Corn Maze: Navigating Seed Corn Discounts

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Abstract

Most seed companies offer a variety of discounts and incentives in the pricing of their hybrid seed corn varieties. In this study we tabulate early cash payment, early financing, and volume discounts for multiple seed companies to create representative discounts from early fall through late spring. Using seed costs from extension crop budgets, we provide an example of the cost of different financing arrangements. Based on published discount schedules, we show that seed discounts can easily reach over 20% less with early cash payment and volume discounts. Cost savings are substantial with early season seed company provided financing, but traditional financing will cost less in most scenarios.

INTRODUCTION

In today's farm economy, it is important to get full value out of all input expenses. Seed, pesticides, fertilizer, and fuel are the major production expenses for crop farms. Many producers take advantage of early payment and other discounts offered by input suppliers. Seed and chemicals often have complex pricing, with a range of pre-payment discounts, volume discounts, rebates, and other incentives. On top of this, financing options are almost always available from the seed companies, with their own schedule of discounts and fees. Knowing the payoffs of different input purchase arrangements can help farms manage through tight profit margins.

This study considers seed corn purchase, which requires complex accounting for multiple factors that influence the final or actual cost. Typically, prices are not known until around Labor Day. Most seed companies offer discounts for early cash purchase beginning as early as September and declining to zero by early winter. Volume discounts are also common: Prices can lower substantially if you limit the number of companies you work with. Financing often is available, usually through Rabobank or John Deere Financial, from most seed companies. Furthermore, companies may offer a plethora of additional discounts: early delivery, new customer, growing customer, loyalty, multi-year commitment, and others.

The multiple dimensions of seed pricing are enough to make anyone's head spin. However, individual company discounts typically apply to all varieties of a specific crop—corn in our case. To provide some clarity, we devise representative early payment, volume, and financing schedules. These are based on actual schedules of over 10 seed companies but are designed to be broadly representative of the industry. Our goal is to provide a range of possible discounts to identify where cost savings are the highest. Once we have these representative schedules established, we will provide an example that compares seed company financing to lender financing. We use seed corn costs from extension crop budgets to provide an example of the magnitude of money at stake with seed corn purchase. We focus on corn, but our findings can be generalized to many other field crops.

METHODS

We intentionally do not discuss any firm-level discount schedules, as our analysis is not intended to disclose information from an individual seed company or provide critiques. Instead our objectives are to (1) show the hypothetical range of prices that could be paid for seed corn based on published discount schedules and (2) draw management implications for early payment, volume, and financing decisions. While discounts are not uniform, we did find mostly consistent patterns that we summarize in this article.

We would like to emphasize that we are providing a reasonable approximation for how the seed industry utilizes discounts as incentives for purchase. Each company has unique programs, and it would be unfair to compare only the nominal discounts in these simple categories. We tabulated the program deadlines and discount rates for over 10 different seed corn companies. To create a standard framework, we chose five key dates with intervals of a month and a half and averaged the discount rates of each company during this period. Using the interval averages, we then created our representative discount schedule. The variation in discount programs between companies is documented in Figure 1, which illustrates the discount rates and corresponding final dates when the discounts are offered. Each line represents a different seed company.

The volume discounts are tabulated similarly. Our base is no volume discount. An average seeding rate of 34,000 seeds per acre is used for the conversion between acres and units of seed corn. We used the threshold of 500 acres (212.5 units) of corn as a "medium volume discount." The "high volume discount" reflects a threshold of 2,000 or greater acres (850 units). This is often the top of the published volume discounts. Using our order size standardization, we then tabulated the volume discounts and calculated the average.

Table 1 shows early payment discounts with no volume discount, a medium volume discount, and a high volume discount. Discounts are all calculated from the "base" price, so we simply add together the early payment and volume discounts. Our dates of September 15, November 1, December 15, February 1, and March 15 are representative cutoff points; September 15 cutoff was the earliest we observed. Early payment discounts decline gradually in the fall but more rapidly in the winter. By mid-March, most companies no longer allow an early payment discount. For farms that buy seed in early fall and have some type of volume discount, only accounting for these two types of discounts, prices should be nearly 20% lower than the base. Zulauf and King (1985) find a 10% discount in seed price in their survey of Ohio farmers. This could represent a change in the practices of seed companies or the prevalence of larger farms today.

