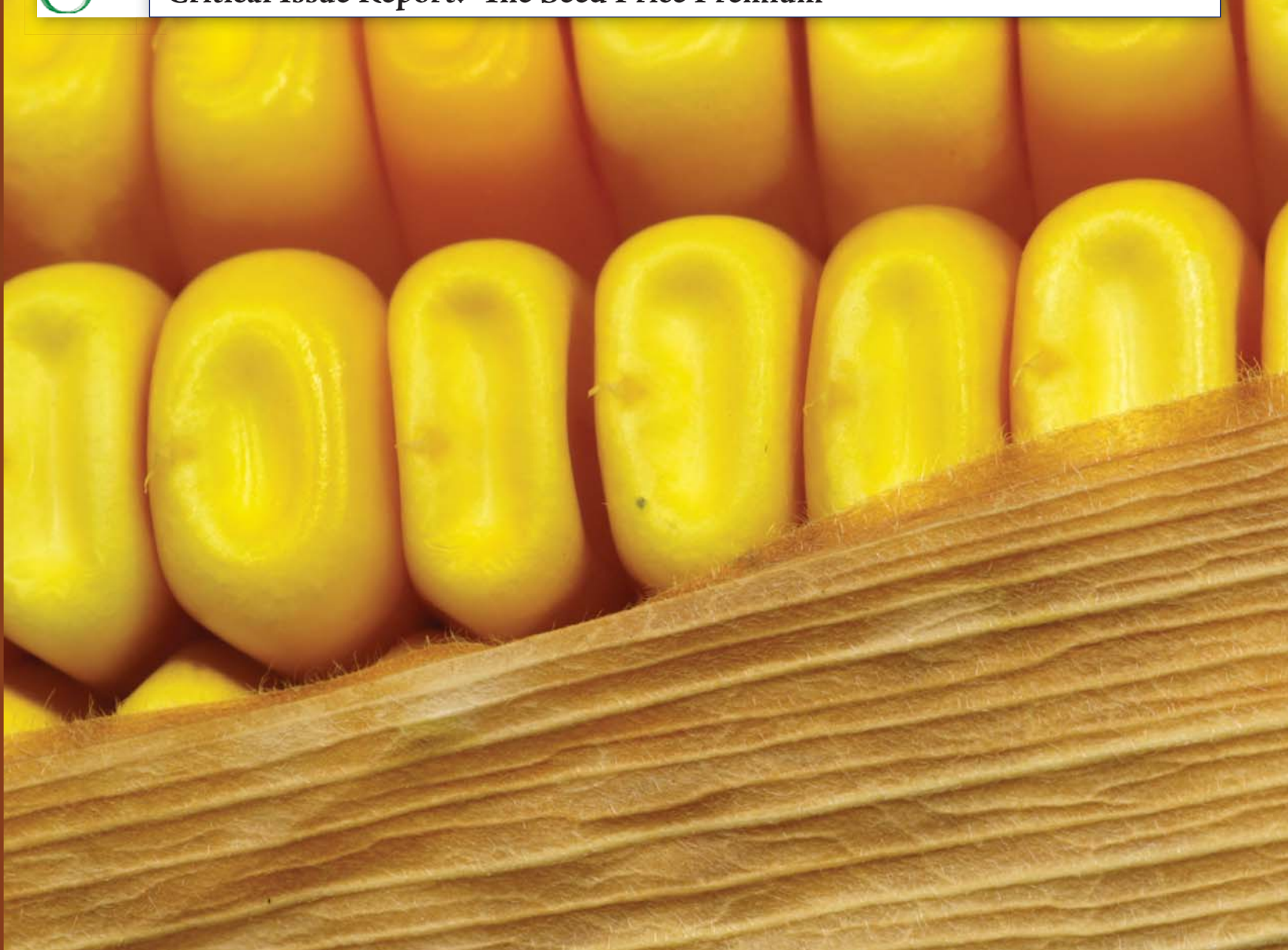




The Organic Center www.organic-center.org

Critical Issue Report: The Seed Price Premium



The Magnitude and Impacts of the Biotech and Organic Seed Price Premium

by Charles Benbrook

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The “Seed Premium-Farm Income Database” is accessible on The Organic Center’s website at – <http://www.organic-center.org/reportfiles/Seed%20Premium-Farm%20Income%20Database.pdf>

