Journal of Agricultural and Applied Economics, 41,2(August 2009):363–376

Grain Contracting Strategies to Induce Delivery and Performance in Volatile Markets

William W. Wilson and Bruce Dahl

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 in recent years. There is a wide array of cash contracts with varying terms. There is also a growing realization of growers not delivering on contracts, in part due to escalation in postcontract prices. These are evolving as major strategic issues 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. 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.

Key Words: grain contracting, risk, volatility

JEL Classifications: C15, D81, Q12

Markets for many components of grain prices have become more volatile in recent years, which has heightened interest in issues regarding contracting. Contracting involves risk sharing between buyers and sellers. In comparison, hedging in futures markets results in risk being 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. An important source of risk is contract nonperformance 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.

These problems are compounded by a number of factors. One is the competition for acres, commonly referred to as the *battle for acres*. The impact of this competition is for an escalation of preplant contracting, in which a major feature of intercrop and interfirm competition relates to alternative contract terms. Second is that while there are terms in commodity type grain contracts, contracting in this competitive environment has resulted in challenges to the structure of contract 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. Consequently, if one party 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

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knowingly breach their contract. While there are differing views on this alternative, 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 description of terms used in grain contracts 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 specialty grains, durum, and 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 price volatility in recent years. While there may be debate about why or whether it will continue, all market participants acknowledge 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 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, among rates for other modes. All of these points have implications for buyers.

There are numerous potential causes of this escalation in volatility. Some attribute this escalation to mutual fund trading, ethanol, among others. Importantly, for most grains there has been a sharp reduction in the stocks/use ratio (at least through 2007/2008), which ultimately is the most important factor that caused the 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.

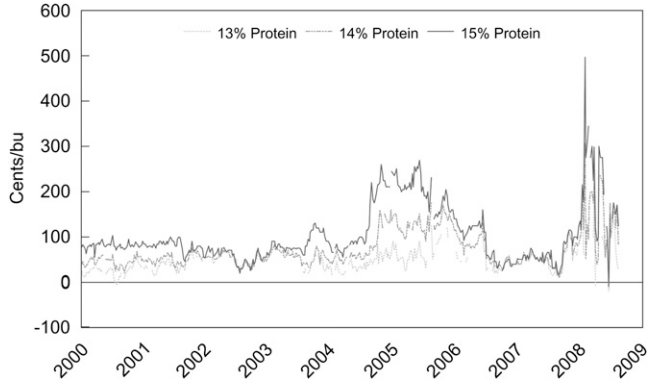

Figure 1. Minneapolis Basis for HRS Wheat 14% (Minneapolis Grain Exchange, 2009)

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 a contributing factor to the growth in contracting is in response to futures, which have become 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 the apparent growth in contracting and potential contributing factors. 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. (2004), who examined contracting of commodities in the United States in 2001 and compared the use of contracts to that in previous 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. (2004) 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. To document this we conducted a survey of the principal buyers of these commodities in the upper Midwest.[1] While it is difficult to document this observation without a broad-based survey, based on our interaction and dialogue with the industry, it is our generalization for some commodities, preplanting 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 price risk, as a result of the increase in volatility. 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. In some states, there are few cropping opportunities and the battle is not as apparent.

[1] To be clear, this was a formal but not a comprehensive survey. In part this is due to the few number of buyers in the region for these crops. We interviewed the principal buyers (typically the largest 3–5) and had them respond to questions about their contracts used for buying grain from farmers. In all cases, they provided their contracts for reference. Thus, though not as comprehensive as in previous surveys, the scope was to document an understanding of the extent of contracting for these crops in this region, and the contract terms.

Even in these states, the battle for acres is used to describe competition largely between corn and soybeans (as used in a recent article by Grain Journal, 2009a, pp. 12–14) in discussions related to 2008 and 2009 plantings. In contrast, growers in North Dakota 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, 2008) and some elevators are now posting prices for both old and new crops for up to 12 crops at one time. 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 of alternative crops and the growth in genetically modified row crops in nontraditional 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 crops now have some form of an *Act of God* clause included as a contract term, or option. Most of the malting barley is now bought on preplanting contracts (Wilson, Gustafson, and Dahl, 2008). Some of these are 1 year contracts with an option on a second 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 (preplanting) 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.[2]

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 third party. Thus, many contracts that allow pricing relative to a "futures" price, essentially are allowing for third party risk transfer. Absent of futures component of pricing, risk is strictly shared between buyer and seller!

