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New Generation Grain Marketing Contracts: How Did Producers' Opinions and Usage Change Between 2003 and 2005?

Corrine Alexander

Purdue University, cealexan@purdue.edu

George Patrick

Purdue University, gpatrick@purdue.edu

Aaron Reimer

Purdue University, ahreimer@purdue.edu



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New Generation Grain Marketing Contracts: How Did Producers' Opinions and Usage Change Between 2003 and 2005?

Abstract

The focus of Extension in grain marketing is changing from price prediction and enhancement to evaluating marketing tools and managing risk. New generation grain marketing contracts (NGC) are a relatively new tool designed to help producers execute their marketing plans, the cornerstone of managing price risk. This article presents an analysis of a survey of Midwestern producers to learn who is most likely to use NGC, and whether opinions and use changed between 2003 and 2005. The findings suggest the primary benefit of NGC is marketing discipline, and operations with a higher debt-to-asset ratio are more likely to use NGC.

Corinne Alexander

Assistant Professor and Extension Economist
cealexan@purdue.edu

George Patrick

Professor and Extension Economist
gpatrick@purdue.edu

Aaron Reimer

Graduate Student
ahreimer@purdue.edu

Department of Agricultural Economics
Purdue University
West Lafayette, Indiana

Introduction

While the majority of Extension efforts in the area of marketing have focused on price prediction and price enhancement, Brorsen and Irwin (1996) suggest that Extension efforts should instead focus on evaluating marketing tools and managing risk. New generation grain marketing contracts (NGC) are a relatively new marketing tool. They were introduced to the market 5 years ago and are now widely available to producers. NGC are specifically designed to address some of the problems that producers face in executing their marketing plans (Brorsen & Anderson, 2001). For additional help in understanding new generation grain contracts see Johnson (2005).

Some of the marketing challenges NGC address include:

1. Trouble "pulling the trigger," which means the reluctance or inability to establish both upside price objectives, as well as downside pricing exit points;
2. Letting emotion guide pricing decisions, where up trending prices may cause excessive optimism and thus tendencies to buy near the high, while down trending prices breeds pessimism and willingness to sell nearer the lows;
3. The complexities and wide variety of pricing alternatives may add confusion and indecision; and

- Lack of discipline as producers may change their minds frequently and not stick to their marketing plans.

A second advantage of NCG is that they expand the producers' tool box of pre-harvest pricing contracts. Previous research suggests that producers can enhance their returns by pricing a portion of their crop production prior to harvest (Wisner, Blue, & Baldwin, 1998; Hagedorn, Irwin, Good, & Colino, 2005). NGC are pre-harvest pricing tools that are automatically executed once the contract is established, so the producer does not have a "trigger" to pull.

The purpose of the research reported here is to develop a better understanding of the opinions of Midwestern producers regarding the use of NGC, to learn who is most likely to use NGC, and to determine whether opinions and use changed between 2003 and 2005. A second objective of the research is to inform Extension professionals about NGC and to provide them with information about NGC that can be shared with producers.

What Are New Generation Grain Marketing Contracts?

NGC are generally classified into three categories.

Automated Pricing Contracts

First, there are automated pricing contracts that follow predetermined and nondiscretionary pricing rules over a specific time period (the pricing window) for specified quantities of a commodity. The most common contract is an average pricing contract that is designed to give the producer an average price by pricing an equal amount of bushels every business day during the pricing window. There are more complex automated pricing contracts that allow the producer to establish more parameters in the pricing criteria. These more complex contracts will typically use technical systems such as moving averages, the relative strength index, and stochastics.

Managed Hedging Contracts

The second category of contracts is managed hedging contracts, where pricing decisions are made by an individual analyst chosen by the producer. The producer will choose the number of bushels to price and the analyst, at which point the producer takes a passive role in pricing the designated bushels.

Combination Contracts

The third type of NGC is combination contracts, where the producer still utilizes automated pricing rules but is allowed to share in gains (if any) from pricing decisions made by the pricing analyst. The AgMAS (Agricultural Market Advisory Services) report by Hagedorn et al. (2003) provides a detailed description of some of these contracts.

How Producer Usage of NGC Has Changed

To better understand how NGC are, or are not, being used, and how their usage has changed, this analysis draws on surveys of Midwest producers that were conducted in July 2003 and again in July 2005 at the Purdue Top Farmer Crop Workshop. Participants are asked to fill out a written survey during the workshop. In 2005, participants who filled out a survey were entered into a drawing for a free registration for the 2006 workshop, but there were no incentives for the 2003 participants.

