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**Grain Contracting Strategies to Induce Delivery  
And Performance in Volatile Markets**

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## **Abstract**

One of the impacts of higher prices along with greater volatility in futures and basis is that there is pressure for an escalation in cash contracting for grain. This volatility has resulted in an unprecedented level of contracting with growers for specific purchases in recent years. There is a wide array of cash contracts with varying terms. Beyond that array, there is also a growing realization of growers not delivering on contracts, in part due to escalation in post-contract prices. This realization is evolving as a major strategic issue for buyers and the marketing system, particularly as buyers seek to use such contracting strategies as an element of risk mitigation.

There are three purposes of this article. First is to provide a broad survey of contract terms used in grain contracting with growers. An emphasis of these terms relates to options and mechanisms used to entice performance. Second, we illustrate some issues in contracting of some of the grains (durum, malting barley) in the upper Midwest. Third, we show some of the common contract clauses being adapted in these contracts. Finally, we summarize these issues with respect to industry implications.

JEL Classifications: C15, D81, Q12

## **Grain Contracting Strategies to Induce Delivery And Performance in Volatile Markets**

### **Introduction**

Markets for many components of grain prices have become more volatile in recent years. As a result of these components, amongst others, there has been an escalation in contracting. Contracting involves risk sharing between buyers/sellers, which contrast with hedging in futures markets in which risk is transferred to an anonymous third party. One of the challenges in contracting is determining the appropriate risk premium accrued by participants, and how that is shared between the buyer and seller. The other source of risk is contract non-performance or delivery (breach). This risk has evolved as a major problem for buyers and the marketing system, particularly as buyers seek to use such contracting strategies as an element of risk mitigation.

The problem is compounded by a number of factors. One is the competition for acres (or, commonly, the *battle for acres*). The impact of this competition is for an escalation of pre-planting contracting, and in which a major feature of inter-crop and inter-firm competition relates to their contract terms. Second is that while terms exist in commodity type grain contracts, contracting in this competitive environment has resulted in challenges structuring terms to be incentive compatible. Third, if a contract is offered by a buyer, it is done so in part as a means of risk mitigation by buyer (and seller). Consequently, if one breaches, it abrogates the risk mitigation strategy of the counter party. Finally, and importantly, all buyers confront the business relationship challenge of whether to initiate legal proceedings against farmers or suppliers who knowingly breach their contract. While there are differing views on this, it remains an outstanding strategic issue.

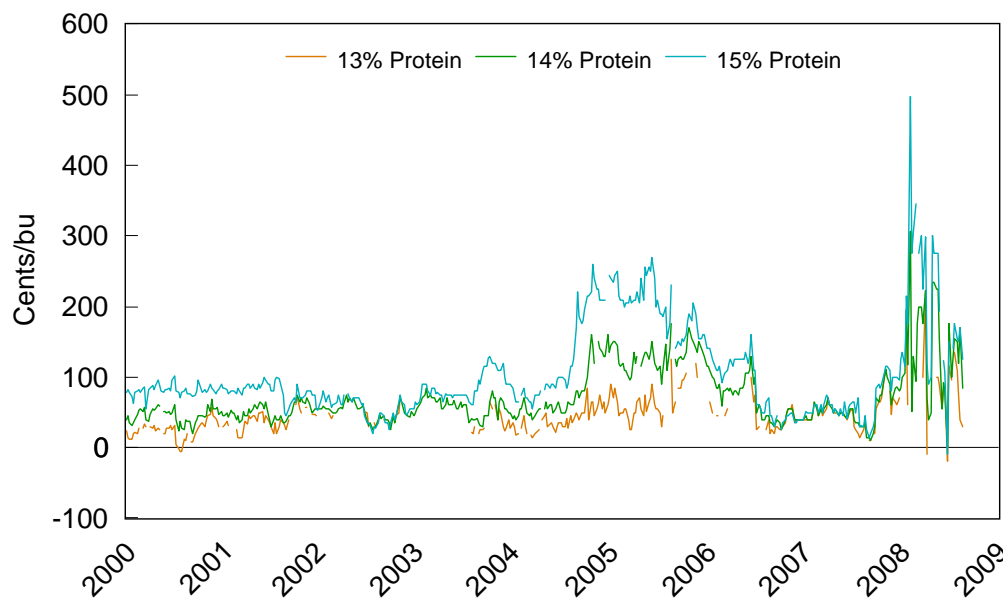
The purpose of this paper is to motivate the problem of contracting and address some of the issues confronting the grain industry related to contracting. There are three specific purposes. First, we provide a broad survey of contract terms used in grain contracting with growers. An emphasis of these terms relates to options and mechanisms used to entice performance. Second, we illustrate some issues in contracting of some of the specialty grains (durum, malting barley) in the upper Midwest. Third, we show some of the common contract clauses being adapted in these contracts. Finally, we summarize these purposes with respect to industry implications.

The paper is organized as follows. First we describe volatility and risk and why this provides a motive for the escalation in contracting. Then we discuss what we observe as growth in contracting for grains. This discussion includes a description of contract terms and contract competition. We illustrate some of the challenges, in this case as applied to contracting for durum wheat. Finally, we discuss mechanisms to assure contract performance.

## Volatility

It is now common knowledge that there has been an escalation in volatility in recent years. While there may be debate about why or whether it will continue, all market participants acknowledged that the escalation in volatility has increased risk in grain marketing.