Figure 2 characterizes the types of contracting now used, as alternatives for procurement strategy (adapted from Wilson and Dahl, 2008). This figure highlights differences that may be embedded in different contract types. It illustrates the range of alternatives and includes varying types of contracts, from relying on simple spot transactions to the extreme alternative—vertical integration. Ultimately, it is the buyer that chooses where to be positioned on this spectrum of alternatives as they consider their purchasing and procurement strategies.

We used our survey (see footnote 1) to understand the scope and extent of contracting currently used in the upper Midwest. These contracts would be considered as marketing contracts, as opposed to production contracts (Michigan Farm Bureau, 2009) 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.[3]

Act of God. Most of the contracts, though not all, contain Act of God provisions. It is important that there is virtually no standardization in the specification and treatment of the Act of God feature among different crops and buyers. Sometimes these clauses are simply included, some are offered as an alternative, and some are offered with or without price differentials. These usually apply to quantity only, though quality provisions

[2] These are based on our survey (see footnote 1) and discussions with the principal buyers of each of these crops.

[3] For obvious reasons it is not possible to disclose the firm names etc., but that is not important for purposes here.

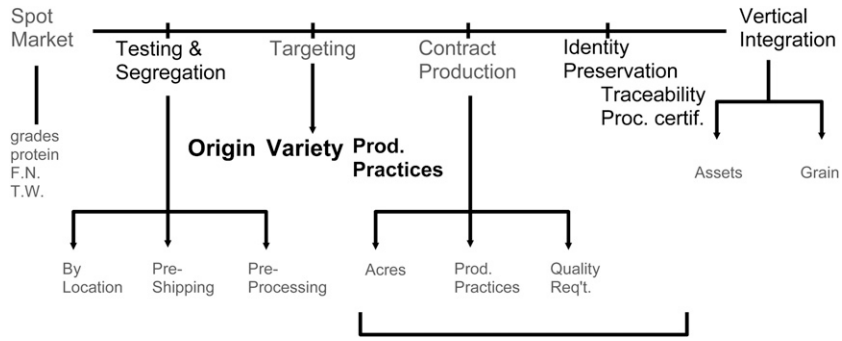

Figure 2. Spectrum of Buying and Contracting Strategies for Grains and Oilseeds (adapted from Wilson and Dahl, 2008)

sometimes are included as an Act of God clause.

Premiums and discounts for quality deviations. Premiums and discounts for quality deviations are important provisions. Barrett (2009a) 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 prespecified in the contract prior to planting. At issue here is whether the buyer or seller absorbs the price risk of quality deviations.

In fact, a recent legal dispute has been registered in Montana (Johnson, 2009) in which grain was sold in a preharvest contract with post harvest price discounts specified. Upon delivery the buyer allegedly applied different and more stringent discounts, no doubt reflecting the market in which the grain was being sold. This illustrates the nature of issues about preharvest specification of postharvest discounts.

Right of first refusal on surplus production. This is a common clause and most buyers want this right. The issue is at what price. Some contracts provide this right at market prices (as 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 including, as examples: Simple fixed price; Basis to single futures, or multiple futures across different crops or exchanges; and two–part pricing which involves a base quantity at contract price and surplus production sold at a discount reflecting implicit storage costs. In a number of contracts there are option type features (implicit) including minimum prices, Min/max, Lookback options, and average prices (equivalent to an Asian option). These latter mechanisms have embedded option type features; our observation is that they are not included with a price differential to a nonoption type contract term. Hence, the buyer is absorbing the implicit cost of the option. Typically, growers would have the right to select the time when price is established.

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. Some require sampling and testing at time of delivery.

