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**MANAGING PRICE RISK
CONVENTIONAL METHODS IN UNCONVENTIONAL TIMES**

**Jerry Gulke
President, Strategic Marketing Services, Inc.**

It has been said that the most rewarding experience in one's life is to help another. Government has certainly lived up to that theory over the past decades of direct and indirect subsidies to agriculture. From the years of land set-asides, production control, target prices and deficiency payments, to decoupling and the safety nets evolving from the Freedom To Farm Policies, to the latest generation of crop yield and revenue insurances, government has helped to limit the financial risk associated with production agriculture. Often, it has been said by critics, such policies interfere with natural economics and free enterprise. Regardless of the conjecture, one can not dispute the intent---that of helping another to succeed.

If it also may be said that the second most rewarding experience is to help one's self, would it not then be equally rewarding to further 'empower' the producer to help himself to better compete in the global marketplace? The ever changing competitive global environment of GATT, NAFTA, and most recently WTO, has resulted in a general pursuit of reducing agricultural subsidies globally. It is safe to assume that such pressure will only increase at the same time that the emergence of our "new competition" in Eastern Europe (EU-25), FSU-12 and South America is helping to further distance US Agriculture in the price competitive arena. US safety net policies help minimize financial losses, but even "break-even" production agriculture is unacceptable, no matter how noble the cause. There remains therefore marketing price risk insufficiently addressed by the Ag sector.

Various crop insurance schemes and ad hoc disaster legislation are well intended, but may be inadvertently sending the wrong signal to producer? Sending the message that ill-fate in the market place, often a natural cause and effect of doing business, will be offset with revenue insurance coverage or disaster payments, can lead to a false sense of security by reducing the inherent risk of doing business. Tight budgetary times may require cuts in the support mechanism that led a producer to make long term business planning decisions. The implications of a "false economy" become readily apparent in such circumstances. Cash receipts resulting from short term duration farm programs are often capitalized back into land prices and rents and also influence long-term business decisions (capital equipment and land purchases), only to realize that those long-term decisions are in jeopardy of being ill-conceived if new farm legislation reverses past historical actions.

Producers are often criticized for expanding their operation (land acquisitions and capital equipment) that results from well intended farm program policies. However, simple economics dictates that businesses expand those areas (profit centers) that were instrumental in the overall success of the enterprise. Such action is acceptable for non-Ag businesses, yet unacceptable for agricultural producers? We tend to go home with the one that brought us to the dance! So one can hardly blame producers for capitalizing profits back into the core business as that is their business. However, a false sense of security from which to make life altering decisions may very well be worse than no security? Perhaps the problem lies not in the resultant management decision, but in the origin of profits? Are the profits derived from unreliable, short term fluctuating farm policy programs, or from true free enterprise and entrepreneurial expertise? If the long term intent of risk management programs and policies are intended as a transition to help discipline producers to be more competitive

in the global marketplace, we have thus far missed the mark, creating frustration both for the provider and the recipient. The so called Freedom to Farm Act that was designed to be a program to end all programs by eliminating subsidized agriculture over a seven-year timeframe, and allow production decisions to be influenced by market signals rather than government mandates. The intent was to transition US agriculture into the 21st century of global competitiveness and send the message that if we producers continued to capitalize those declining transitional payments back into land and machinery, we deserved what we got! Government would not again come to the rescue. That focus lasted through only about two years of volatile price action (1995/96) and the realization that production agriculture was ill-equipped to deal with the inherent price volatility of decoupling agriculture from production intervention. Transition to the free market proved more difficult for producers than ever envisioned. Subsequent volatile prices during times of shortages and surpluses tend to add to frustration, and psychological uncertainty for the producer and end user alike. Given the global competitive environment we find ourselves, it may be time for the government and the Ag community to be more “pro-active” regarding managing price risk, rather than merely being “re-active”.

Globalization of Agriculture---Post Berlin Wall. Prior to the demise of Communism, associated by most with the fall of the Berlin Wall, when one spoke of agricultural trade it was in the context of Europe and the United States, and the unreliable Russia. Ag Economics was taught under the backdrop of communism, the cold war, and a world population largely unfamiliar with free enterprise. The US and EU directly influenced world prices and production of grains (and indirectly livestock) through direct production controls, and subsidies both domestic and export oriented, with US agriculture mainly responsible for acreage adjustments. Agribusiness became accustomed to this manner of government direct intervention as the norm by which to gauge business decisions. When prices fell, production was lowered. When prices rose due to production shortages, additional acreages were put into production. The fall of the Berlin Wall and communism opened up free enterprise to vast areas of land, people and resources. This not only affected the non-Ag sectors, but changed the agriculture universe as well.

The advent of farm policies in the past decade to decouple farm income and let the free market dictate commodity prices means we are experiencing a new chapter in the history of world agriculture. Text books had not yet been written to deal with the changes brought about by US domestic and foreign market related agriculture policies. Opening the world to free enterprise revealed new resources including land and labor that created world competition not envisioned twenty years ago. Those that were once thought to be our responsibility to feed, have now become our competitors; the FSU, India, China, and others. We indeed began writing new history!

