



## Post-Harvest Grain Marketing: How Important Is It?

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After harvest, grain marketing changes. Farmers have taken stock of their crop and know precisely how many bushels they must sell. For these remaining bushels, the question is: *sell or store*? Selling promptly reduces storage costs but prices at harvest time are typically discounted relative to prices later in the marketing year. Forward markets offer higher prices later (what is known as carry) to incentivize storage and ration available supply until the next harvest. Storing grain also allows farmers to speculate on commodity prices, holding grain in anticipation of higher prices in the future.

This article is the first in a series examining the sell versus store decision in post-harvest grain marketing. In this first installment, I examine the size of this challenge for corn and soybeans farms in Illinois: how much of a year’s production does the farm have to sell after harvest? This is the flip side of: how much grain did the farm market prior to or at harvest? Post-harvest marketing is all the more important when the farm has chosen to make minimal sales before harvest.

Understanding the size of the post-harvest grain marketing challenge is difficult because even in aggregate there is incomplete information on how much grain farms have to sell at any given moment. The quantity of physical inventories on farm or the quantity of inventories recorded on a farm’s financial statements may not match the amount of grain to be harvest because grain can be priced prior to delivery using forward contracts or after delivery by renting commercial storage space or using deferred pricing contracts. Additionally, the ‘typical’ or average case based on aggregate data will not capture the variation of storage and marketing decisions across farms.

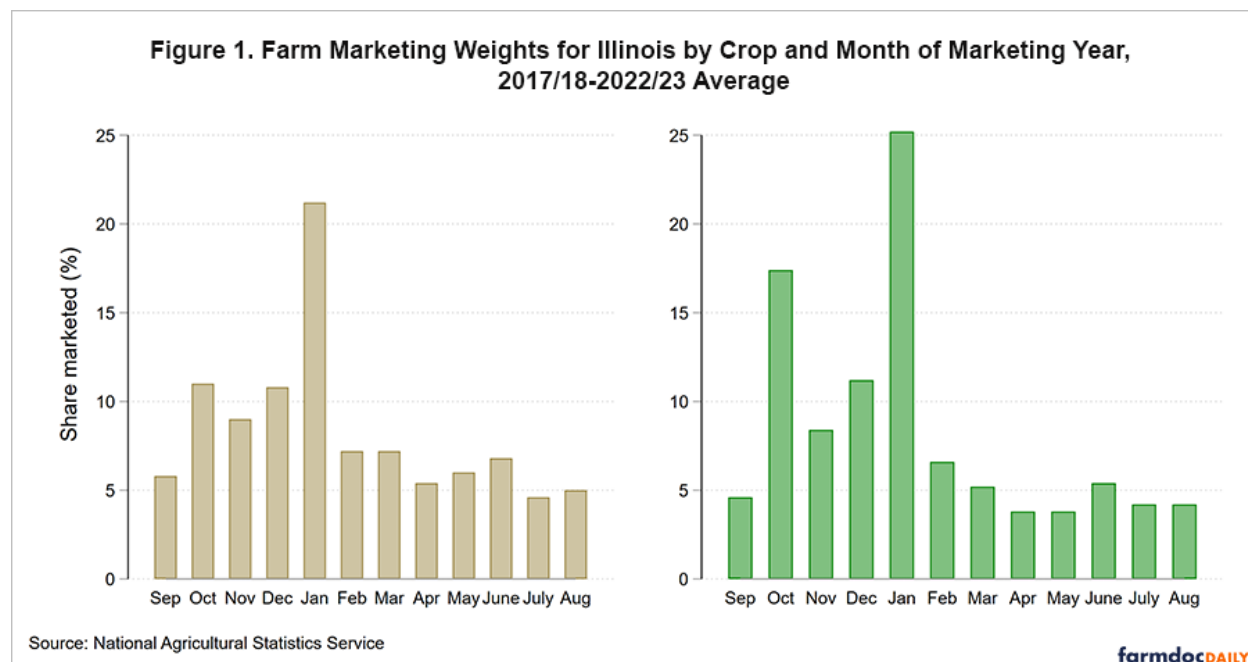
I compare different measures of farmer marketing behavior for corn and soybeans in the month of December. I find post-harvest marketing must be a significant activity for Illinois grain farms: in aggregate, roughly 60% of production remains unsold after harvest. This implies farmers may bear significant price risk after harvest. My analysis also suggests farm financial records like those maintained by the Illinois Farm Business Farm Management (FBFM) Association may provide useful information about farmer marketing activity. In future articles, I will assess variation in marketing activity across farms and the profitability of the sell versus store decision.