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FOREWORD

The Organic Center recently issued a “Critical Issue Report” on the impacts of genetically-engineered (GE) corn, soybean, and cotton varieties on pesticide use in the United States from 1996 through 2008. This 69-page report is called “Impacts of Genetically Engineered Crops on Pesticide Use: The First Thirteen Years,” and is accessible on The Organic Center website (http://www.organic-center.org/science.pest.php?action=view&report_id=159).

During the research phase of the “First Thirteen Years” report, information surfaced on the steep upward trajectory in the price of GE seeds, especially in recent years. Recently announced GE seed price increases for the 2010 crop season have triggered discussion, often spirited, among farmers growing GE crops. The basic issue boils down to whether the high and rising prices of GE seeds are justified by either increased yields, lower pest management costs, or some combination of both.

Opinions differ and are likely to remain divided for some time, until sufficient, trustworthy, independent field trial data emerges to settle core questions about differences in GE crop yields and production costs compared to their closely related, but non-GE conventional seed counterparts.

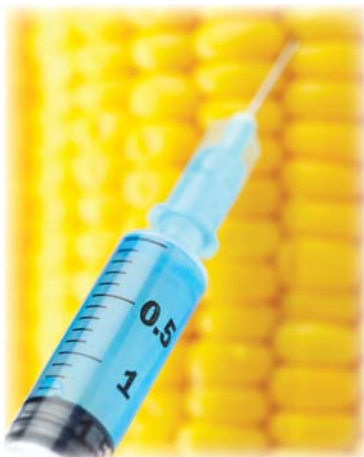
Similar questions abound about the premiums paid for production inputs used by organic farmers, including seed, not to mention the premium prices paid for organic animal feeds and human foods.

This report is a first step in placing into perspective the magnitude and significance of the premiums now paid by biotech and organic farmers for GE and organic seed. The size of these premiums are analyzed and compared, relative to the cost of conventional corn and soybean seeds. The impacts of the premiums on farm income and operating costs are also placed in perspective.

One thing is certain. The markets for GE and organic seeds are volatile and an important debate is underway, worldwide, about the nature of value embedded in each.

Charles Benbrook, Ph.D.
Chief Scientist
The Organic Center

1. Executive Summary



The novel traits embedded in newly introduced seed varieties are a vital source of innovation on the farm that has traditionally served the collective interests of farmers and consumers, and hence society as a whole. But now, a handful of privately held seed companies control the critical biotech patents and supplies of seed germplasm, and decide, for the most

part, how seed breeding technology is used, and critically, for what purpose.

Since the early 1990s, corn, soybean, and cotton breeders in the U.S. have focused predominantly on the incorporation into elite germ plasm of proprietary pest management-related traits, using the tools of biotechnology. GE seeds now account for the vast majority of the new seed varieties offered for sale by the major seed companies each year. Other important goals traditionally pursued by plant breeders have taken a back seat.

This report highlights the seed price and farm income consequences of this historic shift in control over plant breeding from the public sector, and goals advancing public welfare, to the private sector and its basic goal, which is, by law, maximizing return to shareholders' equity through expanding market share and profit margins.

All the data and calculations in this report are derived from the "Seed Premium-Farm Income Database" compiled by The Organic Center. Appendix A in this report briefly describes the data elements and sources of data incorporated in this database. The full database is available free of charge via the The Organic Center's website (<http://www.organic-center.org/reportfiles/Seed%20Premium-Farm%20Income%20Database.pdf>).

A. The Biotech and Organic Seed Price Premiums

In the case of soybeans, farmers have traditionally paid about a two-fold premium for purchased soybean seed, compared to the price of soybeans. The ability of farmers to plant last year's soybeans to produce the next year's crop has kept a lid on soybean seed prices, at least until the GE era.