Conventional Ag Economics, using the past 50 yrs as a basis, was ill-equipped to handle the new future influenced by marketing loan payments and the realization that the market could allow prices to fall to “market clearing” levels, or rise to levels once thought unattainable under a reasonable crop shortfall scenario. The results of the absence of government intervention was grossly underestimated. A new level of risk evolved, that of “price-risk”.

The Need for Price Risk Management. In the past decade, price volatility has created both opportunity and despair (see Fig I). In fact, in the last twelve months, prices of corn and soybeans have risen and dropped the equivalent of over \$100 per acre for the heart of the corn/soybean belt producer. Revenue insurance seems of little consequence to having missed a \$100 per acre profit opportunity. Somehow those associated with production agriculture have found it acceptable to have missed profit opportunities. If it is a matter of the lack of education, accepting something that is not understood may be an excuse but is not a valid reason. The resultant lost profits by both the producer and end-user (livestock, and ethanol for example) that could empower rural communities with added

revenue is a significant by-product of more efficient price risk management. While we in agriculture have been concentrating on production risk insurance programs largely subsidized by the government, we may have inadvertently been ignoring the principles of managing price risk that originated decades ago as an efficient price discovery mechanism, more commonly known as futures and options as traded mainly on the Chicago Board of Trade. Perhaps a re-kindling of an interest in the timeless conventional marketing tool; tools that are still valid, especially in these unconventional times. I am confident that given the education, the entrepreneurial ability of those involved in the total food chain will embrace the management of price risk as a useful tool for profit enhancement. Exploring how we might replace misunderstanding with enlightenment to empower producers and end users alike to efficiently manage price risk seems appropriate to begin the process.

Embracing the Concept. Prior to embracing any new idea or concept, it is not only wise but essential to review the pros and cons and perhaps. In this particular case of embracing price risk management, the question emerges as thus: “If the concept is so conventional, why has 50 yrs of its presence gone largely ignored by the agricultural community”? Perhaps the answer lies in the tendency of agribusiness to emphasize the “bad” and “ugly” concepts to justify non-acceptance, while misunderstanding the “good” associated with treating an agricultural endeavor as a business (profit center), rather than a vocation (family farming).

The Ugly. It is not too difficult to find someone in agriculture that hasn’t had a bad economic experience (financial loss) in the use, or misuse of the risk management tools of futures and options. Most often such losses can be traced to confusing speculation with managing price risk, or allowing greed to enter the process. Those successful in the endeavor are more likely to have a business or marketing plan, than those that do not. Treating the business as a business is paramount under any definition of success. This is equally true when applying price risk management. The price advance of corn in 1995/96 to five dollars per bushel succeeded in exposing some of the “ugliest” situations arriving from misunderstanding and ill-conceived actions by both producers and end users. Selling three years production using risky “hedge-to-arrive” and off market selling tools proved devastating for some producers that got caught up in the throws of greed and mismanagement. Conversely, some end users of corn were caught exposed to upside price risk that proved financially devastating to livestock and ethanol producers. In most cases the ugliness of managing price risk was due to misuse of the tools, and failure of due-diligence and not having a business plan that incorporated the efficient use of managing price risk.