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## Farm Storage and Marketing Quantities after Harvest

I consider three measures of how much grain Illinois farms have to sell in December, shortly following the corn and soybean harvest period. The first is on-farm inventory: grain stored in facilities physically located on the farm. The National Agricultural Statistics Service (NASS) estimates on-farm stocks quantity by state as of December 1 of each year in its Grain Stocks Report. Physical inventories on-farm are a limited measure how much grain farmers have to sell: they may overstate the amount of grain to be marketed if some grain is priced using forward contracts, or they may understate grain to be marketed if unpriced grain is held off-farm. NASS also reports annual grain production by state; expressing inventory as a share of production facilitates comparisons across time, states, and farms.

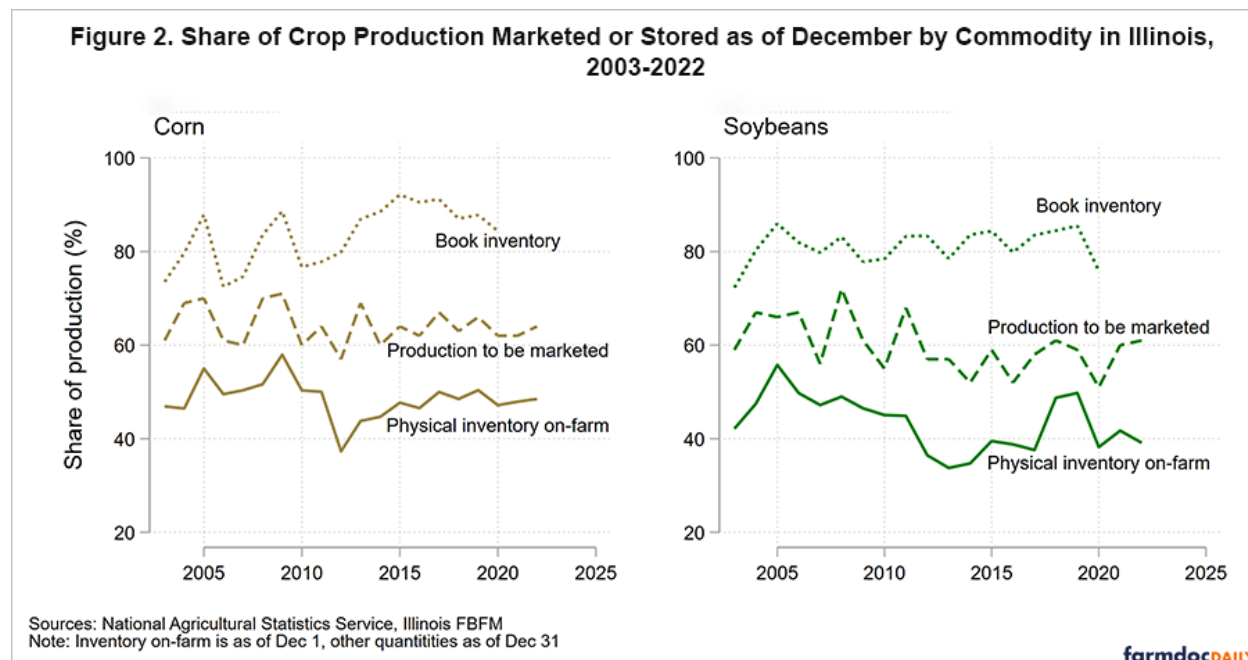


The second measure of grain to be marketed comes from data on farmer grain sales collected by NASS using farmer surveys. While publicly available data related to farmer sales are limited, NASS does report each year a set of marketing weights which represent the proportion of that year's production marketed in each month of the marketing year; these weights are given in Figure 1. (Note the corn and soybean marketing year runs from September to August.) The NASS marketing weights are larger in the months immediately after harvest, specifically October through January. A significantly larger portion of the crop is marketed in January because realizing sales after January 1<sup>st</sup> allows farms to shift revenues between tax periods. By summing the weights from September through December, we can estimate the proportion of the crop marketed by the calendar year end. The share of production to be marketed is one minus the share marketed.