In 2006, the GE soybean seed price premium, relative to the price of soybeans, had reached 4.5. The conventional seed-to-soybean price premium was 3.2.

Farmers purchasing the most closely followed new soybean seed product in 2010 – Monsanto's Roundup Ready (RR) 2 soybeans – will pay 42% more per bag than they paid for RR soybeans in 2009. The RR 2 soybean seed-to-soybean price ratio will be around 7.8, over three times the historic norm.

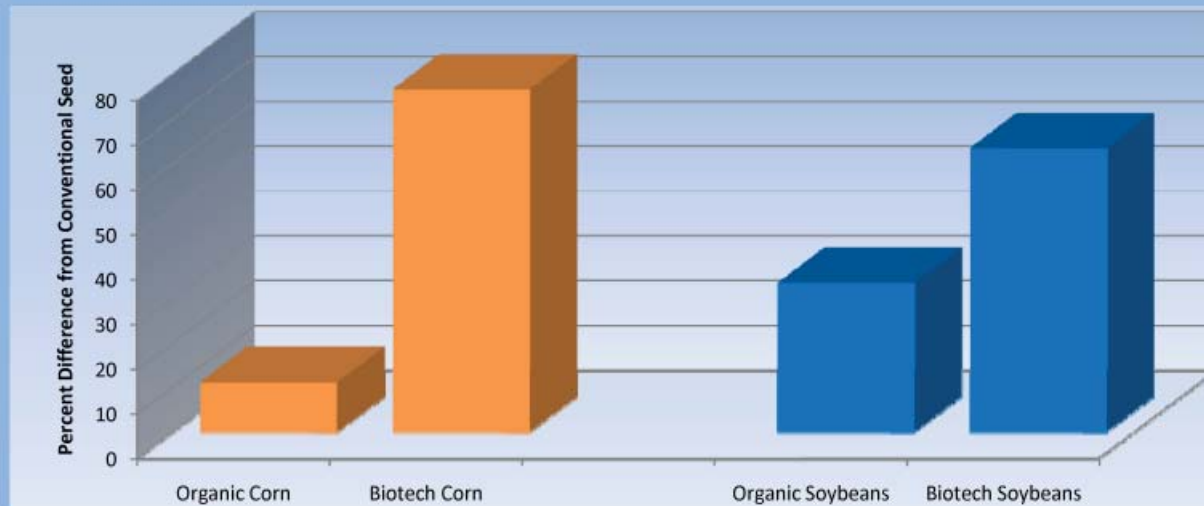
For conventional farmers planting saved soybean seed – an option precluded by purchase of GE seeds – the seed-to-soybean price premium will be about 1.2 in 2010.

In the 25 years from 1975 through 2000, soybean seed prices rose a modest 63%. Over the next ten years, as GE soybeans came to dominate the market, the price rose an additional 230%. The \$70 per bag price set for RR 2 soybeans in 2010 is twice the cost of conventional seed and reflects a 143% increase in the price of GE seed since 2001.

The organic soybean seed price premium, compared to conventional seed, is much smaller and will stand at about 33.4% in 2010. The GE seed price premium is projected at 63.5%. Accordingly, the biotech seed price premium exceeds the organic seed price premium by 1.9-fold, as shown in Figure 1.



Figure 1. The Biotech and Organic Seed Price Premium Relative to the Cost of Conventional Seed in 2010F



The story is similar in the case of conventional and GE corn seed. In 2009, the GE corn-to conventional corn seed premium was 69%, with GE seeds costing \$235 per unit. Conventional corn seed prices were less than \$100 per unit through 2007.

Corn growers planting the first-ever, eight-trait, stacked GE variety – so-called “SmartStax” corn – will pay 2.1-times more per unit than farmers planting conventional seeds, and almost four-times more than conventional farmers just ten years earlier.

Organic corn seed is much cheaper than GE seed, with the 2010 organic price premium at about 11%, as in the case of organic soybeans. The biotech seed price premium is 6.9-times bigger than the organic seed price premium in the case of corn hybrids.