The Purdue Top Farmer Crop Workshop participants tend to operate commercial size farms. In 2003, the average farm size for the 46 respondents was 2,501 acres, and in 2005, the average farm size for the 47 respondents was 2,861 acres. In addition, these producers are generally technological innovators. Thus, they are an ideal group to survey about their use of NGC. Although this group is not statistically representative of farmers in general, they may be typical of large-scale commercial producers.

NGC are widely available, with over two-thirds of the respondents (68% in 2003 and 71% in 2005) saying that the grain handlers to whom they deliver offer NGC. However, of the producers who have access to NGC, only about a third of these producers have used them (37% in 2003 and 29% in 2005). Table 1 reports how producers expect their usage of NGC to change, and these plans are examined separately for those producers who use NGC and those who don't use them. About 60% of all producers in 2003 said they plan to increase usage. In contrast, of the 2005 respondents who use NGC, 42% plan to increase their use, 50% plan to remain at their current level of use, and 8% plan to decrease their use. Of the 2005 respondents who do not use NGC, 37% plan to start using them, while the other 63% do not plan to use them.

Table 1.

Producers' Planned Use of New Generation Contracts in 2003 and 2005

	2003	2005

Action	Producers Who Use NGC^a N=10	Producers Who Do Not Use NGC N=28	Producers Who Use NGC N=12	Producers Who Do Not Use NGC N=30
Increase in future	60%	61%	42%	37%
Stay at current usage	20%	39%	50%	63%
Decrease in future	20%	0%	8%	0%

^aNGC are new generation grain marketing contracts.

Producer Opinions About NGC

Producers were asked their opinion regarding the perceived advantages and disadvantages of NGC. They were asked to indicate their agreement or disagreement with a series of statements based on a 5-point scale where 1 is strongly disagree, 3 is neutral, and 5 is strongly agree. An average response of greater (less) than 3 means that the respondents, on average, agree (disagree) with the statement. Responses are reported separately in Table 2 for those who use NGC and those who do not use them because an individual's experience with NGC would be expected to affect their opinions. The user and non-user responses were tested for statistical differences within years but not between years.

Consistent from 2003 to 2005, all groups of producers believe that the biggest advantage of NGC is "to provide producers with discipline in their pricing strategy." In 2005, an equally important advantage among all producers is that NGC "help get the emotion out of pricing," and this advantage ranked higher than it did in 2003.

In both years, all producer groups agree that NGC "provide the producer with pricing diversification." In 2005, producers who use NGC are significantly more likely to agree that providing pricing diversification is an advantage than producers who do not use NGC. This is the only statistically significant difference of opinion between the two groups of producers in 2005. This suggests that the producers who use NGC do so in order to diversify their pricing strategy.

In both years, all producer groups agree that "not having margin calls" is an advantage of NGC to producers. In 2003, producers who use NGC agree more strongly that no margin calls is an advantage than producers who do not use NGC, and this was the only statistically significant difference of opinion between the two groups. By contrast, in 2005, producers who do not use NGC rate no margin calls more highly as an advantage than do producers who use them. While the advantage of no margin calls may have been the reason producers use NGC in 2003, producers in 2005 appear to be more interested in NGC as a tool for pricing diversification.

In both years, all producer groups agree that an advantage of NGC is to "provide more pricing alternatives" and disagree that a disadvantage of NGC is that "too many pricing alternatives" are offered. This indicates that producers continue to appreciate the expanded marketing alternatives.

In both years, producers who use NGC weakly agree (3.44 and 3.55) that NGC "may increase net price." However, they also weakly agree (3.44 and 3.36) that NGC "may lower net price." This apparent inconsistency may imply producers who use them do not believe NGC will have a major impact on net price in either direction and that these producers use NGC for reasons other than increasing their net price. In contrast, the producers who do not use NGC disagree (2.88 and 2.93) that they may increase net price in both years. Further, in 2005 producers who do not use NGC agree that NGC may lower net price. This suggests that one reason producers do not use NGC is that they believe these contracts will lower their net price.

In 2003 producers who used NGC agree (3.55) the "service fees are a disadvantage," while producers who did not use NGC tended to disagree (2.75), but the difference was not statistically significant. In 2005, however, both users and non-users agree (3.64 and 3.60) that service fees are a disadvantage.

In 2005, both users and non-users disagree (2.45 and 2.33) that NGC are "too complex to understand." This marks a sharp change from 2003 when producers who do not use NGC weakly agree (3.37) that they are too complex to understand. This sharp change suggests that producers in 2005 feel they have a better understanding of NGC, and when producers choose not to use NGC it is for reasons other than a lack of understanding.