There are several points that are perhaps less recognized. First, not only has there been an escalation in volatility in the underlying futures markets, but there has been an increase in volatility in several other elements of prices. For example, the basis in many markets has increased similarly (Figure 1, as an example). In fact, for wheat traded at the Minneapolis Grain Exchange (MGEX), the basis volatility has increased sharply, and in some periods, it has been more volatile than the underlying futures market price. Taken together, this basis has reduced the hedging effectiveness of the instrument (though it remains better than alternatives) and severely altered optimal hedge ratios. Similar observations exist at many other basis markets. There has also been a radical change in volatility in premiums/discounts in grains, as well as in shipping costs, notably ocean rates, amongst rates for other modes. All of these points have implications for buyers.



**Figure 1. Minneapolis Basis for HRS Wheat 14%**

There are numerous potential causes of this escalation in volatility. Some attribute this escalation to mutual fund trading, ethanol, amongst others. More importantly however, is that in most grains there has been a sharp reduction in the stocks/use ratio (at least through 2007/08) which ultimately is the most important factor that caused this growth in volatility. In part this



volatility is caused by the differing growth rates in supply and demand for major commodities, compounded by ethanol and tempered a bit by yield risk.

Given that these underlying fundamentals are expected to persist in future years, it is expected that volatility will remain higher than in earlier years, albeit less than observed in 2008. More likely, this trend will persist for 4-8 years until new crop production technologies are adopted and ultimately improve the dynamics of the supply/demand balance. Nevertheless, a primary reason buyers and sellers have been seeking, or exploring, alternative contracting strategies is due in part to the reduced ability of traditional mechanisms for controlling risks (notably futures which are more volatile, and options which, as a result of the greater volatility results in higher premiums).

### **Contracting for Grains**

There are three topics we discuss related to contracting for grains. One is factors contributing to the apparent growth in contracting. Second, we discuss the battle for acres in particular, and the implications for contracting. And, third, we present a summary of some of the major clauses contained in grain contracts in the new emerging contracting competition.

### ***Growth in Contracting***

The most recent broad based survey on contracting in agriculture (to our knowledge) was done by MacDonald et al., who examined contracting of commodities in the U.S. in 2001 and compared use of contracts to that in various time periods. They indicate that the number of farms using contracts and value of production under contract increased from 1969 to 2001. The number of farms using contracts increased from 6% to 11% from 1969 to 2001 and the value of production increased from 12% in 1969 to 36% in 2001. They illustrate that the share of wheat under contract increased from 6% of value in 1991-1993 to a high of 9% in 1996-1997 and declined to 5% in 2001. Most of the contracting of crops was focused in fruit, vegetables, rice, sugar beets, and peanuts. Contracts in crops were largely marketing contracts, while livestock contained both marketing and production contracts.

MacDonald et al., concluded that the spot market is having difficulty providing accurate price signals for products geared toward new consumer demands. They indicate that this trend for increased use of vertical coordination, through contracts and ownership will continue.

More recently, it is our observation that contracting has escalated drastically. While it is difficult to document this observation without a broad-based survey, it is our expectation for some commodities; pre-planting contracting has been adopted for approximately 70% of industry demand, and has now become common business practice in the industry. We would attribute that this practice is in response to three important factors. One is the battle for acres, which we describe in more detail below. The second is the apparent escalation in risk, as a result of the increase in volatility as described above. Third is the apparent deterioration of, or unavailability of, traditional hedging mechanisms for managing risks.

## ***Competition and the Battle for Acres: Implications for Contracting***

In part due to the growth in demands relative to supplies, and shifts in agronomic technology and production practices, a battle for acres exists in many regions of United States agriculture. While in some states, there are few cropping opportunities and the battle is not as apparent, in North Dakota, as an example, growers in many regions have up to 12-18 different crops that can be economically grown. In fact, extension budgets normally contain returns for this many crops (Swenson and Haugen). Some elevators now are posting prices for up to 12 crops at one time. Finally, it should be noted, that in this state the crops are apparently as diverse as any other state with the exception of California.

As a result of this diversity, and the growth in genetically modified (GM) row crops in these non-traditional regions, there has been a shift in production. The response has been for an escalation in contracting. As examples, canola contracts have been offered for 2 years of production, along with act of god clauses for prescribed varieties, and some of the ethanol plants were offering contracts for 3 years production. Most of the malting barley is now bought on pre-planting contracts (Wilson, Gustafson and Dahl). Some of these are 1 year contracts with an option on a 2nd year, are offered up to 14 months prior to harvest, and have relaxed quality requirements. There has been lesser contracting in durum wheat, but during 2007 contracts were offered in the spring for new crop (pre-planting) delivery and during the 2008 contracting season contracts were offered with a record premium relative to Hard Red Spring Wheat (HRS). And, many of the minor crops, including canola, peas, beans, Sunflower, NuSun, Vestive, etc. are all nearly 100% contracted.

### ***Contract Terms***

By definition, a contract is a mechanism of risk sharing. Risks are pervasive including risks on price, quality, quantity, acceptance rates, etc. Hedging in futures contracts provide a mechanism to share an element of “price” risk which is transferred to a 3rd party. Thus, many contracts allow pricing relative to a “futures” price, essentially to allow for 3rd party risk transfer. Absent of futures component of pricing, risk is strictly shared between buyer and seller!