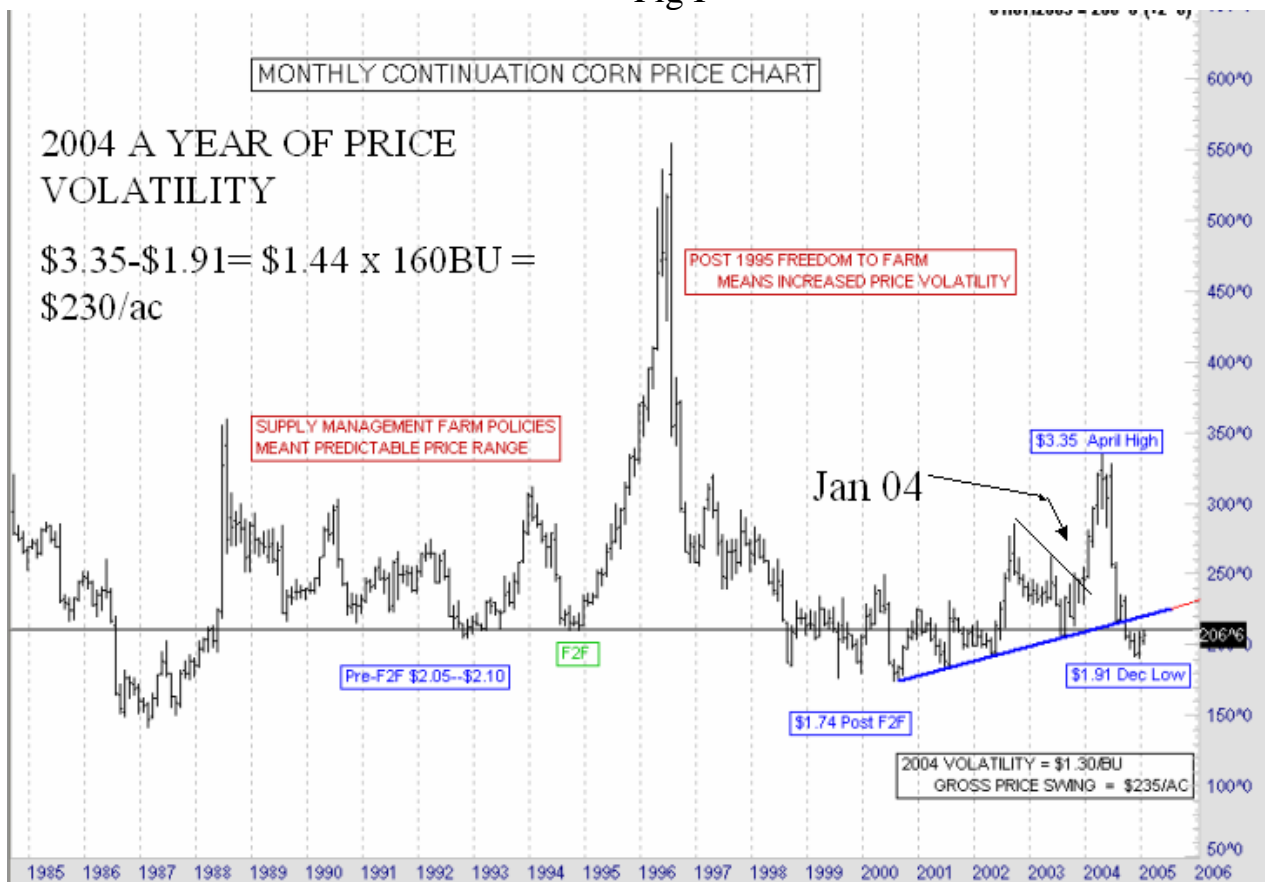
The Bad. The “bad” can be related to the most common excuse for non-use of risk management tools as being one of having lost money doing so. If put in context of locking in a profit, using futures or options to do so only to find that prices went higher (in the case of a producer) or lower (in the case of an end user) means one lost opportunity for a greater reward, but does not mean the original profit opportunity was lost. Understanding that there are two sides to a ledger is paramount. One side depicting potential gross receipts by doing nothing in the way of managing price risk, and the other side depicting the resultant effect of risk management on gross receipts less the direct cost managing the risk.⁴ Capturing a profit opportunity (hedging off price risk) on part of one’s production or usage, means that there remains profit opportunity or loss on the balance of production or usage still at risk (unhedged). Only when one has covered 100% of the commodity at risk, has the opportunity for further profit ceased.

The Good. To miss a reasonable profit opportunity is disappointing. To have been offered an opportunity of the rare occurrence of an exceptional profitability and have let it slip by because of ignorance or misunderstanding the concepts of market risk, can be devastating. The reward in having done a job well done is satisfying especially when profit goals are met or exceeded. The “good” comes from the personal satisfaction of self-help in the process of being successful in recognizing the

risk associated with pricing decisions, and having managed that risk successfully without the benefit of outside intervention.

A Perspective. Figure I shows the historical price for corn over the past twenty years with special emphasis noting just the recent twelve months. The top in the price of corn came in April of 2004 at a time that likely saw little in the way of actual planted acres, and a very difficult timeframe for a producer to commit to physical future delivery of a crop not yet planted. However, managing the price risk does not mean committing to delivery outside of one's comfort zone. The use a scale up hedging program to pass off market risk, or a more conservative use of put options could have captured profitable opportunities on at least a portion of the crop. A conservative action to have captured merely half the price rally or collapse, could have meant an average selling price of nearly half the \$1.44 collapse or approximately \$2.63/bu. compared to recent futures prices of \$2.00/bu or a difference of 63 cents per bushel or nearly \$100 per acre based on a 160 bu yield.

Fig I



The \$100 per acre variation of an average worst case is minor if one considers a situation (unfortunately not so uncommon) where nothing was done on the part of the producer who still holds 100% of inventory unsold now worth nearly \$260 per acre less than the high of the move based on 160 bu yield. A conservative estimate of \$130 per acre of missed opportunity suggests a 2000 acre producer missed a profit opportunity of \$260,000 making the cost of other line items in his budget a moot point and any reasonable estimate of the return on the investment of the cost of managing price risk (ROI) including investment of time as likely “the” most profitable aspect of his enterprise. Extrapolating this theoretical approach to just half the production of 11 billion bushels produced in

2004, and the amount of lost profit opportunity is staggering, not to mention the lost benefits to the farm communities at large that depend on Ag income for their survival.