Agronomics. Most contracts require certified seed bought from buyer, though some allow the certified seed to be bought in the open market, but documentation of its use is required. 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, durum 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 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.

The strategy alternatives that are compared are among HRS hedged and unhedged, and durum wheat priced and unpriced. These are compared in terms of return and risk as defined below.

Methods to Evaluate Risks for Competing Crop Contracts: Durum versus HRS Wheat

There is substantial risk in the production of durum. These risks are primarily related to price, yield, and quality. In each case, these risks exceed those of the 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. In addition, the spread between durum and HRS futures is more volatile than the typical basis for HRS wheat. 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, which has two parts. One is the risk of not conforming to Nos. 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.

Mathematical Description of Model

Analytically we compare the risks and returns of two crops, HRS and durum. While this ignores impacts of other crops, these two crops are directly substitutable and the results illustrate the scope of intercrop contract competition.

A payoff function is defined as net returns over variable cost per acre or: $\mathbf{\Pi}_i$ = gross revenue – direct costs for choice i, where $i = 1 \ldots n$, for each crop (HRS or durum). Returns are defined in Equations 1 and 2 for producers without a contract and with a contract, respectively:

$$(1) \quad E(\Pi_{i_{nocont}}) = \hat{Y} \cdot (\hat{P}_1 \cdot \hat{S}_i + \hat{P}_2 \cdot (1 - \hat{S}_i)) + (\textit{indemnity payment}) - C_i$$

$$(2) \quad E(\Pi_{i_{cont}}) = \hat{Y} \cdot (\hat{P}_3 \cdot \hat{S}_i + \hat{P}_4 \cdot (1 - \hat{S}_i)) + (\textit{indemnity payment}) - C_i$$

where: $E(\mathbf{\Pi}_i)$ is the expected net return per acre of crop i, $\mathbf{Y}$ is the yield (bu/acre), $\mathbf{P}_1$ and $\mathbf{P}_2$ are random local prices with no contract with quality met, and quality not met, $\mathbf{P}_3$ and $\mathbf{P}_4$ are local prices for contracted volumes with quality met, and quality not met, respectively ($/bu) and may be fixed or random based on the type of contract; *indemnity payment* is the value of the payoff if insurance is collected on yield shortfalls; $\mathbf{C}_i$ is the direct cost of production for crop i and includes seed, herbicides, fungicides, insecticides, fertilizers, fuel, repairs, interest, and crop insurance and is the same across strategies, but varies by crop (HRS versus durum). Quality acceptance risk is modeled using $\hat{\mathbf{S}}_i$ which is a binary variable reflecting quality, which is drawn based on acceptance rates for the highest quality durum or hard red spring. The ˆ indicates the variable is random and a distribution is used for its value. Indirect costs such as land and taxes are excluded because they are fixed and constant across crops and choices.

An important source of risk is that of quality: not being acceptable for the specified quality level. The most frequent factors degrading for durum are color, test weight, falling numbers (a measure of sprout damage), and vomitoxin resulting in excess deoxynivalenol (DON). Other risks are yields, prices, and discounts applied for not meeting specifications.

There are four steps in our analytical methodology. First, we derive the $\mathbf{\Pi}_i$ for each contracting strategy. Second, we use stochastic simulation to iterate outcomes of $\mathbf{\Pi}$ for each crop and contract alternative. Third, stochastic

dominance was used to analyze and create rankings among the choices across a range of Arrow–Pratt absolute risk aversion coefficients. Stochastic dominance was used to determine risk efficient decisions among grower choices using *Simetar* (Schumann, Feldman, and Richardson, 2006). The range of absolute risk aversion coefficients (ARAC) was from 0 to 0.108 where the upper bound for the ARAC was estimated using McCarl and Bessler's (1989) nonnegativity certainty equivalent approach. Fourth, stochastic efficiency with respect to a function (SERF) analysis is used to derive the certainty equivalents that decision makers would place on a risky alternative relative to a no risk investment. Certainty equivalents are estimated across a range of risk aversion coefficients and used to rank alternatives. Risk premiums were measured as the difference in certainty equivalents relative to the HRS hedged strategy. The premium indicates the change that would have to occur in the certainty equivalent of net payoffs in order to induce a change in preferences.

