

What Drives Fertilizer Department Profitability?

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The application of fertilizer and crop protectants is an important business unit for cooperatives and an important service for members. Application services are obviously expensive with new equipment costing \$300,000 or more. A recent OSU research project investigated the gross revenue, expenses and gross profit of fertilizer and chemical application operations at Oklahoma cooperatives. Our data included information on per acre fees, acres applied and margins on fertilizer and crop protectants. We did not investigate the fixed costs of warehousing so our profitability measure was only the gross profits directly related with the application unit. We modeled the fixed costs of ownership including depreciation, interest, repairs and insurance along with the variable costs of labor, fuel and oil.

The gross margins as a percent of sales revenue varied widely across cooperatives from a low 3.5% of sales to a high of 26%. The top 25% of cooperatives had a gross margin of 23% while the bottom quarter had 12%. On average the gross revenue was 15.5% of sales (application fees plus fertilizer and chemical sales). Our profitability measure does not match up with any standard accounting measure because we are focusing in on just the application section of the agronomy department. It is useful in identifying differences between cooperatives. We were interested in what factors might explain those differences. We anticipated that applicator utilization, the number of applicators, the size and structure of the cooperative and the competition in the trade territory all could play a role.

One might expect application profitability to be a simple function of getting equipment over more acres. While applicator utilization (acres cover relative to a machine's theoretical capacity) was a factor the most profitable business units appeared to be in the middle. The 25% of cooperatives with a highest utilization had gross profitability of 14.3% and the 25% with the lowest acres/machine averaged 15%. The remaining cooperatives in the middle, in terms of acres/machine had average gross profits of 17% of sales. Like Goldilocks and the three bears, the sweet spot appeared to be in the middle. One explanation could be that high machine utilization leads to higher waiting time. Members may be more willing to book application jobs (possibly at higher fertilizer and chemical margins) with cooperatives where they perceive fairly short backlogs.

I'll discuss some more results from this line of research in my next newsletter.

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