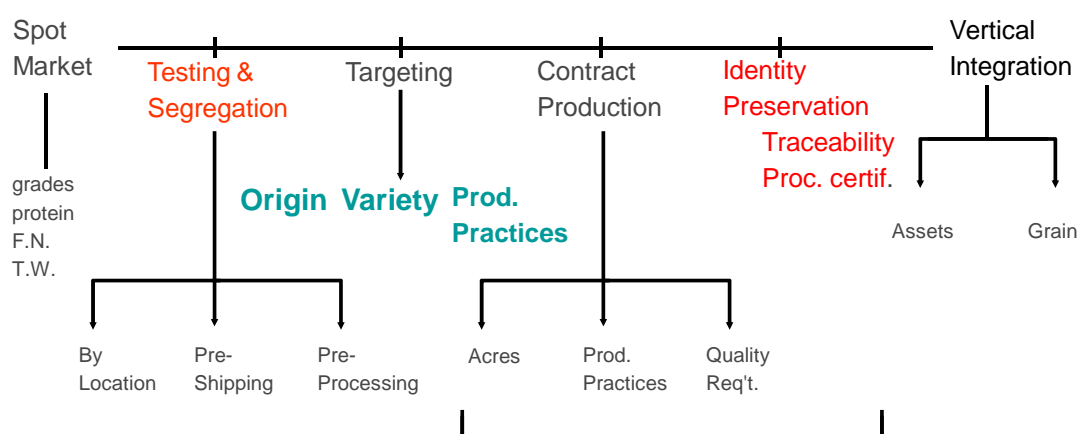
Figure 2 is used to characterize the types of contracting now used, as an alternative for procurement strategy (adapted from Wilson and Dahl). This figure highlights differences that may be embedded in different contract types. It illustrates the range of alternatives, from relying on simple spot transactions, to include varying types of contracting, and finally, the alternative is always that of vertical integration. Ultimately, it is the buyer that chooses where to be strategically positioned on this spectrum of alternatives.

To understand the scope and extent of contracting currently used in the upper Midwest, we surveyed a group of buyers and processors for several of the non-commodity type grains produced. These contracts would be considered as marketing contracts, as opposed to production contracts (Michigan Farm Bureau) and should not be considered as specialty crops since at least

in the past they had been considered as commodities. These are represented as crops which are not as readily tradable as the major commodities such as corn, soybeans and winter wheat.

The major contract terms are categorized and summarized and categorized below.<sup>1</sup>

## Segregation, IP and Traceability Spectrum of Procurement Strategies



**Figure 2. Spectrum of Buying and Contracting Strategies for Grains and Oilseeds**

Act of God Most of the contracts, though not all, contain Act of God provisions. Sometimes these clauses are offered without a price differential.

Premiums and Discounts for Quality Deviations These premiums and discounts are very important provisions. Barrett indicated that one of the top 10 contract points is to “Include provisions in your contracts that spell out how, where and when quality discounts, and premiums are to be determined.” Some contracts treat quality deviations which apply to market values at harvest. Others are premiums and discounts that are pre-specified in the contract prior to planting. At issue here is whether the buyer or seller absorbs the price risk of quality deviations.

Right of First Refusal on Surplus Production This is a common clause and most buyers will want this right. At issue is at what price. Some contracts provide this right at market prices (as

<sup>1</sup> For obvious reasons it is not possible to disclose the firm names etc, but that is not important for purposes here.

opposed to contract prices). Others do so at some prescribed price differential determined at time of contracting.

Pricing There are many types of pricing mechanisms. These types include, as examples: Simple fixed price; Basis to single futures or multiple futures; 2 part pricing (base quantity at contract price; surplus at discount (reflecting implicit storage costs); and in a number of contracts there are option type features (implicit) including minimum price features and in some cases average price features, Min/max, Min and Lookback option, Average price (equivalent to an Asian option) and typically growers have the right to select the time when price is established. Interestingly, these mechanisms all are option type features. However, our observation is that they are not included with a price differential to a non-option type contract term. Hence, the buyer is absorbing the implicit cost of the option.

Storage Options Most contracts require on-farm storage along with a buyers call. Storage fees apply after a specified time and on-farm samples must be submitted. However, some require sampling and testing at time of delivery.

Agronomics Finally, most contracts require certified seed bought from buyer. And, it is common to declare or buyer recommends acres for specified production.

### **Risk and Contracting: Case Study on Durum Wheat**

For illustration of issues related to risk and risk sharing, we show some details of an analysis of premiums that could be included in contracts for durum wheat. This crop has experienced problems similar to malting barley; in fact they are near identical. Traditionally, it has been a spot commodity and contracts were not used. Basically, supply exceeded demand and there was no need to contract. Over time there has been a decline in acres planted, ultimately to the point that the industry has had to rely more on imports. The primary reasons contributing to this decline include disease (i.e., vomitoxin), changing agronomic competitiveness, a change in the geography of production, and Canadian competition. The primary competing crops to both durum and malting barley are HRS wheat and canola, etc, in addition to soybeans, and up to 6-8 other more specialty grains.

