Compared to mixed cooperatives, supply cooperatives experienced a much lower reduction in retained earnings. Figure 4 shows the impact of falling fertilizer prices on retained earnings at different inventory exposures and different sales sizes of supply cooperatives. This is because supply cooperatives exhibited higher profitability and were therefore less impacted by the inventory write-downs. Cooperatives with sales of less than $50 million were the most negatively impacted. At the highest price drop of 50% and exposure of 75%, the bottom 25% of small supply cooperatives reduced their retained earnings by 42.6% compared to 52.0% for mixed cooperatives. Supply cooperatives with sales between $50 and $150 million reduced their retained earnings by 26.4% when prices declined by 50% at a 75% exposure compared to 72.2% for mixed cooperatives of the same size.

Key takeaways

Today, fertilizer markets are very volatile, which has implications for farmer cooperatives. A stress test model is presented to show how a fertilizer price decline coupled with being exposed to price movements can negatively impact various types and sizes of farmer cooperatives. Our research shows that mid-sized, mixed supply and grain cooperatives as well as small supply cooperatives could experience the most stress if fertilizer prices declined and they are exposed to falling prices. All other farmer cooperatives, including large cooperatives, could still experience fertilizer inventory write-downs, just the subsequent decline in retained earnings would not be as large as the mid-sized mix and small supply cooperatives.

These results emphasize the importance for all cooperatives to manage their fertilizer inventory efficiently. It is important to track and monitor fertilizer inventory and know how quickly this inventory turns over. Also, cooperatives should know and protect fertilizer margins because that has implications for the cooperative's bottom-line profits. Managing fertilizer inventory also entails minimizing price risk exposure by not being open to fertilizer market movements. One way to minimize this price risk is to closely align when the cooperative purchases fertilizer to when the fertilizer is sold.

Finally, it is imperative that cooperatives ensure that all fertilizer purchased under contract is paid in-full. Not following through with collecting on contracts leads to significant accounts receivable risk and can lead to a steep rise in bad debt expense. In fact, not collecting on a fertilizer contract is no different than being exposed to price fluctuations in the market. And as shown in this fact sheet, being exposed to fertilizer price fluctuations can cause a significant decrease in a cooperative's retained earnings.