Most seed companies offer financing under a different discount schedule, which we summarize in Table 2. Locking in financing early and obtaining a volume discount can lead to discounts from the base price in the range of 15%, which still offers meaningful cost savings. Table 2 does not include interest costs. We found that interest costs for seed companies (often prime to prime plus 1%) are comparable to those being currently offered on operating lines from Farm Credit and commercial banks. However, there is a lower discount on the seed base price. Unless promotional financing is being offered and all else is held equal, the key difference between company and bank financing is the reduction in discount.

While the difference between early payment cash discount and early financing discount appears to narrow when comparing Tables 1 and 2, this is an artifact of averaging. If you look at an individual seed company, the difference between the early payment cash discount and the early financing discount is the same in each time period. We observe this distance to be close to 5% for most seed companies. This differential may help cover the costs companies pay to offer financing. Table 3 provides a hypothetical firm-level schedule to illustrate this point.

Our analysis does not directly account for different base prices being charged for specific varieties by seed companies. This data is largely considered confidential and is more difficult to access across a range of seed companies. Furthermore, the hypothetical discount range is still quite similar across firms, no matter the base price. After we establish a range of prices, we use average seed corn prices and seeding rates from Ohio State University crop budgets to give an example range of costs.

FINANCING CASE STUDY

Crop budgets for Ohio assume the average price of a bag of seed is $270[1] in 2019. This price likely reflects some existing degree of discounting or a combination of hybrid varieties selected with different base prices. The hybrid variety mix may be made up of one-third in the highest pricing tier, one-third in the middle pricing tier, and one-third in the lowest pricing tier. The corn enterprise of the farm may experience an average cost of $270 per bag (or unit) using this strategy. In Figure 1 we show the difference between the no discount price and

the combined early payment cash and medium volume discounts. The difference would be greater in the case of the high volume discounts. We compare both early payment and early financing discounts with different financing options.

Figure 2 illustrates the cost advantage for a producer who can utilize the early payment cash discount through cash reserves or financing from a traditional lender. Our example base price of $114.75 is consistent with Schnitkey and Sellars's (2016) evaluation of price growth for crop inputs through time. The difference between the discounted price of the early payment cash discount and the early financing discount is more than $5. "Early Payment Cash Price: Operating Loan, Prime" and "Early Financing Price: Prime" reflect a simple amortization using the current *Wall Street Journal* prime rate of 5.25%.[2] We assume for all financing options the loaned funds will be carried the entire period and repaid in full on December 15. For comparison, some of the companies provide promotional financing with preferable rates. This scenario is illustrated by "Early Financing Price: Prime Minus 2%." With regard to promotional financing, only rates very close to 0% would provide a better price than using an operating loan from another lender for the payment of the early payment cash discount. For the early payment cash price, we should technically be including an opportunity cost of capital. However, given the current low interest rates on deposits, we do not make this adjustment in favor of simplicity and interpretability.

DISCUSSION AND CONCLUSION

Our strongest management takeaway is that procrastination may be costly. While many producers take advantage of early payment discounts, the decision has multiple components. If financing is needed, the terms are typically similar to lenders—and early discounts are still provided if the financing is locked in early. If a producer is aware of potential challenges with procuring financing, it would be beneficial to evaluate early while there is still time to take advantage of company provided financing. If a producer is not concerned about financing, it still seems prudent to seek communication with a loan officer to illustrate the potential opportunity surrounding early payment discounts. We believe that "intentionality" is rewarded in the relationship lending norm of the agricultural credit market. A clear representation of the potential gain of the early payment cash discounts may influence a lender to extend or increase an operating loan to experience the benefits presented.

Company provided promotional financing with more attractive interest rates than a producer's traditional lender may be a good option for some producers. Some companies may internally "subsidize" their financing programs. Company provided financing may be helpful for producers who have concerns about additional financing from their traditional lender. As discussed earlier, producers who have access to lending from their traditional lender would need to experience rates close to 0% to be better off. Any promotional interest rates should be evaluated in combination with all possible discounts and the base price offered by the seed company.

