Liquidity Analysis of Iowa Farms:
Lower returns dent financial liquidity of Iowa farms

The accrual net farm income of commercial Iowa farms averaged $64,583 in 2023, according to the analysis of anonymized data from mid- to large-size farms collected by the Iowa Farm Business Association (IFBA).\(^1\) Such income level was 79% lower in real terms\(^2\) than in 2022, and the lowest since 2018 (Figure 1).

The 2023 average cash net farm income in Iowa was estimated at $141,484, 34% lower than in 2022 and the lowest since 2019. The gap between accrual and cash income is mostly explained by the decrease in crop inventory values between January and December 2023.

Although the average net farm income was positive, not all Iowa farms were profitable in 2023. The bottom-third of the farms (arranged by their annual returns to management) averaged a negative accrued net farm income of -$64,055 in 2023, breaking a three-year run of positive average net returns for this group (Figure 2). In contrast, the top-third group has consistently averaged net farm incomes more than twice the size of the state average, reaching $269,685 in 2023. For a more detailed analysis of the three groups, see Ag Decision Maker File C1-10, 2023 Iowa Farm Costs and Returns, store.extension.iastate.edu/Product/1812.

The financial efficiency of Iowa farms in 2023, measured by the rates of return to assets and equity, and the operating profit margin ratio, was the lowest since 2017 (Figure 3). Lower revenues and higher costs continued to erode the overall financial efficiency of most Iowa farms.

\(^1\) The IFBA is an independent association, managed and controlled by its farmer-members.

\(^2\) Deflated with the Consumer Price Index for All Urban Consumers (CPI-U 1982-84=100) published by the US Bureau of Labor Statistics, re-expressed as 2023=100.
Overall Liquidity
We analyzed liquidity using four indicators: the current ratio, the annual change in working capital per acre, the share of farms with less than $250 in working capital per acre, and the share of farms with vulnerable liquidity ratings.

The average loss of working capital between January and December 2023 amounted to $204 per acre. However, not all farms saw their working capital decline. The share of farms with vulnerable liquidity increased for the first time in four years, from 7.7% to 9.6%, and their average working capital was the lowest on record: -$346 per acre.

The average ending current ratio\(^3\) for Iowa farms peaked in 2012 at 7.08. It has since declined to 2.77 in 2017, bounced around that level over the following three years before increasing to 6.65 by 2022, and finally declining to 4.31 in 2023 (Figure 4). Having $4.31 in cash, inventories, and other liquid assets per each dollar in liabilities that will come due over the next twelve months means that the average farm should be able to cash flow its normal operation (not accounting for any expansion plans or substantial contractions in profit margins) in 2024. Short-term liabilities increased by 33% in 2023, offsetting 74% of the accumulated decline in inflation-adjusted short-term liabilities since their peak in 2017. Medium- and long-term liabilities increased by 20% and 27%, respectively, in 2023, bringing total liabilities to a record average value of $698,478, or 11% higher after adjusting for inflation than its previous peak in 2019. Short-term asset values only increased by 2% between 2022 and 2023.

A major drawback of comparing financial indicators across all farms in the sample through time is the variability of the sample size and its composition across years. In order to partially address this issue, Figure 5 illustrates changes in working capital per acre between January 1 and December 31 for the same set of farms at those two points in time. In 2023, the average decline in working capital per acre among the 307 farms with detailed balance sheets at both points in time was $204. This loss was the largest loss on record, even after adjusting for inflation, and the first one after three years of consecutive gains in working capital.

\(^3\) The ending current ratio is calculated as current assets divided by current liabilities as of December 31.
Based on the farms’ ending current ratios, they were assigned a liquidity rating of vulnerable, normal, or strong. According to the *Farm Financial Scorecard*, a current ratio above 2 indicates a strong liquidity position; a ratio below 1.3 indicates a vulnerable liquidity position, and a ratio between 1.3 and 2 is normal and indicates that liquidity should be kept under close watch. To avoid outliers, only farms with current ratios between 0 and 50 were selected. Given the large number of farms in the sample with no short-term liabilities, a fourth category is shown in Figure 7, along with the three liquidity categories.