There is substantial risk in the production of durum. These risks are primarily related to price, and yield and all relative to the primary competing crop, in this case HRS wheat. Specifically, price risk is much more volatile than HRS wheat, and there is no public market for hedging, in contrast to HRS wheat that can be readily hedged. Traditionally there is limited transparency in forward contract values. Yields are also more risky, and this has increased in part due to the shift in geography of production (i.e., it has shifted to regions more prone to drought). Finally, there is greater quality risk. This risk has two parts. One is the risk of not conforming to No. 1 and 2 grade requirements (Falling Numbers, Protein, etc). The other is the discounts that would apply if rejected, which are highly risky. In addition, there are slight differences in crop insurance provisions.

### ***Methods to Evaluate Risks on Contracting: Durum Wheat***

Alternative selling strategies for durum and HRS wheat were simulated using comparative crop budgets to estimate the distribution of returns over variable costs for each of the alternatives. These distributions were analyzed with stochastic efficiency (Simetar) to estimate certainty equivalents for each strategy and risk premiums for each of the alternatives relative to a base strategy.

Crop budgets included variable costs for both durum and HRS wheat production in Northwest North Dakota for the 2009 crop year (Swenson and Haugen). Random variables in the crop budgets included yields, prices, and crop quality discounts (Table 1). Adjustments in revenue (ex: insurance payouts) were included for crop yield shortfalls. Yield distributions were fitted from annual data from 1995 to 2007 for dryland crop reporting districts in Western North Dakota and Eastern Montana from USDA-NASS (2006). Distributions for futures, protein premiums/discounts, and durum prices were similarly fitted from annual data from 1995 to 2007 to determine variability, where means of futures for HRS wheat and cash prices for durum wheat were adjusted to current levels for September futures on 1/6/09 (7.06) and new crop bids for durum of (7.61). The probability of crop quality meeting specifications was determined from U.S. HRS wheat (Minnesota, Montana, North Dakota, South Dakota) and U.S. Northern Grown Durum Wheat (Montana, North Dakota) crop quality surveys from 1995 to 2007 which indicated the probability of meeting No. 1 Hard Amber Durum (HAD) for durum or proportion 14% protein or higher for HRS wheat. If quality specifications were not met, durum wheat was applied a 20c/bu discount for terminal durum and for HRS wheat was applied protein discount for 13% protein wheat rather than the 14% protein premium if specifications were met.

**Table 1. Distributions and Parameters for Random Elements in Comparative Crop Budgets**

<b>Item</b>	<b>Distribution</b>	<b>Mean/Probability</b>	<b>Std. Dev.</b>
Yield HRS Wheat	Logistic	24.69	3.02
Yield Durum	Logistic	24.55	4.21
HRS Wheat Quality	Discrete	.64 quality met	
Durum Quality	Discrete	.36 quality met	
HRS Wheat Futures	Normal	7.06	1.36
Mpls Durum	Logistic	7.61	3.10
14% Protein Premium Mpls	Lognormal	.76	.58
14% Protein Premium PNW	Normal	.97	.21
13% Protein Discount	Logistic	-.20	.14
	Variable Costs		
HRS Wheat		110.62/a	
Durum		115.17/a	

Random draws for yields of HRS and durum wheat were correlated (.81) and prices and probabilities of meeting quality were correlated (Table 2). For HRS wheat, prices were estimated from random draws for acceptable quality for delivery to both Minneapolis and the Pacific Northwest (PNW). Since northwestern North Dakota and Montana farmer prices can be influenced by prices/demand at Minneapolis and the PNW, the local price is derived as the *MAX*[net returns selling to PNW, net returns selling to Mpls]. These prices are used to determine returns over variable costs assuming recent shipping costs from Western North Dakota.

**Table 2. Correlations for random draws for prices and acceptable quality distributions**

Item	HRS Fut	14% Mpls	14% PNW	13% Discount	Durum	Quality HRS	Quality Durum
HRS Fut	1.00	0.00	0.00	0.00	0.86	0.00	0.00
14% Mpls		1.00	0.91	0.00	0.00	0.00	0.66
14% PNW			1.00	0.00	0.65	0.00	0.00
13% Discount				1.00	0.00	0.00	0.00
Durum					1.00	0.00	0.00
Quality HRS						1.00	0.00
Quality Durum							1.00