Crop budgets included variable costs for both durum and HRS wheat production in Northwest North Dakota for the 2009 crop year (Swenson and Haugen, 2008). The random variables in the crop budgets included yields, prices, and crop quality discounts and are shown in Table 1. Yield distributions were fitted from annual data from 1995 to 2007 for dryland crop reporting districts in Western North Dakota and Eastern Montana from United States Department of Agriculture–National Agricultural Statistics Service (2008). Distributions for futures, protein premiums/discounts, and durum prices were similarly fitted from annual data from 1995 to 2007 to determine variability. Means for futures prices and basis for HRS wheat and cash prices for durum wheat were adjusted to current levels for September futures on January 6, 2009 (7.06/bu) and new crop bids for durum (7.61/bu). The probability of crop quality meeting specifications was determined from U.S. HRS wheat (Minnesota, Montana, North Dakota, and South Dakota) and U.S. Northern Grown Durum Wheat (Montana, North Dakota) crop quality surveys from 1995 to 2007 (North Dakota State Wheat Commission, 1995–2007ab). These data were used to derive 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: for durum, a 20 c/bu discount was applied for terminal durum; for HRS wheat we applied a protein discount (random) for 13% protein wheat.

Random draws for yields of HRS and durum wheat were correlated (0.81) 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 are determined by prices at Minneapolis and the Pacific Northwest ports, the local price is derived as the *MAX* [net returns selling to PNW,

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

Item	Distribution	Mean/Probability	Std. Dev.
Yield HRS wheat	Logistic	24.69	3.02
Yield durum	Logistic	24.55	4.21
HRS wheat quality	Discrete	0.64 quality met	
Durum quality	Discrete	0.36 quality met	
HRS wheat futures	Normal	7.06	1.36
Mpls durum	Logistic	7.61	3.10
14% Protein premium Mpls	Lognormal	0.76	0.58
14% Protein premium PNW	Normal	0.97	0.21
13% Protein discount	Logistic	−0.20	0.14
	Variable Costs		
HRS wheat	110.62/a		
Durum	115.17/a		

Table 2. Correlations for Random Draws for Prices, Acceptable Quality, and Yield Distributions

Item	HRS Fut	14% Mpls	14% PNW	13% Discount	Durum Price	Quality HRS	Quality Durum	HRS Yields	Durum Yields
HRS Fut	1.00	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00
14% Mpls		1.00	0.91	0.00	0.00	0.00	0.66	0.00	0.00
14% PNW			1.00	0.00	0.65	0.00	0.00	0.00	0.00
13% Discount				1.00	0.00	0.00	0.00	0.00	0.00
Durum					1.00	0.00	0.00	0.00	0.00
Quality HRS						1.00	0.00	0.00	0.00
Quality durum							1.00	0.00	0.00
HRS yields								1.00	0.81
Durum yields									1.00

net returns selling to Minneapolis]. Assuming recent shipping costs from Western North Dakota, these prices were used to determine returns over variable costs.

Alternative selling strategies were simulated 5000 iterations using @Risk (Palisade Corporation, 2002). The stopping criteria indicated the model 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, 2006) 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 (1989). 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). Durum wheat (unhedged and fixed price) also has much greater variability than the HRS wheat strategies. In fact for the unhedged strategies, durum wheat returns over variable costs had a standard deviation nearly three times that of the HRS wheat unhedged strategy. For the hedged/fixed price strategies, the durum wheat fixed price had standard deviations nearly two times that of the HRS wheat strategy.

Risk premiums were calculated as an alternative for different risk attitude parameters relative to the HRS wheat hedged. For risk neutral growers the HRS wheat hedged strategy was preferred to the unhedged HRS wheat strategy, The risk premiums for durum fixed price is preferred to HRS wheat hedged by $6.84 per acre, while durum unhedged was preferred by $6.43 per acre (Table 4 and Figure 4). 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 priced 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 unpriced would require an increase in certainty equivalent of $214/acre to be considered equal to HRS wheat hedged. Durum wheat fixed price would have to increase by $24/acre. Thus, for growers that are even slightly risk averse, durum unpriced and fixed price become 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.