Our analysis does not consider base price and the assortment of other discounts available, which are also important for management decisions. Further, negotiation is always possible in nearly any business transaction. Given how simple it was to show a 20% differential relative to base price, it is not difficult to envisage the range reaching one-third, but this is beyond the scope of our analysis. Our analysis also does not consider incentives such as trips or merchandise, which may factor into some decisions. For operators who have trouble "spending money on themselves," such incentives may have meaningful non-cash value. A general understanding of the costs underlying the rewards may be a useful thought exercise as a grower seeks to understand the true price of their seed.

The seed corn industry has interesting supply chain challenges, as discussed in Jones et al. (2003). Hybrid seed corn must be grown in a previous season or in different geographic areas to ensure seed that can be sold and planted in a timely manner. Ultimately, seed corn inventory management is expensive. The practice of early payment discounts could be explained by the desire to lower inventory costs for seed companies.

Concern has been raised by Abendroth, Elmore, and Rouse (2006) to the possible yield gains sacrificed by a hurried decision on hybrid selection. We agree that a producer needs to be prudent in their selection of hybrids—the higher cost of high-yielding varieties will typically pay for itself. Often there are at least two or three years of commercial trials for most hybrids, so even new hybrids can be evaluated prior to the early payment discount period. Additionally, depending on the order flexibility of a seed corn company, the producer may still be able to make slight alterations to the hybrid variety mix after the initial selection.

We are motivated by the fact that discount schedules are a known value. In contrast, markets, weather, and politics are often out of control of individual producers—or products such as crop insurance must be purchased to mitigate the risk. By utilizing these seed corn discounts, a producer can reduce costs and help create some financial slack to minimize potential income shocks.

We do not believe discounts are an elaborate strategy to befuddle producers, but rather that they have become the industry norm of seed corn pricing. The maximum discounted price could be considered the base price, with premiums being charged for late purchase, seed delivery, etc. When viewed through the context of a premium instead of a discount, how would this change the attitude of producers? The strong industry competition highlighted in MacDonald (2017) should keep the pricing of seed corn competitive. Some firms, such as the Farmers Business Network, have begun to offer transparent pricing as a part of their business strategy. It will be interesting to see how the industry evolves over the next decade.

In our case study, we show that early seed corn procurement can easily lead to a $20 per acre differential, even without taking into account various other discounts and promotions. What is $20 per acre worth or equivalent to?

- Late season fungicide
- Buying a better hybrid
- Crop insurance premiums
- Staying at the lake while the Co-op sprays your fields

Our point here is that the potential savings from careful, early seed purchases are worthwhile. Early payment deadlines are pre-harvest (in a typical year) and it is understandable that producers will not have much bandwidth to make additional decisions during the thick of harvest. Hence, evaluating financing options and preparing for early payment well before harvest may be advisable.

FOOTNOTES

[1] Ohio State Crop Budgets, https://farmoffice.osu.edu/sites/aglaw/files/site-library/farmmgtpdf/enterprisebudgets/corn-con2019%20May2.xlsx.

[2] *Wall Street Journal* prime rate: 5.25% as of August 1, 2019.

