Machinery Replacement Considerations

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http://www.agmanager.info

Background

The current farm profitability situation has caused many farmers to closely monitor their farm expenses. Crop prices are something that are out of the direct control of farmers but many expenses can be directly controlled.

Machinery is an expense area that farmers can manage directly and that amounts to a large percentage of total costs. As shown in Figure 1, machinery costs currently account for 35% to 40% of total costs for a crop farm in Kansas. Included in the machinery cost calculation is depreciation (management depreciation and not tax depreciation), repairs and maintenance, fuel, and an interest charge for the capital tied up in the machinery.

Although this a large percentage, the share of machinery costs to total costs is actually at the low point of the historical records of the Kansas Farm Management Association (KFMA). Forty years ago, machinery's share of total costs was 50% to 60%. Greater use of no-till, bigger farms with bigger machinery, and better machinery technology have likely led to this decrease in machinery costs as a percentage of total costs.

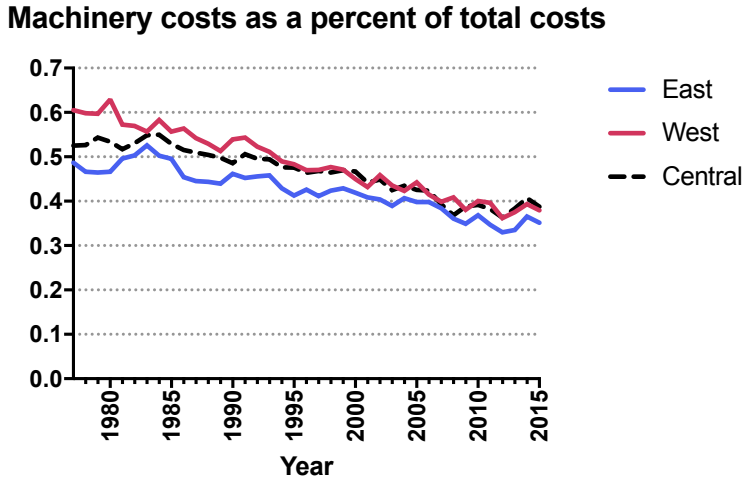

Figure 1. Machinery Cost for East, West, and Central Kansas as a Percent of Total Costs

The 1980's Farm Crisis

Because the KFMA dataset precedes the 1980's farm crisis, we can use this database to examine how farmers managed their machinery during this time of low profitability. As shown in Figure 2, before the 1980's farm crisis, farmers had $100 to $200 of machinery investment per acre depending upon the region of the state. As the farm crisis progressed, this investment of machinery dropped to less than $50 per per acre. This drop illustrates that farmers quite buying equipment during the 1980's farm crisis.

Not buying equipment helped improve profitability but the biggest benefit was the improvement in cash flow. Farmers needed much less cash by holding onto their equipment. This may have been partially caused by lenders reluctant to make machinery loans as well.

One unique aspect of holding onto equipment longer during the 1980's farm crisis was that repairs didn't seem to increase. As shown in Figure