A second look at current prices for corn as depicted above, suggest that there is significant risk to the upside for 2005 should adverse weather adversely affect production. It might be suggested that given the fact that December corn futures at press time suggest a cash market within a dime of loan rate (safety net) below which there is implied no price risk. However, given the large surplus in carryover for 2004 crop on Sept 1, 2005, and the implied increase in corn acres associated with unprofitable soybeans and Asian Rust implications, there is significantly more price risk to the downside in corn than what the safety net farm policy would imply. Therefore a reasonable approach to buy price risk management through the Outlook Forum today, the March 31st USDA Acreage Estimate based on surveys, and the subsequent spring and summer growing season would be in the options at a price relatively reasonable, but still providing upside protection should weather and acres turn out price positive (bullish) over the months ahead. A put option “spread” of buying the Dec (CZ) \$2.30 put option, and selling the \$2.00 put option at a net cost of approximately 12 cents per bushel is a reasonable place to begin managing the inherent price risk with known profit and loss potential. Subsequent developments in monthly USDA Reports and planting progress and summer crop ratings may require an “adjustment” to the option scenario, but the risk is well defined. If prices explode, the loss is fixed at 12 cents

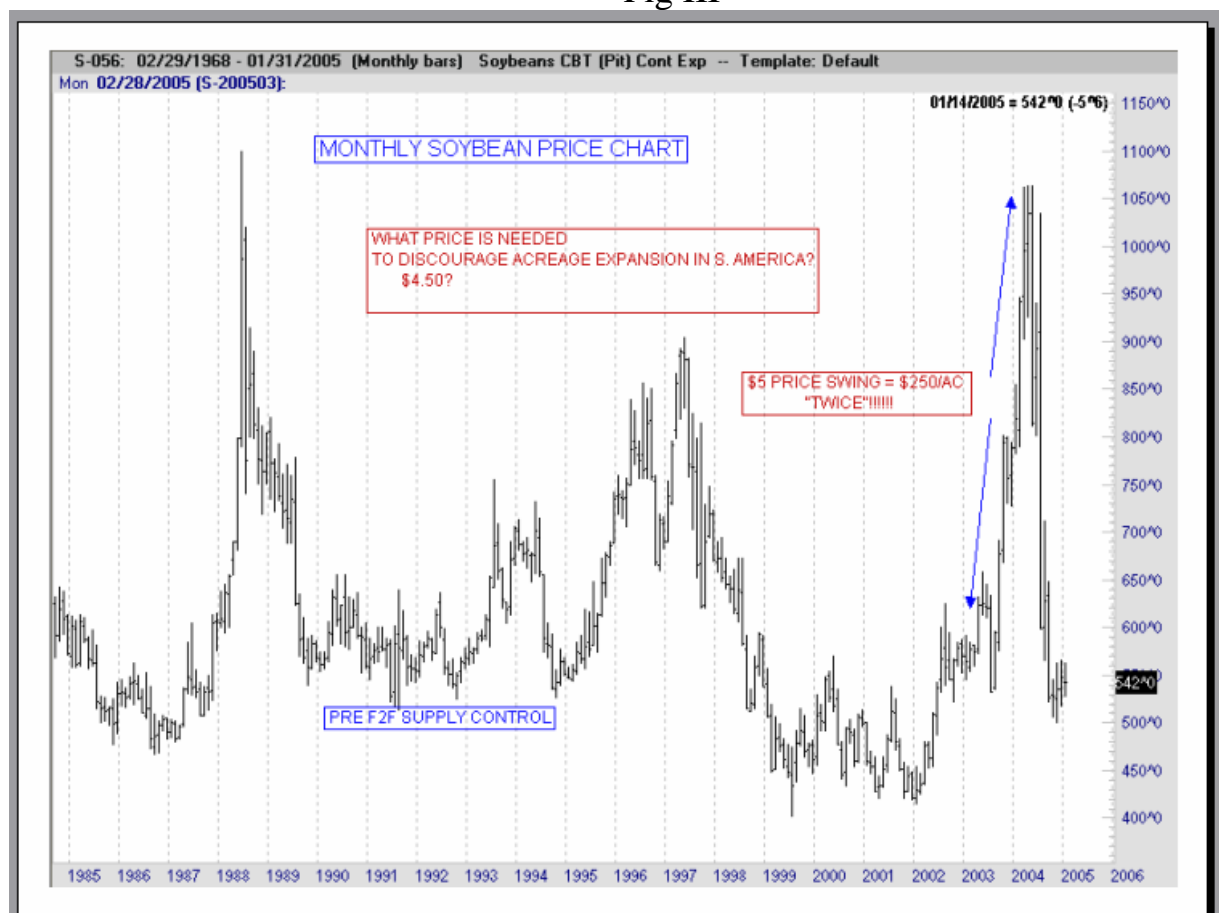
Fig II Long 230, short 200 cz puts (net 12 cents) CZ5 at \$2.31 futures

days		1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
283	14-Feb	13	11	8	6	3	0	-2	-4	-6	-8	-9
223	15-Apr	13	11	9	6	3	0	-3	-5	-7	-9	-10
163	14-Jun	14	12	9	6	2	-1	-4	-7	-8	-10	-11
103	13-Aug	15	13	10	6	1	-3	-6	-8	-10	-11	-12
54	1-Oct	17	15	11	6	0	-5	-8	-10	-12	-12	-12
0	24-Nov	18	18	17	8	-2	-11	-12	-12	-12	-12	-12