GE cotton seed price inflation has dwarfed the pace of increases in the price of GE soybean and corn. From 1975 through 1996, the price of cotton seed only doubled, but in the GE cotton era, it has risen from \$73 to \$589 per CWT. Today, GE cotton seed costs \$700 per CWT, an amazing 5.9-fold more than conventional cotton seed.

B. Impacts on Farm Income

By any measure, the steeply upward trajectory in the price of GE seeds in the last few years has started to cut into average net farm income. From 1975 through 1997 soybean farmers spent 4% to 8% of crop income on purchased seed. In 2009, farmers planting GE soybean seeds spent 16.4% of soybean cash market income per acre on seed – twice the historic norm. Farmers planting RR 2 soybeans in 2010 will commit a projected 22.5% of gross income per acre to the purchase of these GE seeds, as shown in Table 1, on page 3.

Corn growers spent 4% to 11% of gross market income per acre on seed from 1975 through the beginning of the GE era in 1996, and 11% to 17% of operating costs per acre. Since 1996, the price of conventional seed has risen just marginally above historic levels as a percent of gross income and operating expenses.

GE corn seed, on the other hand, has become much more expensive as a percent of gross income and operating costs. In 2009, GE corn seed accounted for 19% and 34% of gross income and operating costs per acre, about twice historic norms.

Table 1. Impacts in 2010 of Conventional and Biotech Seed Expenditures per Acre on Farm Production Costs and Income

	Percent Gross Crop Income per Acre	Percent Operating Costs per Acre	Percent Net Returns per Acre*
CORN			
Conventional Seed	11%	19%	24%
Biotech Seed	19%	34%	43%
SmartStax Corn Varieties	23%	41%	51%
SOYBEANS			
Conventional Seed	12%	33%	18%
Biotech Seed	19%	54%	29%
Roundup Ready 2 Seed	22%	64%	35%
COTTON			
Conventional Seed	5%	4%	-15%
Biotech Seed	32%	23%	-88%

* There is a projected \$127.98 net loss per acre of cotton production in 2010. Hence, seed expenditures per acre in 2010 are expressed as a negative number.

The cost of GE cotton seed has helped drive net farm income on cotton farms into the red since 2008, the year when net returns equaled just \$31.05 per acre. In the GE era, average net returns on cotton farms have dropped by roughly \$200 per acre and the cost of GE cotton seed has increased almost \$100 per acre.

Obviously, many factors have contributed to the declining profitability of cotton production, but two of the most important are increases in seed costs and the need to apply, and pay for more herbicides in an effort to control glyphosate-resistant weeds, particularly in the Southeast.



If these GE seed price and income trends continue, the consequences for farmers will be of historic significance, as dollars once earned and retained by farmers are transferred to the seed industry.

As farm income falls, less money will be available for investing in the sustainability of America's farms and farm families. If and as GE-related seed industry profits continue to rise, the ability and determination of the industry to continue exploiting biotechnology to increase GE trait penetration and seed profit margins will be strengthened, as will the industry's control, economically and politically, over the goals driving investments in plant breeding.

In a September 15, 2009 speech, Monsanto CEO Hugh Grant reaffirmed the company's goal of doubling gross profits in 2012, from 2007 levels.¹ He stated that increases in the price of new RR 2 soybeans and "SmartStax" corn hybrids will

¹ Yahoo! Finance, September 16, 2009, <http://finance.yahoo.com/news/Monsanto-reaffirms-goal-to-apf-391777231.html?x=0&v=1>

create about one-third of the company's gross profit growth in 2012. Net farm returns are likely to be the primary source of these new profits.

The sizable difference in the GE and organic seed premiums, and their vastly different impacts on net farm returns, are sure to invite closer scrutiny of the productivity and profitability of organic farming systems compared to farms planting GE-seeds. The need is acute for more independent data and unbiased, credible assessments of how organic and biotech-based farming systems can best contribute to global progress toward food security for all.

At the present time there is a massive disconnect between the sometimes lofty rhetoric from those championing biotechnology as the proven path toward global food security and what is actually happening on farms in the U.S. that have grown dependent on GE seeds and are now dealing with the consequences.