Table 2.
Producers' Advantages and Disadvantages of Using New Generation Contracts
in 2003 and 2005^a

	2003	2005

Advantages	Producers Who Use NGC^b	Producers Who Do Not Use NGC	Producers Who Use NGC	Producers Who Do Not Use NGC
Provides discipline in pricing	4.55	4.22	4.55	4.00
Provides pricing diversification	4.33	3.88	4.27*	3.33*
Helps get the emotion out of pricing	4.33	3.77	4.55	4.00
No margin calls	4.25*	3.77*	4.00	4.07
Provides more pricing alternatives	4.00	3.77	3.73	3.20
Reduces time spent marketing	3.66	3.25	3.27	3.87
May increase net price	3.44	2.88	3.55	2.93
<i>Disadvantages</i>				
Service fees	3.55	2.75	3.64	3.60
May lower net price	3.44	2.88	3.36	3.67
Too many pricing alternatives	2.22	2.12	2.45	2.53
Too complex to understand	2.00	3.37	2.45	2.33
^a 1= strongly disagree, 3= neutral, and 5= strongly agree. ^b NGC are new generation grain marketing contracts. * Statistically significant at the 90% level of confidence.				

Who Is Using NGC

A thorough look at who is using NGC can help identify those producers who may be more likely to use NGC. Table 3 reports the descriptive characteristics of those who use NGC and those who do not use them. For both 2003 and 2005, the average age of the producer who use NGC was about 50 years of age, while the average age of those who do not use NGC was younger, at about 42 years of age in 2003 and about 45 years of age in 2005. One explanation for this age difference is that more experienced marketers may be more realistic about their ability to "beat the market" and thus more accepting of the NGC goal of achieving an average price. In both 2003 and 2005, all of the producer groups have an average of about 15 years of schooling. Producers who use NGC tended to operate larger farms. In 2003 and 2005 the average total acreage operated by those who use NGC was approximately 2,700 and 2,950 acres, respectively, while those who do not use NGC operated 2,600 acres on average in both years.

In 2003, the initial users of NGC are predominantly grain producers, but by 2005 more diversified operations with either livestock or specialty crops have started using NGC. Producers who use NGC in 2003 attribute a very small percentage (1%) of their gross farm income (GFI) to livestock production compared to the 2005 producers, who on average attribute 12% of their GFI to livestock. Producers who use NGC in 2003 attribute only 6% of their GFI to specialty crop production compared to the 2005 producers who on average attributed 20% of their GFI to specialty crops.

Those producers who use NGC report a significantly higher debt-to-asset (DA) ratio for their farming operations. In 2003, those who used NGC had an average DA ratio of 36% compared to 26% for those who did not use NGC. Similarly, in 2005 producers who used NGC had an average DA ratio of 40% compared to 28% for who did not use NGC. This may suggest that operations with higher debt capital structures adopt NGC to help mitigate price risk.

Producers were asked to rate their willingness to accept risk in their farm businesses relative to other farmers on a scale of 1 to 5, with 1 indicating "much less willing" to accept risk and 5 "much more willing" to accept risk. In 2005, on average, producers are more willing to accept risk than those in 2003. In both 2003 and 2005, producers who use NGC indicated that they are slightly more willing to accept risk, on average, than those who do not use NGC. Again, this may suggest

that those who use NGC view NGC as a way to manage risk and therefore are willing to accept a greater relative risk in their farm business due to established risk management strategies such as NGC.

Table 3.
Mean Characteristics of Producers Who Use and Do Not Use NGC in 2003 and 2005

Characteristic	2003		2005	
	Producers Who Use NGC ^a	Producers Who Do Not Use NGC	Producers Who Use NGC	Producers Who Do Not Use NGC
Years of Age	50.00	41.82	50.42	44.80
Years of Education	14.56	15.48	15.50	15.63
Total Acres Farmed	2708.00	2599.59	2946.08	2633.90
Percentage of GFI ^b Attributed to Livestock	1%	17%	12%	15%
Percentage of GFI Attributed to Specialty Crops	6%	13%	20%	12%
Debt to Asset Ratio	36%	26%	40%	28%
Willingness to Accept Risk	3.70	3.64	3.92	3.80

^a NGC are new generation grain marketing contracts.
^b GFI is gross farm income.

Logit Model

A logit regression model was developed in order to further analyze who uses and does not use NGC (Greene, pp. 873-874). Producers will choose to use NGC if they believe that the expected utility associated with NGC is greater than their current marketing alternative given the specific characteristics of their operations, the producers, and the information available to the producer.