CORN: With an options matrix above, it is very help to quantify profit or losses as the futures price changes and as time goes by. The above matrix allows the ability to monitor values of the position by picking the price column and date row to see the corresponding profit in 000 dollars. The gray area denotes a loss. The maximum risk is 15cts per bushel, with maximum profit up to 25cts profit on the position. Holding he option trade will cost money over time if futures prices remain, called time delay. The table shows how quickly that will happen, and what price level needed to achieve to overcome the time decay and not lose the premium paid. Since time and more information is needed to add support to the managing price risk decision, the above matrix shows that this is possible on at least part of the production. If crop production/revenue insurance is in place at some level below a 25% loss in production, then it stands to reason that given the inherent market risk, that as a minimum, the 25% not covered by conventional insurance needs some management. The cost of using conventional tools to manage market risk in this particular case, is 12 cents per bushel or about \$18 per acre on the 25% covered but split over total production, the risk is merely 3 cents or \$4.50 per acre or about the cost of custom applying chemicals. Understanding the process of managing market risk, and the implications of supply and demand on price outlook requires some due-diligence but is no less complicated than understanding the agronomics or plant technology---it is a matter of priority. Unless there is a reason to give respect to marketing, it likely will not happen.

SOYBEANS: Given the global outlook for record stocks resulting from normal crops in both the Northern and Southern hemisphere, the soybean price discovery mechanism will be required for one of the two major growers (Brazil or the US) to be given a disincentive to plant soybeans either this spring in the US or next fall for the S American farmers. In the meantime, the crop in S America has not yet been quantified, nor has the American farmer showed his planting intentions. However, conventional wisdom suggest both the Asian Rust potential in the US and poor economics of soybeans will shift acres from soybeans to an alternative crop likely being corn as the total wheat acres have already been estimated to drop in favor of an alternative crop. Given current US carryover, a drop of more than 1.5 mil-ac currently estimated for soybeans will be required to reduce ending stocks under a trendline yield scenario sufficient enough to sustain prices rallies in excess of \$5.50 basis November 2005 futures. Conversely, a trendline yield on minor reductions of acres opens up downside risk to November futures of a dollar a bushel. As the cash flow analysis for a typical Illinois farm shows (Fig IV), there is little room for error in soybeans even under at a reasonably good lock-in price for production. Fig III reflects the 20 year price range for soybeans, and Fig IV an options scenario similar to the corn strategy outlined above.

Fig III



The last time the world stocks to use ratio was anywhere near what is estimated to be in 2005, CBOT soybean futures reached \$4.01. Current ending world stocks are seen as nearly twice value seen when futures reached \$4.00. Cash flow (Fig V) indicates a negative for soybeans, suggesting that under normal conditions, considerable downside price risk remains warranting additional risk management in addition to conventional crop insurance. The option spread below (Fig IV)

Fig IV

Long 540, short 500 SX puts (November)

days		4.70	4.80	4.90	5.00	5.10	5.20	5.30	5.40	5.50	5.60	5.70	5.80
250	15-Feb	11	9	7	6	4	3	1	-1	-2	-4	-5	-6
190	16-Apr	12	10	8	6	5	3	1	-1	-3	-4	-6	-7
130	15-Jun	13	12	9	7	5	3	0	-2	-4	-6	-7	-9
70	14-Aug	16	14	12	9	6	3	0	-3	-6	-8	-10	-12
10	13-Oct	22	21	19	15	10	3	-4	-10	-14	-16	-17	-17
0	23-Oct	23	23	23	23	13	3	-7	-18	-18	-18	-18	-18

CONCLUSION: Given the global environment producers are expected to compete, and the economic budgetary restraints as well as trade issues that threaten to reduce farm entitlements over time, it seems reasonable that the time is right to once again re-ignite the desire on the part of producers and end-users to embrace price risk management. Often a neglected aspect of agricultural management, frowned upon by financial lending institutions, misunderstood by the Ag sector, managing price risk is a profit center that can no longer be neglected. The road to educate and train users in the benefits while dispelling the myths will be long and difficult, but neglecting the attributes for another fifty years is unacceptable. If there is one thing left in agriculture that we in the US can do more efficiently than our competitors, it is to unleash the entrepreneurial ability of the producers to embrace the attributes of management of price risk that will certainly benefit all sectors of agriculture. The ultimate compliment will be that we improved our bottom line, without direct government influences, while empowering the producer to more successfully compete in a market based environment.



Cashflow reality check

By Jerry Gulke

Studying my cashflow prospects is a key effort for me each year. Being realistic is important. My 2005 cashflow projections reveal more questions than answers.