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 risk. As shown here, the risk premium for durum wheat decreases substantially if a contract can eliminate the price

Table 3. Results for Simulated Distributions of Returns over Variable Costs by Strategy

	HRS 14 Unhedged	HAD Unpriced	HRS 14 Hedged	HAD Fixed Price
Minimum	−54	−271	−45	−69
Maximum	392	1,051	300	696
Mean	86	93	86	93
Standard deviation	55	142	40	73
Variance	3,132	20,418	1,608	5,409
Skewness	0.54	1.39	0.38	1.66
Kurtosis	3.71	5.70	4.03	8.32

risks for that crop. These terms are comparable to our other analysis (Wilson, Gustafson, and Dahl, 2008) to like provisions in other crops.

Contracting Challenge: Inducing Delivery (conformance, or nonbreach)

A problem 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 nonbreach 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, postharvest, there is an incentive to breach on delivery. These problems are all compounded by the undesirable outcome of legal proceedings resulting in bad customer relations at a time when the buyers need growers.

These are all problems and no doubt are the reasons for the multitude of contract provisions

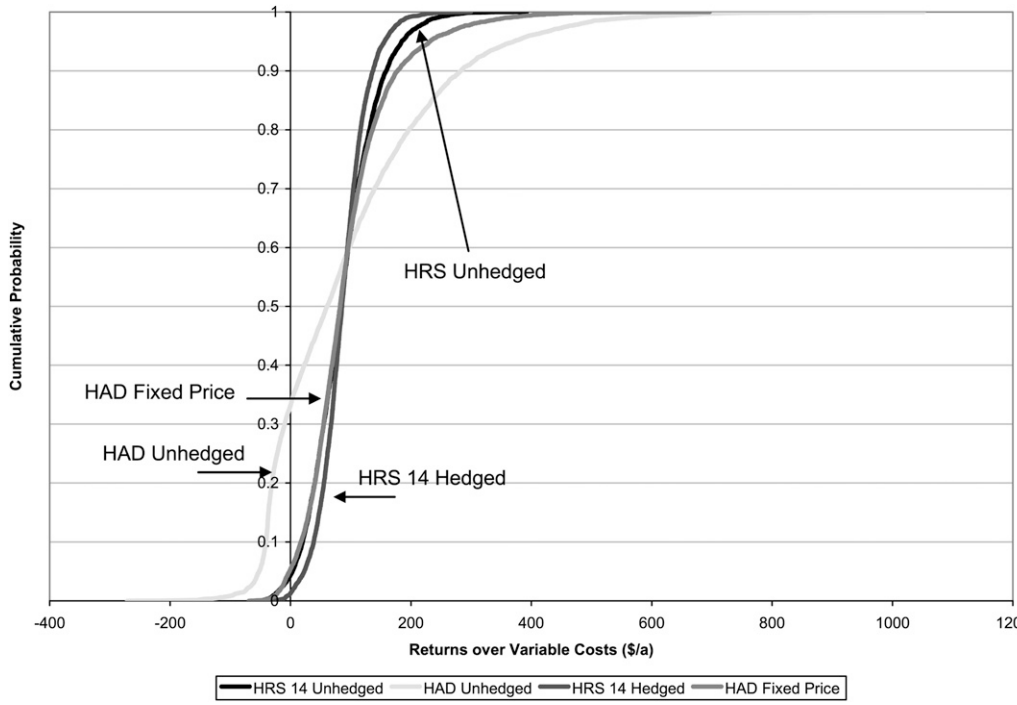

Figure 3. Cumulative Distribution Functions for Returns over Variable Costs of Crop and Contract Alternatives

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)

that are emerging.[4] In addition to normal contract provisions, other strategies are pursued.

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), mechanisms to deal with overfill and underfill of contracts, and failure to perform (Rule 28).