Two logit regression models were estimated, one for 2003 and one for 2005. The dependent variable is binary, with a value of 1 if the producer uses NGC and 0 if the producer does not use NGC. The explanatory variables were producer age, producer education level, total acres farmed, percentage of GFI attributed to livestock, percentage of GFI attributed to specialty crops, DA ratio, and willingness to accept risk in the farming business relative to other farmers.

The results for the adoption model are presented for 2003 and 2005 in Table 4. The likelihood ratio test of the global null hypothesis--that all the coefficients on the explanatory variables are zero--was rejected at the 5% level for both years.

The only producer characteristics that had a significant effect on adoption of NGC in both years are producer age and the DA ratio of the farm business. The producer's age is positively related in both years. This indicates that NGC adoption increases with the age of operators as they gain experience and build human capital. The DA ratio of the farm business is also positively related in both years and indicates that farm businesses with a high DA ratio are more likely to adopt NGC. This suggests that producers with higher DA ratios are more concerned about managing their price risk.

In 2005, larger farms are significantly more likely to adopt NGC at the 10% level. One reason larger farms may use NGC is that they simply have a larger volume of grain to market and thus may use a wider variety of marketing tools or may be more willing to try new marketing tools. In 2003, farm size is not significantly related to NGC adoption.

In 2003, farmers who have very little GFI attributed to livestock are significantly more likely, at the 10% level, to adopt NGC. However, in 2005, the percentage of GFI attributed to livestock is not a significant characteristic that explained the adoption of NGC.

In 2005, farmers who rate themselves as less willing to accept risk relative to other farmers are significantly more likely, at the 5% level, to adopt NGC. Because NGC are a tool to reduce/manage price risk, producers who are less willing to accept risk, would be more likely to adopt risk management practices and strategies such as NGC. In 2003, the effect is also negative but not statistically significant.

Table 4.

Variables	2003	2005
	Parameter Estimates (Standard error)	Parameter Estimates (Standard Error)
Intercept	-9.3724 (7.6839)	1.3187 (5.2976)
Years of Age	0.2702** (0.1342)	0.1795** (0.0777)
Years of Education	0.1995 (0.3626)	-0.2996 (0.2606)
Total Acres Farmed	-0.0003 (0.0003)	0.0006* (0.0004)
Percentage of GFI Attributed to Livestock	-1.042* (0.6314)	-0.0111 (0.0236)
Percentage of GFI Attributed to Specialty Crops	0.0850 (0.0842)	0.0506* (0.0311)
Debt to Asset Ratio	0.1092** (0.0533)	0.0811** (0.0342)
Willingness to Accept Risk	-2.4128 (1.6409)	-2.9147** (1.3894)
Observations	31	38
Likelihood Ratio	19.65 (Pr>Chisq=0.006)	21.05 (Pr>Chisq=0.021)
Concordant (%)	92.9	90.9
* Statistically significant at the 90% level of confidence. ** Statistically significant at the 95% level of confidence.		

Conclusions and Implications for Extension Professionals

Numerous Extension programs focus on helping producers improve their marketing performance. These programs typically focus on how to develop a marketing plan, the importance of pricing pre-harvest, and providing market information so producers can make better informed decisions. While producers benefit from these programs, they frequently say their primary weakness is not the lack of a marketing plan, but rather their difficulty in executing their plan.

NGC offer producers additional tools for pricing grain that have been designed to help producers execute their marketing plans for the pre-harvest period. The research reported here shows that as producers have gained experience with these pricing tools between 2003 and 2005, they continue to consider the biggest advantages of NGC to be "providing discipline in pricing" and "helping get the emotion out of pricing." This suggests that Extension marketing programs should include a segment on NGC when they discuss executing marketing plans.

One of the most dramatic findings of the research is the change in producers' perceptions of NGC. While non-users in 2003 agree with the statement that NGC are "too complex to understand," in 2005 both users and non-users disagree that NGC are "too complex to understand." During the 2003 and 2004 Top Farmer Crop Workshops, producers received four presentations and one publication on NGC. This change suggests that producers feel they have a better understanding of NGC, perhaps due to their exposure to educational presentations on NGC, and further highlights the importance of including information on NGC in marketing programs.

Finally, the research found that in both 2003 and 2005, operations with a higher DA ratio are more likely to use NGC, perhaps because they view them as a diversification strategy that may help reduce their exposure to price risk. This finding suggests that Extension programs that include information on NGC may be particularly beneficial for more highly leveraged operations, such as younger farmers who are starting to build their asset base, that tend to be more financially vulnerable.

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