Input costs are up: Another huge jump in nitrogen price (from about \$240/ton for anhydrous a couple years ago to \$460 this year) is the main culprit, although seed costs and tech fee increases run a close second. Energy costs, including drying, and transportation for the things we use also are up.

Prices. With two billion bushels of corn and 450 million of beans being carried over, there is ample room for a demand shock or a minor setback in production.

Predicting downside price potential is not as important as knowing where the upside is not! Assuming I will get an opportunity to hedge \$2.50 December 2005 corn and \$6 soybeans is perhaps naïve, all things being equal. Conversely, given near-normal growing conditions, loan deficiency payments (LDPs) next fall could dwarf what we saw recently.

Note that I have not included any profit enhancements from futures hedges or options, nor are counter cyclical payments included since they are not tied to which crop I plant. But they will be needed to have any kind of respectable farm profit this year.

Soybeans look like a losing proposition

How much of a switch in U.S. acres will occur is a matter of conjecture. My gut feeling is that high fertilizer costs, plus some doubt as to whether all the rust hype is for real or not, will keep medium- and small-sized farmers from switching too much!

Sales plans. Marketing this year will be much more risky and complicated due to less price potential and perhaps less price volatility. However, through the use of crop insurance, options, futures, and minimum cash forward contracts, I'll try to manage the downside risk while keeping the upside open until I have greater assurance

that the crops got planted in a timely fashion and off to a good start with a reasonable forecast for normal summer weather.

I will also use my grain storage to enhance my income after I harvest by capturing market carry. Even soybeans may have a carry this year because we could have the largest world carryover in history.

I have already hedged nearly 75% of my expected corn production in December futures above \$2.40 and 50% of 2005 soybean production using the options strategy discussed in last month's column. If I am expected to spend \$15 to \$30 for insecticide/fungicide this year, I view a like amount to manage price risk as money equally well spent. Last year's similar plan provided near-record income, but in 2005 it may be a matter of necessity.

No doubt, this year my marketing plans will give a whole new meaning to flexibility depending on what you and I and Mother Nature finally decide. ■

Marketing consultant Jerry Gulke grows corn and soybeans in Rockford, Ill. Contact him at (815) 962-8860 or e-mail TopProducer@farmjournal.com.

How Prospects Stack Up

Item	Corn (\$/acre)	Soybeans (\$/acre)
Seed	48	30
Insecticide	16	9
Fungicide (rust)	0	36
Producer spraying above	250	7
Fertilizer (N); beans get credit	40	-12
Fertilizer (18-46-60)	15	7.50
Weed control	23	15
Crop insurance	25	16
*Total cost	437	345.50
Estimated cash price (\$/bu.)	2.15	5.35
Break-even bu.	172	48
LDP (\$/acre)	52	36
Storage gain (\$/acre)	34	19
Gross (\$/acre)	455.00	312
Net (\$/acre)	18.00	-33.50

* Total cost includes land rent value (\$165), fixed costs (machinery, etc.) and variable costs not detailed because they are the same for both crops.

LDP: Corn = 30¢/bu. X 172 bu.; beans, 75¢ X 48 bu.

Storage: Corn = 40¢ X 0.5 crop; beans = 80¢ X 0.5 crop

Planting mix. Given my projections, beans just don't cut it unless I assume that last year's super yields are now the norm. I think not! I am more comfortable using reasonable yield expectations in corn than pushing the envelope in beans, especially with the issue of rust.

I feel I can manage my price risk before harvest and my profit potential after harvest much better in corn than soybeans.

Unless prices or weather change my mind, I will reduce soybean acres 50% in favor of corn on corn. The one caveat is that my fall tillage was achieved on only 20% of my acres, throwing a real crimp into completing spring tillage in a timely fashion.



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MONTHLY CONTINUATION CORN PRICE CHART