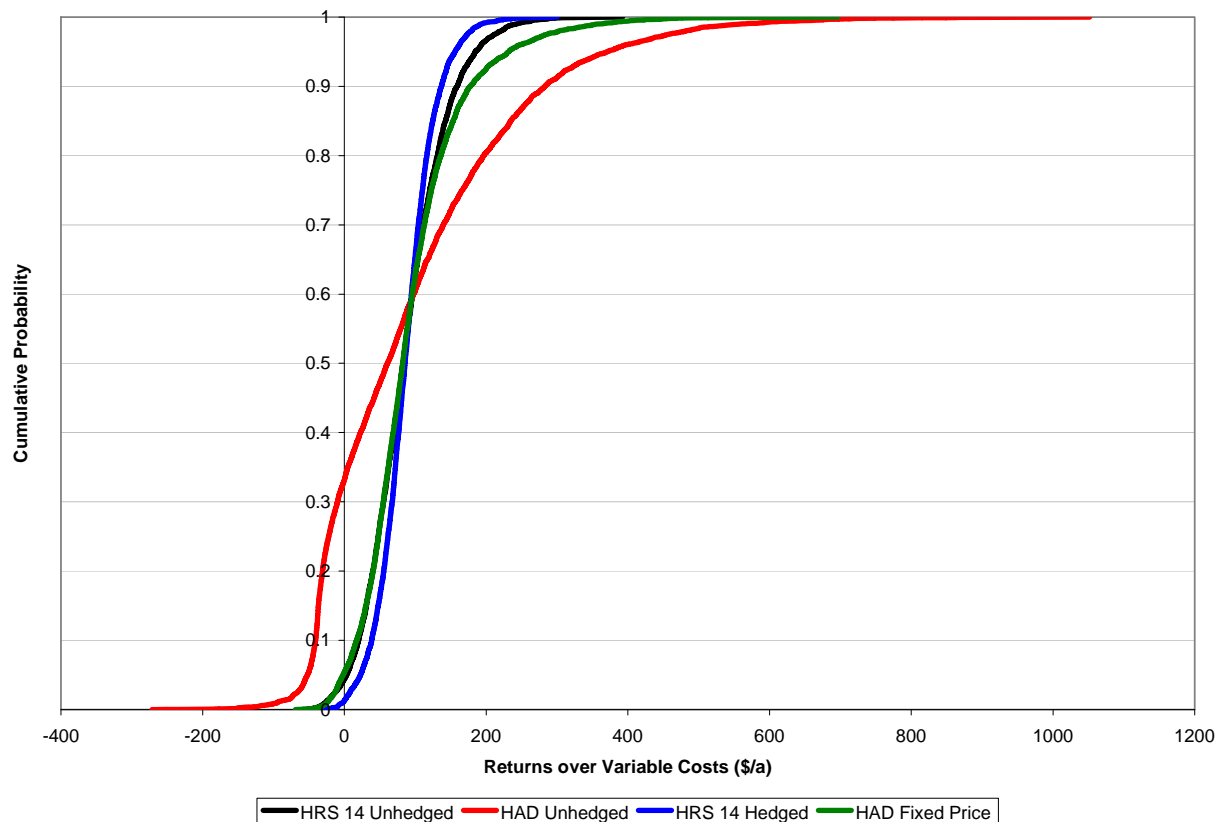
Alternative selling strategies were simulated 5000 iterations using @Risk (Palisade Corporation), at which time stopping criteria indicated results had settled so that successive iterations would not result in a significant change in distribution parameters. Distributions for each of the selling alternatives were then evaluated using Simetar (Schumann, Feldman, and Richardson) to estimate certainty equivalents for each of the selling strategies across the range of relevant absolute risk aversion attitudes. The upper range for absolute risk aversions was determined following McCarl and Bessler. Risk premiums were estimated as the difference in certainty equivalents relative to a base strategy.

## ***Results***

The results of the simulated distributions for the alternative selling strategies indicate durum wheat had higher mean returns over variable costs than HRS wheat (Table 3 and Figure 3). However, durum wheat (unhedged and fixed price) also had much higher variability than the HRS wheat strategies. In fact for the unhedged strategies, durum wheat returns over variable costs had a standard deviation nearly 3 times that of the HRS wheat unhedged strategy. For the hedged/fixed price strategies, the durum wheat fixed price had standard deviations nearly 2 times that of the HRS wheat strategy.

**Table 3. Results for simulated distributions of returns over variable costs by strategy**

	<b>HRS 14 Unhedged</b>	<b>HAD Unhedged</b>	<b>HRS 14 Hedged</b>	<b>HAD Fixed Price</b>
Minimum	-54	-271	-45	-69
Maximum	392	1051	300	696
Mean	86	93	86	93
Standard Deviation	55	142	40	73
Variance	3132	20418	1608	5409
Skewness	0.54	1.39	0.38	1.66
Kurtosis	3.71	5.70	4.03	8.32