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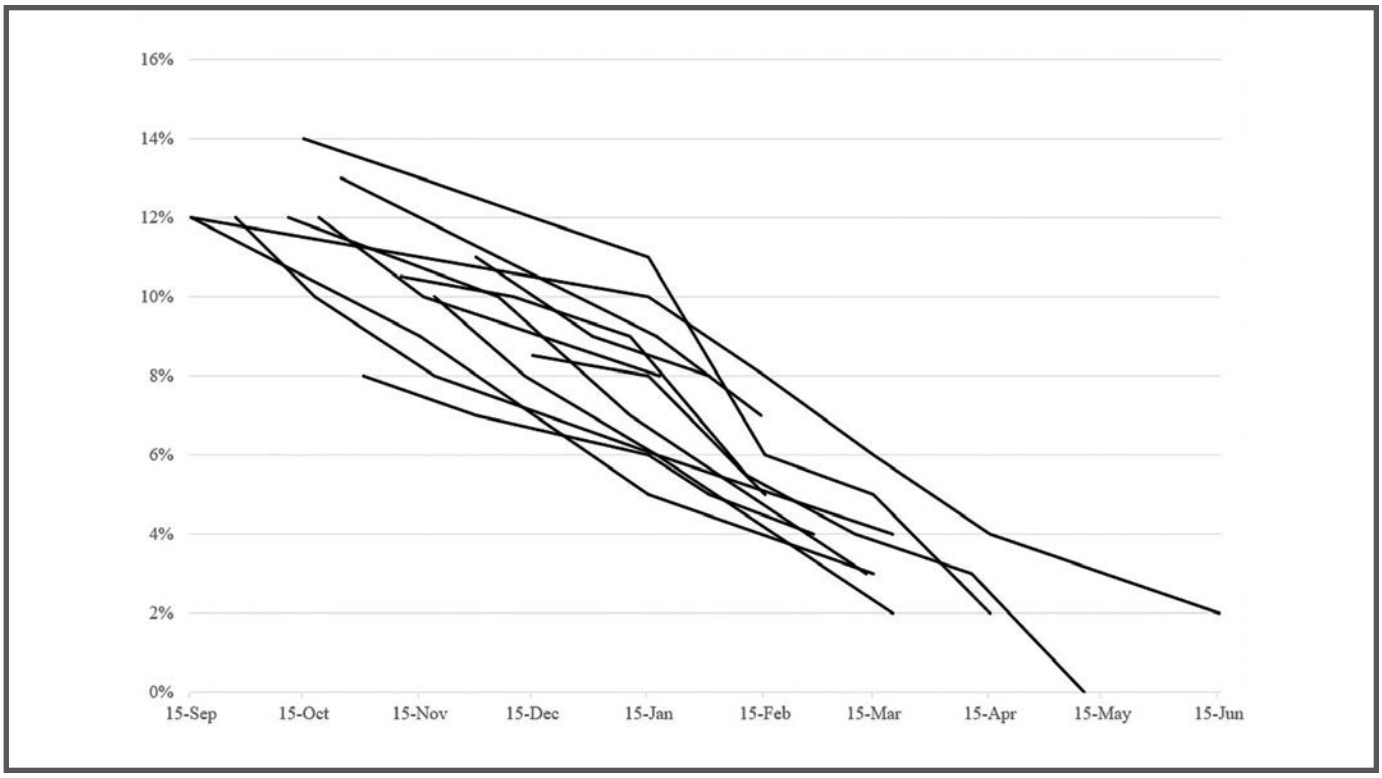

Figure 1. Early Payment Cash Discount by Seed Company (Note: Each line represents the actual discount schedule for seed corn offered by an individual firm or dealer.)

