ECONOMIC & POLICY UPDATE
VOLUME 21, ISSUE 8
Editors: Will Snell & Nicole Atherton

Characteristics of Higher Profit Farms

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Published: August 31st, 2021

In today's farming culture, the goal of most producers is to be at the top of the profitability curve in order to stay competitive. A period of lower commodity prices led to tight margins and producers had to work on being as efficient as possible to maximize returns. Although crop yields do play a major factor in management returns, the diversity of the operation also has an impact. The 2020 crop year brought higher returns and relief for farmers across Kentucky. It is interesting to examine the characteristics of the higher profit farms over the past five years.

Data from the Kentucky Farm Business Management program for 2016 through 2020 were used to analyze differences between the highest profit grain farms (high one-third) and the lower profit grain farms (low one-third). The analysis was done for 2020 and for the 2016 through 2020 five-year average. Farms in the higher profit group were larger, had higher corn and soybean yields, cash rented a larger percent of their acres, had a larger percentage of their acres in corn, and had higher gross returns and lower costs. Management returns, a profit measurement, were significantly greater for the higher profit farms. Management returns are calculated using gross returns, cash costs, economic (rather than tax) depreciation, and imputed costs for interest and owner labor.

Table 1: Differences between High and Low Thirds (2020)

	Kentucky
Corn Yield (bu)	4
Soybean Yield (bu)	2
Operator Tillable Acres	574
% Owned	-3%
% Crop Share	-10%
% Cash Rent	13%
Gross Farm Returns	$229
Crop Costs	($26)
Power & Equipment Costs	($32)
Total Economic Costs	($100)
Management Returns	$324
% Acres Corn	6%
% Acres Soybeans	-11%

Table 2: Differences between High and Low Thirds (5-Year Average)

	Kentucky
Corn Yield (bu)	15
Soybean Yield (bu)	4
Operator Tillable Acres	1,218
% Owned	-1%
% Crop Share	-8%
% Cash Rent	9%
Gross Farm Returns	$219
Crop Costs	($7)
Power & Equipment Costs	($24)
Total Economic Costs	($47)
Management Returns	$269
% Acres Corn	6%
% Acres Soybeans	-12%

Farm size was a consistent factor in the profitability, as the higher profit farms were 574 acres to 1640 acres larger than the lower profit farms over the five-year period. In 2020, livestock returns (primarily poultry) were a factor in the higher profit farms. This is one reason the difference in farm size was smaller in 2020. The larger farms are able to spread the fixed costs over more acres. Over the five-year period, the average difference in farm size was 1218 acres. This is a large difference as the average size of the farms only ranged in size from 1261 acres to 2920 acres.

Another consistent factor of the higher profit farms was yield. Both corn and soybean yields were higher over the five years. As the table shows, for the five-year average, corn yield was 15 bushels higher and soybean yield was 4 bushels higher. This would obviously result in higher gross returns per acre. In 2020, their yield advantage was only 4 bushels for corn and 2 bushels for soybeans. Weather is one major contributor to the higher yields, but management practices also impacted the yields across the state. The higher profit farms also had a larger percentage of their tillable acres planted in corn and less in full-season soybeans. More corn acres will also add to the higher gross farm returns as an acre of corn will produce more returns than an acre of soybeans.

Management practices also impact the costs. The crop costs include seed, chemicals, and fertilizer. An acre of corn is more expensive than an acre of beans, thus one would assume the costs should be higher for the farms that have a larger percentage of their land in corn. However, crop costs for the higher profit farms (with a larger percentage of their land in corn) were $7 lower than the lower profit farms on average over the five-year period. Fewer inputs to generate higher returns resulted in these farms being at the top. In 2020, the crop costs were $26 lower per acre for the higher profit farms. The largest crop input factor for 2020, and most likely for the 2021 crop as well, was fertilizer. There were large swings in fertilizer costs and this greatly impacted the average cost per acre for the grain producers.

As expected, the higher profit, larger farms had lower power and equipment costs. This category includes utilities, equipment repairs, fuel, machine hire and lease, and equipment economic depreciation. The largest costs are repairs, machine hire, and economic depreciation. Spreading these costs over more acres allows for more efficiency. Total economic costs include crop costs, power and equipment costs, building costs, labor costs, miscellaneous costs, and land cost. In 2020, total costs were $100 per acre lower for the higher profit farms, which you can see over half of that difference is a result of crop and equipment costs. Economic costs were $47 less for the five-year average, and 66% of that difference is a result of crop and equipment costs.

Another interesting factor to discuss is the ownership and rental agreements of the higher profit farms. Different areas of the state have primarily different rental agreements. Some landlords prefer cash rent and a guaranteed set price, while other landlords are willing to take a risk for higher returns and possibly share in some crop expenses. In 2020, the higher profit farms owned 3% less of their land, crop shared 10% less of their land, and cash rented 13% more of their land. The average cash rent for these farms was only $180, a very economical cash rent. Over the five-year period, the average difference for the higher profit farms was owning 1% less of land, crop sharing 8% less, and cash renting 9% more. With the economical cash rent average, the crop share farms have been a larger cost to the producers over the period.

The larger gross farm returns and the lower costs have resulted in significantly larger management returns for the higher profit farms. In 2020, the higher profit farms averaged $324 more per acre in management returns. Over the five-year period, the average difference was $269 per acre.

There are many factors that contribute to the profitability of the farms. Some factors, such as weather, cannot be controlled, but the management practices of each operation impact many other factors. Not one single factor will be the consistent main contributor to the difference in profitability. The goal of all

producers should be to analyze personal trends and work toward improving their individual operations.

Recommended Citation Format:

Turley, L. O. "**Characteristics of Higher Profit Farms**." *Economic and Policy Update* (21):8, Department of Agricultural Economics, University of Kentucky, August 30th, 2021.

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