My final measure is the quantity of book inventories held on the farm balance sheet as of the December 31 calendar year end. Grain farms in the Illinois FBFM report inventory quantities by commodity. Like other data sources, Illinois FBFM also records production quantities so we can express inventory as a share of production and compare it to the measures described above. Book inventories are likely to be larger than on-farm physical inventories because they can include grain located in commercial storage facilities. They may also be larger than production marketed if grain has been priced using forward contracts, including deferred pricing contracts that allow farms to deliver grain but realize sales after the December 31 tax year end. For these reasons, book inventory likely overstates the post-harvest quantity to be marketed; physical on-farm inventory and book inventory are likely to place lower and upper bounds on the actual quantity of grain to be marketed.

Figure 2 reports these three measures of storage and marketing by year for both corn and soybeans. As suggested above, the share of production to be marketed according to the NASS marketing weights falls between on-farm physical inventory and book inventory. All measures are slightly higher for corn compared to soybeans. Physical inventories on-farm are on average roughly 45% of production for both

corn and soybeans. The average share of production to be marketed as of December 31 is 65% for corn and 60% for soybeans. Book inventories as a share of production are on average just over 80% for both crops.



Two things stand out in Figure 2. First, marketing and storage levels in December do not vary much across years when expressed as a share of production. In aggregate, farms do not appear to alter the proportion of grain marketed post-harvest much from year to year in response to changes in price levels or price spreads. Take 2012 as an example. Drought that year led to high spot prices at harvest and negative futures calendar spreads for both corn and soybeans. Negative calendar spreads suggest returns to storing grain were limited. Despite these market signals, farms reduced physical inventories on-farm only slightly and kept the proportion of grain marketed and book inventories of grain near normal levels.

Second, book inventories closely follow movement in marketing weights. The direction of year-to-year changes in marketing weights and book inventories is similar, though the size of the changes differs. This suggests FBFM data on book inventories are informative about the pace of farm selling and the desire of farmers to sell or store. Unlike NASS data on marketing, we observe book inventories at the farm-level and will examine the variation across farms in future articles.

### Implications

Post-harvest grain marketing is a big deal. Farms must bear price risk for as long as grain remains unmarketed. Data show the majority of the corn and soybean crops in Illinois remain to be sold after harvest. This suggests, farmers are willingly assuming price risk and realizing most crop revenue post-harvest.

Farmers face pressure to market this grain profitably. Typical seasonal patterns see crop prices appreciate after harvest. Farmers can take advantage by storing grain, but this may come at some cost. On the merits of post-harvest marketing University of Minnesota extension economist Ed Usset (2010) is blunt: “Holding grain in storage too long is a big mistake made by too many farmers”. Marketing grain profitably likely requires a flexible approach where farmers “trade their (grain) like they were a grain elevator” as suggested by market analyst Angie Setzer (2016, [ProFarmer](#))

Given the importance of post-harvest grain marketing for farm profitability, the benefits and costs of holding grain after harvest should be weighed carefully. These benefits and costs may differ substantially across farms. In future articles in this series, I will use data from Illinois FBFM to explore how post-harvest marketing activity and its benefits and costs differ across farms.

## Acknowledgment

The author would like to acknowledge that some data used in this study comes from the Illinois Farm Business Farm Management (FBFM) Association. Without Illinois FBFM, information as comprehensive and accurate as this would not be available for educational purposes. FBFM, which consists of 5,000+ farmers and 70 professional field staff, is a not-for-profit organization available to all farm operators in Illinois. FBFM field staff provide on-farm counsel along with recordkeeping, farm financial management, business entity planning and income tax management. For more information, please contact the FBFM office located on the campus of the University of Illinois in the Department of Agricultural and Consumer Economics at 217-333-8346 or visit the FBFM website at [www.fbfm.org](http://www.fbfm.org).

## References

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