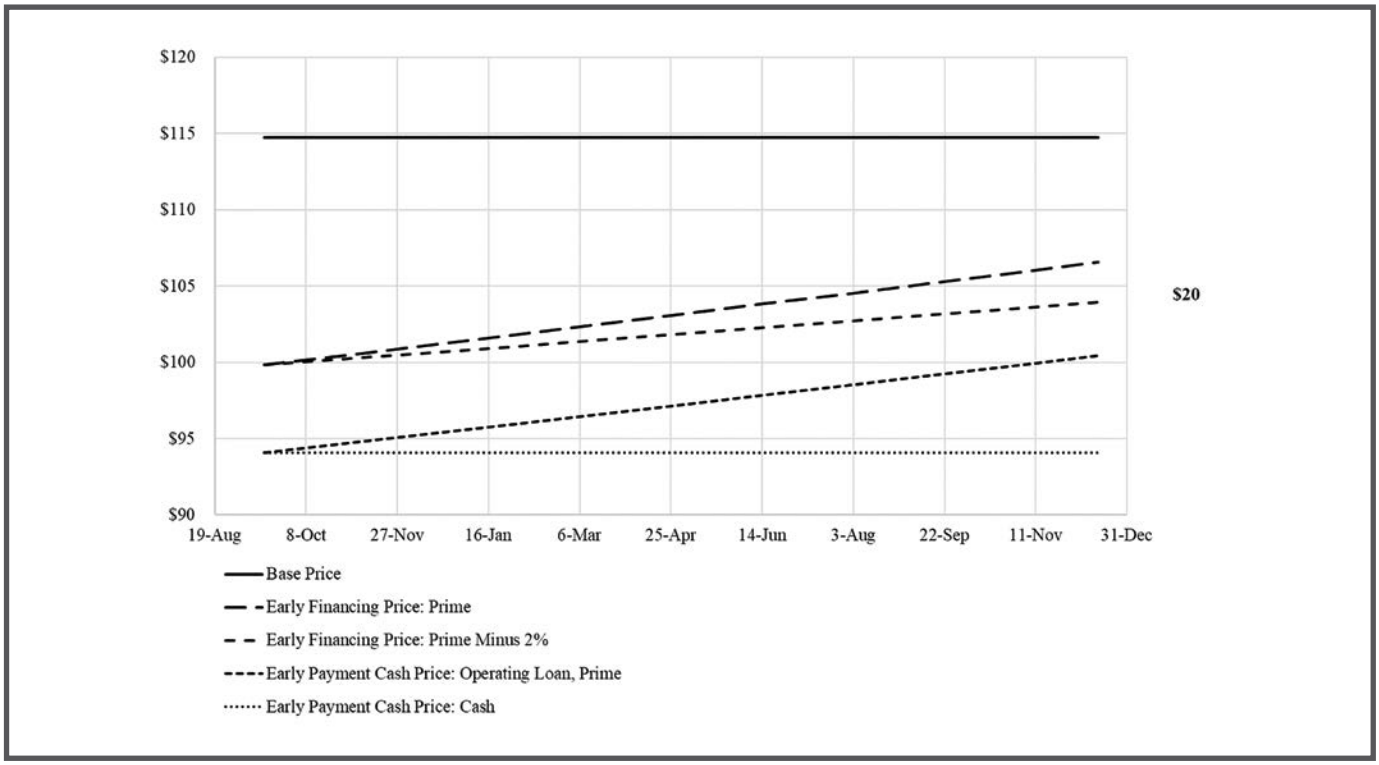

Figure 2. Per Acre Seed Corn Price with Financing Options (Note: We use the OSU Corn Crop Budget estimate of $270 per bag and a 34,000 seeds per acre seeding rate for the price per acre calculation. The Early Payment Cash Price is calculated with an early payment cash discount of 12% and volume discount of 6%. The Early Financing Price is calculated with an early financing discount of 7% and volume discount of 6%.)

Table 1. Seed Corn Discounts by Cash Payment Timing and Volume					
	15-Sep	1-Nov	15-Dec	1-Feb	15-Mar
Early Payment Cash Discount	12%	10%	8%	3%	0%
Medium Volume Discount	6%	6%	6%	6%	6%
Cash & Medium Volume	18%	16%	14%	9%	6%
High Volume Discount	9%	9%	9%	9%	9%
Cash & High Volume	21%	19%	17%	12%	9%

Note: Author calculations based on more than 10 individual seed company discount schedules. Assumes operator pays for seed with cash. Opportunity costs of paying in cash are not taken into account. Lender-financing interest costs are not included, as the observed seed company rates and lender rates are similar.

Table 2. Seed Corn Discounts by Financing Enrollment Date and Volume					
	15-Sep	1-Nov	15-Dec	1-Feb	15-Mar
Company Provided Financing Discount	7%	6%	4%	2%	0%
Medium Volume Discount	6%	6%	6%	6%	6%
Financing & Medium Volume	13%	12%	10%	8%	6%
High Volume Discount	9%	9%	9%	9%	9%
Financing & High Volume	16%	15%	13%	11%	9%

Note: Author calculations based on more than 10 individual seed company discount schedules. Interest costs are not included, as seed company and lender rates are similar.

Table 3. Hypothetical Seed Corn Company Discount Schedule					
	15-Sep	1-Nov	15-Dec	1-Feb	15-Mar
Early Payment Cash Discount	10%	8%	6%	3%	0%
Company Provided Financing Discount	5%	3%	1%	0%	0%

Note: Author calculations based on more than 10 individual seed company discount schedules. Interest costs are not included, as seed company and lender rates are similar.