In December 2014, there were 4.2 farms with strong liquidity or no current liabilities per farm with vulnerable liquidity (70.8% vs. 16.8% of the sample, respectively). Five years later, that ratio declined to 2.1, given the increase in the share of farms with vulnerable liquidity to 28.8% and the reduction in the share of farms with strong liquidity or no current liabilities to 61.6%. In December 2022, there were 11.0 farms with strong liquidity or no current liabilities per farm with vulnerable liquidity, as a result of the 22.8-percentage point increase in the share of farms with strong liquidity or no current liabilities and the 21.1-percentage point decline in the share of farms with vulnerable liquidity. In 2023, the ratio declined from 11.0 to 8.3, due to a 1.9-percentage point increase in the share of farms with vulnerable liquidity and a 5.2-percentage point decrease in the share of farms with strong liquidity or no current liabilities.

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5 While dairy farms or other farms that have continuous sales throughout the year can safely operate with lower CRs, operations that concentrate sales during several periods each year (such as cash grain farms) need to strive for higher CRs, especially near the beginning of the crop year.

6 Due to rounding, some shares might not sum to 100%.
It must be noted that the sample size became smaller through time, from around 550 farms in 2014 to about 290 farms in 2023, affecting the robustness of the comparisons discussed in the present section. The next section explores the overall liquidity situation for the same subset of farms over the most recent three years.

**Analysis of farms with full financial records over the most recent three years**

The declining number of farms in our sample through the years and the changing composition of the annual samples might drive some of the results presented in the previous section. In what follows, the analysis is limited to a subset of 220 farms with detailed balance sheet records across the most recent three years. We interpret the data from January 1, 2021, as data from December 31, 2020. Since some farms in the sample operate integrated crop-livestock operations, we replicate the analyses for farms with no livestock production or “crop-only farms” to evaluate whether qualitative results depend on the mix of enterprises.

Figure 9a highlights the decline in the share of farms with vulnerable liquidity from 25.5% in 2020 to 10.0% in 2022, and the increase to 14.1% in 2023. Simultaneously, there was a steady increase in the share of farms with strong liquidity or no current liabilities from 51.3% in 2020 to 80.4% in 2022, before the 5-percentage point drop in share to 75.4% in 2023. Note that while the percentages of farms in each category differ across Figures 7 and 9a, the qualitative results derived from them are similar. Additionally, figure 9b suggests that crop-only farms have followed a similar pattern of improvement of financial liquidity until 2022 and a sudden deterioration in 2023. The smaller share of vulnerable farms in 2021-2023 among the crop-only operations suggests that integrated crop-livestock operations tend to carry short-term liabilities more frequently than crop-only farms.

Figures 10a and 10b show a similar pattern as the one shown in Figure 8: working capital per acre increased for all groups of farms in 2020-2022, except for the group of farms with vulnerable liquidity in the crops-only group (that experienced a reduction in 2022). However, working capital per acre declined for all groups in 2023. The nominal (inflation-adjusted) weighted average working capital per acre across the 220 farms was $223 ($270) lower in December 2023 than in December 2022: $882 vs. $1,105 ($882 vs. $1,151). Particularly concerning is the large decline observed in working capital for the groups of farms with vulnerable liquidity: -$319 per acre among all farms in the subset, and -$248 among crop-only farms in the subset.

The findings in this section reinforce the conclusion that overall liquidity deteriorated rapidly in 2023 and up to 15% of all farms would need additional short-term financing in 2024, despite the high interest rate and low profit margin environment expected in the near future.
Conclusions
This article explores the evolution of financial liquidity among mid- and large-size Iowa farms in 2023 against a backdrop of substantial and abrupt decline in accrued net farm income. All indicators point to a deterioration of the liquidity situation, and an overall increased need for working capital financing in 2024, except maybe for the shrinking group of farms with strong liquidity or no short-term liabilities.

Multi-year comparisons suggest that gains in overall farm liquidity during the 2020-2022 period can be rapidly eroded by sustained low-profit margins. In order to address the effect of financial risks on the farming community, an array of confidential and 24/7 free-of-charge resources related to legal issues, finance, stress, crisis, and disaster are available through Iowa Concern (1-800-447-1985, or www.extension.iastate.edu/iowaconcern).

One tool to help farmers better manage liquidity is the use of a realistic cash-flow budget.

Several publications by Iowa State University Extension and Outreach discuss how to develop and implement effective cash-flow budgets:
AgDM File C5-213: Cash Flow and Profitability are Not the Same, www.extension.iastate.edu/agdm/wholefarm/html/c5-213.html