**Figure 3. CDF's of Crop and Contracting Alternatives**

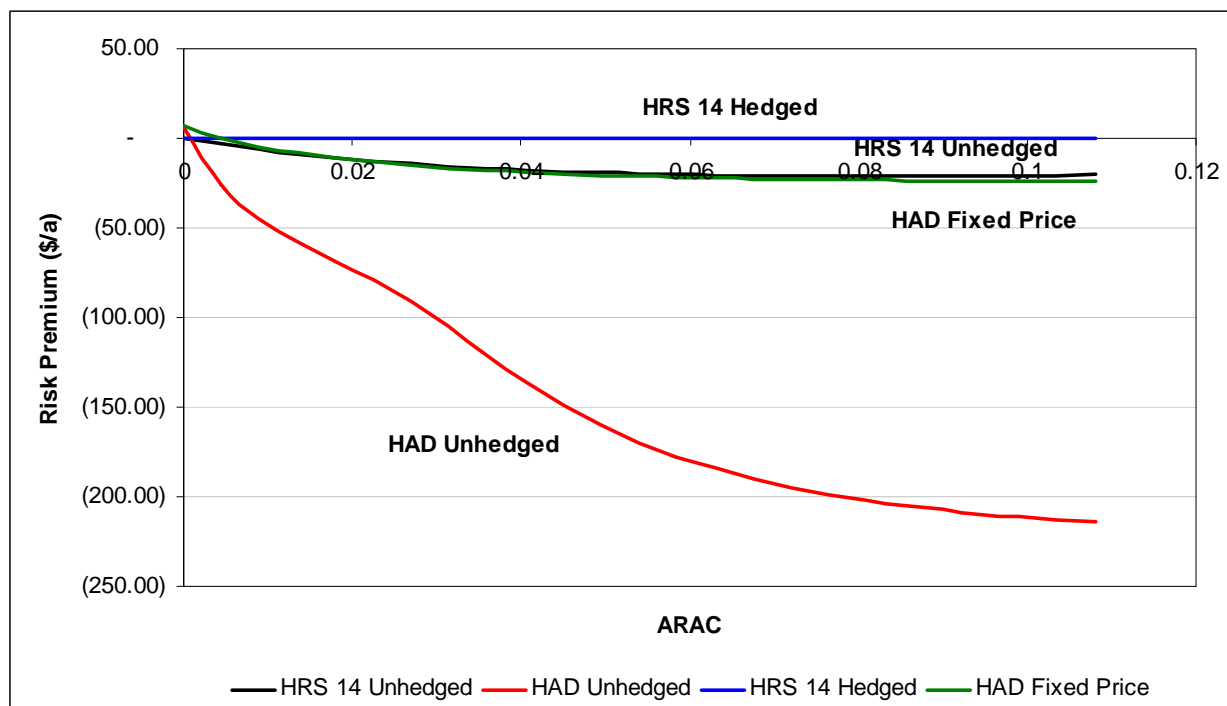
Results for the simulated distributions were analyzed to determine certainty equivalents and then risk premiums were calculated as the difference in certainty equivalents relative to the HRS wheat hedged alternative by risk attitude. Risk premiums show that for risk neutral growers, HAD fixed price is preferred to HRS wheat hedged by \$6.84 per acre, while HAD unhedged was preferred by \$6.43 per acre (Table 4 and Figure 4). A HRS wheat hedged strategy was preferred

to the unhedged HRS wheat strategy. For more risk averse growers, risk premiums for durum wheat become negative, indicating that these strategies are less preferred to the HRS wheat hedged strategy. In fact, for slightly risk averse growers, HAD unhedged becomes the least preferred strategy (largest negative risk premium) and for growers with risk aversion greater than 0.018, HAD fixed price becomes the second least preferred strategy. For moderately risk averse growers, durum wheat unhedged would require an increase in certainty equivalent of \$214/acre to be considered equal to HRS wheat hedged, while durum wheat fixed price would have to increase by \$24/acre. Thus, for growers that are even slightly risk averse, HAD unhedged and fixed price become the lesser preferred alternatives. As the risk attitude of the grower becomes more risk averse, the level of preference of HRS wheat hedged over these alternatives escalates.

**Table 4.** Risk premiums for alternative selling strategies relative to HRS Wheat 14 Hedged, by risk attitude

ARAC	HRS 14 Unhedged	HAD Unhedged	HRS 14 Hedged	HAD Fixed Price
0	(0.04)	6.43	-	6.84
0.0045	(3.25)	(25.54)	-	(0.03)
0.0090	(6.07)	(44.95)	-	(4.74)
0.0135	(8.55)	(58.29)	-	(8.27)
0.0180	(10.73)	(68.95)	-	(11.07)
0.0225	(12.64)	(79.30)	-	(13.35)
0.0270	(14.30)	(91.17)	-	(15.24)
0.0315	(15.73)	(105.27)	-	(16.81)
0.0360	(16.94)	(120.64)	-	(18.11)
0.0405	(17.96)	(135.56)	-	(19.19)
0.0450	(18.81)	(148.87)	-	(20.08)
0.0495	(19.49)	(160.22)	-	(20.81)
0.0540	(20.04)	(169.73)	-	(21.41)
0.0585	(20.46)	(177.66)	-	(21.90)
0.0630	(20.78)	(184.29)	-	(22.31)
0.0675	(21.00)	(189.85)	-	(22.66)
0.0720	(21.15)	(194.55)	-	(22.95)
0.0765	(21.22)	(198.54)	-	(23.21)
0.0810	(21.24)	(201.94)	-	(23.44)
0.0855	(21.20)	(204.85)	-	(23.64)
0.0900	(21.12)	(207.36)	-	(23.82)
0.0945	(21.00)	(209.53)	-	(23.98)
0.0990	(20.85)	(211.40)	-	(24.13)
0.1035	(20.68)	(213.03)	-	(24.27)
0.1080	(20.48)	(214.45)	-	(24.39)





**Figure 4. Risk Premiums for Durum Contracts relative to HRS Wheat Hedged**

#### **Contracting Challenge: Inducing Delivery (Conformance, or Non-breach)**

The above illustrates that durum wheat is more risky than HRS wheat. Hence growers should expect either a risk premium to induce them to plant the crop, or, contract terms that would reduce that risk. As shown here, the risk premium for durum wheat decreases from \$70-80/acre if a contract can eliminate the price risks for that crop. These terms are substantial, and in our other analysis comparable to like provisions in other crops.

One of the problems confronting the industry in this type of contracting is how to induce delivery if there is a post contract increase in prices. Simply, if prices increase after the contract is agreed to, there is a major challenge to the buyer to assure non-breach on the part of the seller. There are several examples all of which have been common in recent years. First, if the price increases after contracting, but before planting, there is a risk the grower may divert acres to other higher-yielding more profitable crops. Second, in the same situation, growers would demand the higher current market price, and threaten to divert acres if not provided. Third, post-harvest, there is an incentive to breach on delivery. And, of course, these problems are all compounded by the undesirable outcome of legal proceedings, that being bad customer relations at a time when the buyers need growers.