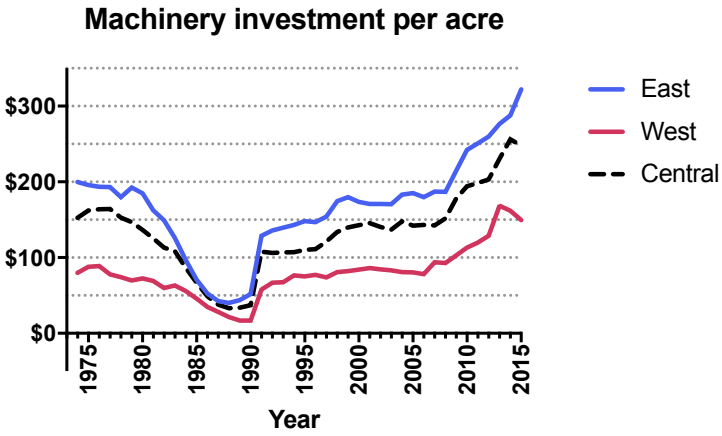

Figure 2. Machinery Investment per Acre (Real $) for Kansas Farms by Region

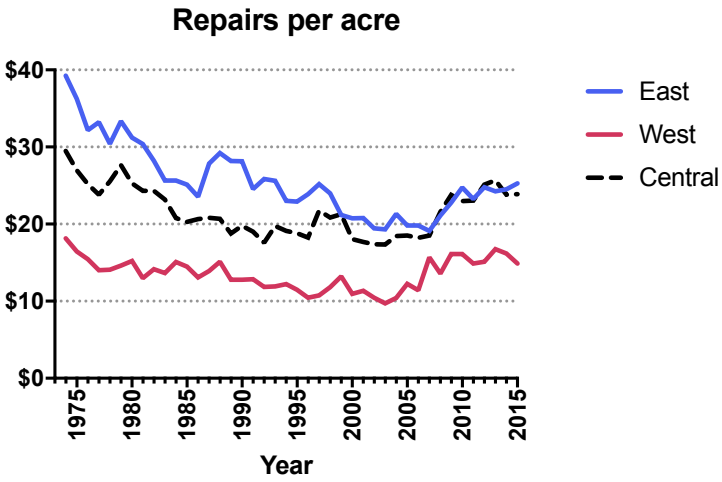

Figure 3. Repairs per Acre (Real $) for Kansas Farms by Region

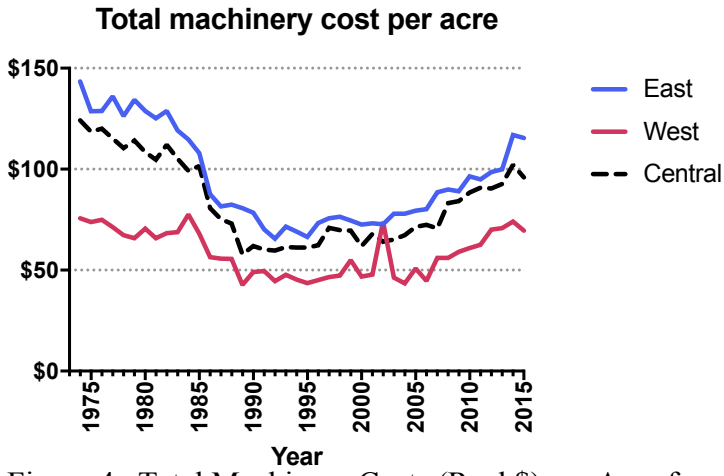

Figure 4. Total Machinery Costs (Real $) per Acre for Kansas Farms by Region

3, repair costs remained fairly steady and even showed some slight decreases. Normally, older equipment would be expected to need more repairs. What probably occurred was that farmers did more repairs on their own in an effort to save cash.

When the farm crisis of the 1980's ended, farmers were quick to reinvest with newer machinery so that by 1990, machinery investment levels were up to pre-farm crisis levels.

The 2000's and Beyond

Starting in 2007, farmers increased their investment levels of machinery. This machinery increase coincided with an increase in net farm income. The years from 2007 through 2012 were some of the most profitable ones for grain producers in the history of the KFMA program. Farmers took advantage of these higher profits and either purchased more machinery or newer machinery.

As a result of higher profitability and more machinery purchases, farmers now have machinery investments from $150 to $300 per acre. While this level is 50% above pre-2007 levels, this is not necessarily bad. Farms now have a "machinery bank" they can use to draw from during the current period of low profitability that farmers are now facing. Given that cash flow is a problem for farmers in years of low profitability, not having to spend money on new equipment is beneficial to farmers

Recommendations

The improvement that farmers made to their equipment base during the run of strong profitability from 2007 to 2012 will serve farmers well now. This improved equipment base will allow many farmers to ride out this period of low profitability without having to make many equipment purchases. Making do with older equipment may only have marginal benefits to profitability, but cashflow will see large benefits, especially since lenders become more reluctant to lend when farm profits are low.

One difference between the farm crisis now and the 1980's farm crisis is how farmers handle repairs. As discussed for Figure 3, farmers in the 1980's were apparently able to do many repairs on their own. This may be why repair and maintenance costs remained steady despite the farmer's equipment aging.

Equipment repairs today may not be so easy for farmers to do on their own. There is considerable talk in the farm press about whether anyone outside of a dealership can do repairs. Farm machinery today has many more electronics that must be accessed in order to perform repairs. Equipment companies could restrict farmer's access to this software even more than they are doing now. The result is that the steady to downward sloping repair cost line we saw in the 1980's might not occur again if farmers keep their equipment longer but are unable to do any repairs themselves.

Figure 4 shows the inflation adjusted machinery costs on a per acre basis. Despite farmers increasing their machinery investment per acre from 2007 to 2012, the total machinery cost per acre also increased but not as much as the machinery investment. This slower rise in the machinery cost per acre is likely due to more modern and newer equipment that requires fewer repairs and is more efficient.

Still, machinery costs per acre are not as low as they could be. When adjusting for inflation, machinery costs per acre ranged from $50 to $75 per acre for much of the 1990's and 2000's. Currently, machinery costs per acre are about $25 per acre higher than that. The higher depreciation and higher interest charge for having a larger machinery investment is responsible for this. As farmers start to tap into their "machinery bank", they will help get this machinery cost per acre lower.