Rule 28 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, 2008) and the damages are fixed as of the time of repudiation. These liabilities are all clear. However, their execution is more problematic in cases where there is only one buyer for a specific quality, and/or when the

[4] 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.

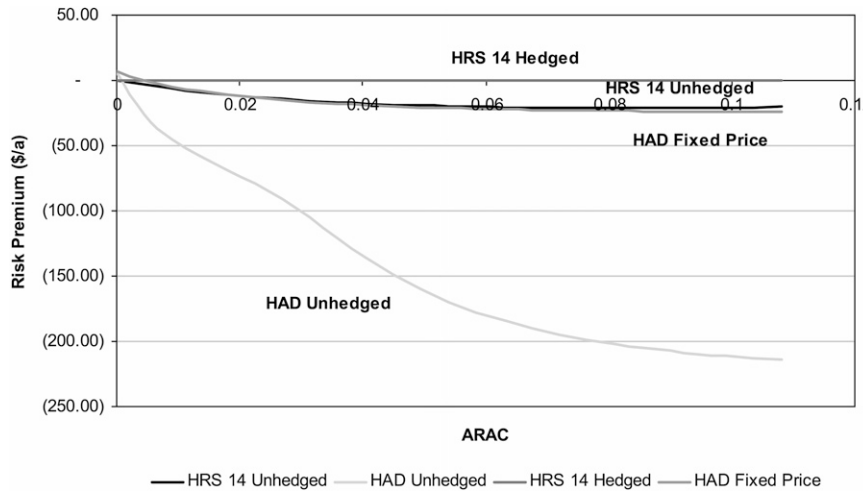

Figure 4. Risk Premiums for Durum Contracts Relative to HRS Wheat Hedged

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 Contract Terms

As a complement to the above, there are several apparent strategies being explored by or used by major buyers. These are described briefly.

Prepay in anticipation of nonperformance. 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, 2008 and Barrett, 2009). 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).

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.

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.

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 from the seller for providing this feature. Finally, and interestingly, during 2008 one of the buyers

adopted what could be referred to 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 nondelivery. None of them work perfectly, but, they go a long way towards nearly neutralizing the grower's alternatives.

Jaw–boning. Finally, as a complement and perhaps more important than 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.

For these reasons, a number of contract strategies are emerging. All buyers now want to "know the customer." Of course, this concept means also knowing their finances, organizational and ownership 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 nonsigned contracts (Pates, 2008), or now electronically signed contracts (Feedstuffs, 2008).[5] Finally, one buyer has created a "no trade list" for farmers that do not perform.

Some experts (e.g., Barrett, 2009; Barrett and Pates, 2009; Bylund, 2008; Grain Journal, 2009b and 2009c; among 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, and 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.

Summary and Industry Impacts of Increased Contracting for Grains

There has been an escalation in price risk 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 an increase in risk, a deterioration of hedging effectiveness using traditional instruments, and a desire to seek alternative risk management mechanisms. 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

[5] 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 e-mail, or meet 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 using these to confirm trades. Cenex Harvest States has also taken growers to court (small claims), to make the point that would ultimately become apparent to other growers.

peas, lentils, and varying forms of specialty oilseeds.

There are several industry implications of these trends. Indeed, Heesch (2009) 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, among 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 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 intercrop and interfirm competition that is reflected in contract terms. Indeed, most contracts reflect a sense of risk sharing and have the impact of reducing bilateral 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 (2009), Bylund (2008), Barrett (2009), and Barrett and Pates (2009) in recent presentations, one of the major risks confronting traders is the risk of contract performance and of collecting damages if the other party is unable or unwilling to perform. Concurrently, alternatives exist and/or are emerging to induce nonbreach. These alternatives include varying forms of minimum price alternatives, look-back options, prepayment by sellers in volatile markets, etc. Interestingly, many of these alternatives have option type features, but, at least as we can detect there are not apparent price differentials for these alternatives. This implies ultimately that the buyer is implicitly absorbing the implicit option premium for such provisions.

Given the escalation in contracting that will impact interfirm 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 among the alternatives. These differentials should ideally reflect the difference in implicit option value for the particular feature. 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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