Again, these are all problems and no doubt are the reasons for the multitude of contract provisions that are emerging.<sup>2</sup> In addition to normal contract provisions, there seems to be two additional strategies that are pursued. Each is discussed.

*Contract provisions* The conventional recourse refers to the contract provisions of the National Grain and Feed Association (NGFA). These contract terms and provisions, as well as arbitration mechanisms are widely adopted, well-accepted in practice, and conform to Uniform Commercial Code and state laws. Hence, any substantive deviations from these terms and provisions are treated with caution. These contract provisions have special regulations and terms to address most issues including definition of terms, confirmation of contracts (Rule 3), alternations of contracts (Rule 4), mechanism to deal with overfill and underfill of contracts, and failure to perform (Rule 28).

The latter is clear. It is the sellers' obligation to notify the buyer of his/her inability to complete the contract. If the seller fails to notify the buyer of his/her inability to complete a contract, then the liability escalates until the buyer can determine that the seller has defaulted. In either case, the options for the buyer are to 1) agree to an extension, or 2) buy-in the defaulted portion of the contract for the account of the seller, or 3) cancel the defaulted portion of the contract at the fair market value. In any of these cases the damages are ascribed to the seller. If the party repudiates a contract, the damages are more difficult to ascertain (Bylund) and the damages are fixed as of the time of repudiation. These liabilities are all clear, but are more problematic in cases where there is only one buyer for a specific quality, and/or when the buyer needs the grain volume and defaulting does not provide provisions to assure that grain from any origin can be reasonably delivered.

In addition, the NGFA trade rules have prescribed procedures for arbitration. These rules have been thoroughly adopted throughout the trade. Nevertheless, these trade rules do need clarifications to make them fully adaptable in grower contracting. Most important is that of defining the farmer as merchant and citing the NGFA rules as a contract term.

*Other strategies* In addition to the above, and more as a complement to the above, there are several apparent strategies being explored by or used by major buyers.

*Pre-pay in anticipation of non-performance* There is a provision in the rules at each of the NGFA, in the MGEX rules (and each of these rules are embedded in UCC 2-609) that gives buyers the right to require suppliers to post cash payments if there is a risk they may not perform (as well as suggested as a provision by each of Bylund and Barrett). Specifically, the MGEX cash trading rules indicate that the buyer has the right to require sellers, to make security deposits equal to 10% of the contract price, and additional deposits from time to time to the extent of any advance above the contract prices in the fair market value of the commodity (Rule 1006).

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<sup>2</sup> This differs from some of the buyers of the major commodities that in 2008 decided not to offer forward contracts on corn and soybeans due to the extreme high risk (volatility), high price and consequences on margin calls.

This rule is interesting because in concept it is similar to the margining system that exists on futures contracts in the United States. In each case these rules are used to assure performance on cash obligations. Though these concepts are mandatory in the case of futures, the provision is used very rarely in the case of cash traded commodities.

However, the provision does set a precedent. At least one major grain buyer has explored the idea of imposing a margining system on cash contracts. The simple idea is the buyer has to pay a margin, which raises their costs. To offset this cost and to assure performance the buyer would require a margin-type payment by the supplier (in this case the farmer). The grower would recognize that if the margining capability is not adopted, the price would have to be discounted further due to the higher margin costs imposed on the trader.

Contract pricing provisions Several of the pricing provisions that are being used ultimately were defined as a means to induce delivery against contracts. For example, a basis or spread contract (i.e. as used in malting barley) would nearly completely neutralize the grower against increases in the overall price level. Also, a minimum price contract provision would do the same, but in this case implicitly a premium is extracted by the buyer for providing this feature. Finally, and interestingly, during 2008 one of the buyers adopted what could be referred as a “look-back” option on a forward purchase contract. The grower would be guaranteed the maximum price between the contract period and April 1. Essentially, this option is a look-back provision and was used to discourage the grower from switching crops prior to planting.

Each of these provisions implicitly has the effect of nullifying incentives for growers to shirk on their delivery terms. Ideally, these options would be structured to neutralize growers’ returns between delivery and non-delivery. None of them work perfectly, but, they go a long ways toward nearly neutralizing the grower’s alternatives.

Jaw-boning Finally, and perhaps as a complement and more important to the above, is what may be referred to as contract jaw-boning. This alternative is coming to dominate the buyer-seller relationships. Simply, buyers that contract ultimately need the grain, and used the contract as a risk mitigation strategy. Buyers don’t want to litigate against suppliers routinely; and ultimately, farmers need and want favorable contract provisions.<sup>3</sup>

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<sup>3</sup> As example, CHS indicated (AgWeek) that there has been an increase in verbal commitments and growers subsequently tried to back out of contracts. Traditionally verbal contracts had been the prevailing practice. CHS issued a policy directive that all contracts with farmers now must be signed. Country Operations can accept fax or email, or in person to complete sales. It concluded that a deal is not locked in unless there is a signature or electronic verification. Some elevators send representatives to farms to get signatures. They also adopted taped phone calls and using these to confirm trades.