2004 A YEAR OF PRICE VOLATILITY

$$\$3.35 - \$1.91 = \$1.44 \times 160\text{BU} = \$230/\text{ac}$$

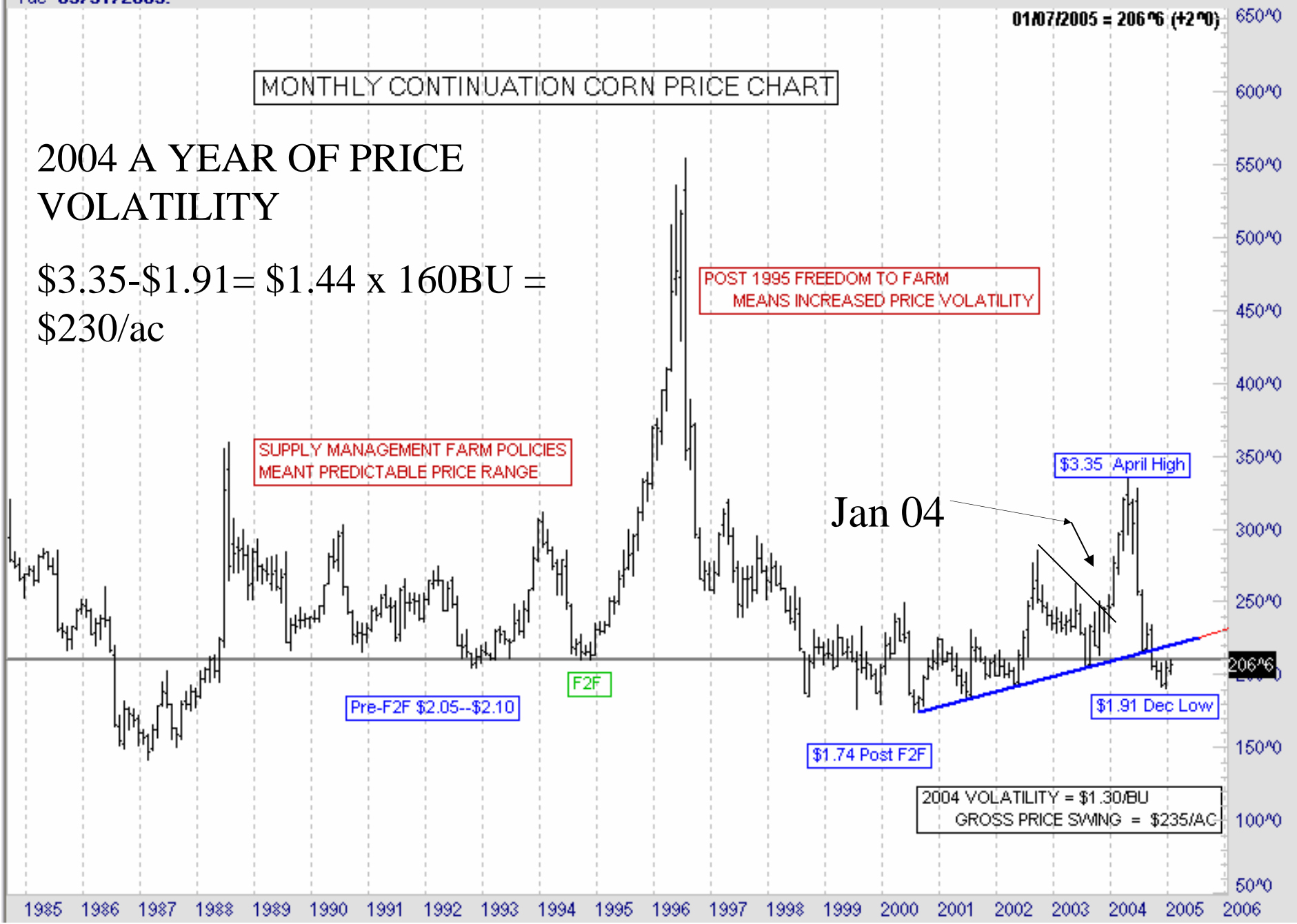


Fig II Long 230, short 200 cz puts (net 12 cents) CZ5 at \$2.31 futures

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MONTHLY SOYBEAN PRICE CHART

WHAT PRICE IS NEEDED
TO DISCOURAGE ACREAGE EXPANSION IN S. AMERICA?
\$4.50?

\$5 PRICE SWING = \$250/AC
"TWICE"!!!!!!

PRE F2F SUPPLY CONTROL

01/14/2005 = 542¢ (-5%)

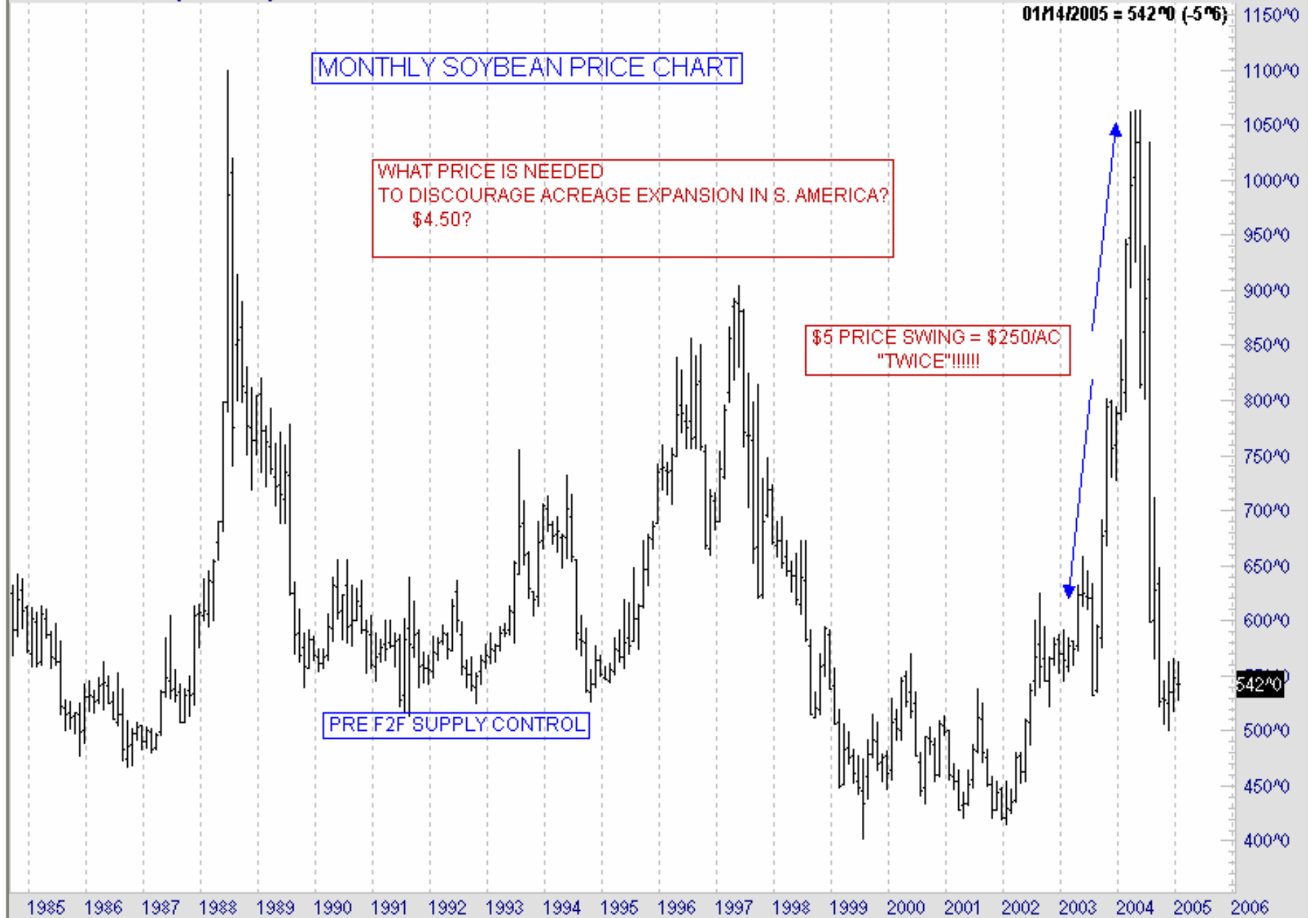


Fig IV

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70	14-Aug	16	14	12	9	6	3	0	-3	-6	-8	-10	-12
10	13-Oct	22	21	19	15	10	3	-4	-10	-14	-16	-17	-17
0	23-Oct	23	23	23	23	13	3	-7	-18	-18	-18	-18	-18

ILLINOIS CROP BUDGET	Total Acres	Corn	Soybeans
Planned total acres/crop	2,000.0	1,000.0	1,000.0
Land Cost		\$165.00	\$165.00
Machinery Cost		\$22.50	\$22.50
Repairs, machinery/ buildings		\$7.50	\$7.50
Payroll / Labor	\$36,000.00	\$18.00	\$18.00
Combining		\$12.00	\$9.00
Trucking		\$6.00	\$1.50
Drying cost		\$22.00	\$1.00
Overhead:Utilities, phone, elec		\$2.00	\$2.00
Cost of Living Est		\$0.00	\$0.00
Interest Est		\$5.00	\$3.00
Total fixed		\$260.00	\$229.50
Seed		\$48.00	\$30.00
Fuel		\$7.50	\$7.50
Seed treatment		\$0.00	\$0.00
Insecticide		\$16.00	\$9.00
Fungicide (Rust)			\$36.00
Producer Spaying above fixed		\$2.50	\$7.00
Fertilizer 1 NH3		\$40.00	\$0.00
Fertilizer 2 18-46-60		\$15.00	\$7.50
Chemical 1 (Grass)		\$8.00	\$0.00
Chemical 2 (Weeds) RR		\$7.50	\$7.50
Chemical 3 (2nd Weed) RR		\$7.50	\$7.50
Commercial Spray Application		\$0.00	\$0.00
Crop Insurance MPC/CR/RA		\$25.00	\$16.00
Hail Insurance		\$0.00	\$0.00
Total Variable		\$177.00	\$128.00
Total Fixed and Variable	\$0.00	\$437.00	\$357.50
Less Government Payment	\$0.00	\$0.00	\$0.00
Less Custom Work	\$0.00	\$0.00	\$0.00
Net Cost Per Crop Acre	\$0.00	\$437.00	\$357.50
Estimated Selling Price		\$2.00	\$5.25
Break Even Bushel		218.5	68.1
LDP Corn 30 cts @ 172 bu	0.3	\$52	
LDP Soybeans 75 cts @48 bu	0.75		\$36
40cts Storage Gain on 1/2 corn c	0.2	\$34	
80ct Storage Gain on 1/2 bean c	0.4		\$19
Rotational Nitrogen Benefit			\$12
Updated Selling Price		\$2.15	\$5.35
Updated Yield	12/27/04	172	48
Gross Per Acre		\$455.80	\$324.00
Net Per Acre with updates		\$18.80	-\$33.50