CHS has also taken growers to court (small claims), to make the point that would ultimately become apparent to other growers.

For these reasons, there are a number of contract strategies that are emerging. All buyers now want to “know the customer.” Of course, this concept means also knowing their finances, organizational structure, etc, ultimately with the goal of increasing the likelihood of performance. Second, there is an inordinate effort to get signed contracts, even recognizing efforts of executing non-signed contracts (Pates 2008), or now electronically signed contracts (Feedstuffs).

Finally, some experts (e.g., Barrett (2009 a & b), Bylund amongst others) are urging buyers to establish a “Master Trading Agreement” with their farmers. This agreement would include numerous definitions and clarifications, including that the document would be signed before entering into forward contracts, the customer would acknowledge he/she is a merchant and bound by unsigned confirmations, and would acknowledge that NGFA arbitration would apply to dispute resolution, that the counterparty agrees that they can demand assurances of performance if demanded, etc. Then, the master agreement would be the underlying structure of all transactions. Ultimately, this agreement would go a long ways toward improving contract assurance, as well as emboldening buyer-seller relations. If there is a potential for default, buyers can challenge sellers by jawboning and then legal/arbitration and ultimately rely on the grapevine among farmers that will encourage performance. One buyer has created a “no trade list” for farmers that do not perform.

### **Summary and Industry Impacts of Increased Contracting for Grains**

There has been an escalation in risk in price commodity prices during the past several years. Most important is that this escalation has occurred not only in futures contracts, but, also in numerous other elements of grain market prices. Of interest, the volatility of prices for grain commodities without futures has in fact been greater than that of contracts with futures; basis values have become more volatile, and premiums/discounts for quality have escalated in volatility. The implications of this volatility is for an increase in risk, a deterioration of hedging effectiveness using traditional instruments, and a desire to seek alternative risk management mechanism. It is expected that this greater risk will likely continue for 4-8 years. Concurrently, a battle for acres has intensified in recent years for many reasons. This battle has manifested in an increase in contracting for grains that are not easily hedgable using traditional mechanisms, notably for crops such as malting barley, durum wheat, white wheat, white corn, organic crops, and numerous smaller crops including field peas, lentils, and varying forms of specialty oilseeds.

There are several industry implications of these trends. Indeed, Heesch indicated that risks confronting trades can be categorized as those related to futures, financial, basis, spreads, and freight. These risks are straightforward. To be clear, financial risks relate to the ability to have sufficient capital to finance futures hedge positions. If too costly (due to higher prices and/or volatility), lenders may become unable to finance elevators with additional money required to stay operational. Risks traders can readily protect include futures prices, freight costs etc. However, risks that cannot be protected include 1) growers selling or not selling grain to the elevator; or 2) defaulting on signed contracts for delivery, amongst others.

Taken together, these implications all imply the risks of being in these markets have increased. The normal response is to increase margins. While appealing, increases in margins provide the incentive for growers to hedge directly, to the extent possible, which precludes committing the grower to the handler. There are a number of implications of these trends. One is that operating costs to facilitate trading have increased. There is greater risk as noted. All of these risks will result in a further increase in consolidation, as reflected by more mergers and acquisitions.

A result of the increase in price risk is for an increase in contracting with growers. This increase is in part due to the greater risks confronting buyers and sellers, the battle for acres, and ultimately is manifested in intense inter-crop and inter-firm competition that is reflected in contract terms. Indeed, most contracts reflect a sense of risk sharing and have the impact of reducing bi-lateral risk for both buyers and sellers. Importantly, and one of the primary motivations for contracting is that having a contract has the effect of reducing risk premiums necessary to induce adopting a specific crop alternative. In our illustrative case of durum wheat, offering contracts has the effect of reducing the risk premium for a moderately risk averse grower, from \$70-80 to about \$24/acre. This effect is substantial and is no doubt the reason for providing such contracts.

While counter-party risk, or the risk of contract default, is important, there are numerous legal mechanisms that can be used as a means of mitigating risks. Most common are the NGFA trade rules, as well as commercial law. Despite this legal mechanism, as noted by each of Heesch, Bylund and Barrett (2009 a & b) in recent presentations, one of the major risks confronting traders is the risk of contract performance and the risk of collecting damages if the other party is unable or unwilling to perform. Concurrently, several alternatives exist and/or are emerging to induce non-breach. These alternatives include varying forms of minimum price alternatives, look-back options, pre-payment by sellers in volatile markets, etc. Interestingly, many of these alternatives have option type features, but, at least we can detect there are not apparent price differentials for these alternatives which implies ultimately that the buyer is implicitly absorbing the implicit option premium for such provisions.

The assessment is that there are numerous contract terms that have emerged, and many of these terms are being offered without price differentials. Indeed, given the escalation in contracting that will impact inter-firm rivalry, a few suggestions are warranted. Buyers should develop alternative contract terms to offer growers. It would nearly always be too risky to not offer alternatives prior to planting. But, in contrast to current, we would suggest it is important to offer these terms to growers reflecting price differentials amongst the alternatives. These differentials should ideally reflect the difference in implicit option value for the particular terms. In some cases, greater risks require greater implicit premiums etc. Then, growers can choose that which provides the greatest risk reward balance. This assessment is important since ultimately growers will have different risk aversions and providing alternative reflecting price differentials will allow more efficient contract penetration.

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