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The Outlook for Michigan Agriculture 2023

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Introduction

This analysis outlines the outlook for agriculture with a particular emphasis on commodities of particular importance to Michigan. The first topic covered is general economic conditions, which are important to estimate inflation, interest rates, unemployment and other macroeconomic factors that impact the demand for food and the cost of production. The second topic covered is the outlook for inputs. This is important to assess the cost of production for many producers. The third topic covered is the outlook for several agricultural commodities produced in Michigan. This includes the major field crops, livestock, and milk production.

Farm income is expected to decline in 2023 from the very high levels in 2022. Net farm income is estimated to be $136.9 billion in 2023, a decrease of $25.9 billion or 15.9 percent from 2022 (USDA ERS). Despite this decrease, net farm income is estimated to be 26.6 percent above the 20 year average after adjusting for inflation (USDA ERS).

The decline in farm income is primarily due to a reduction in prices. From January 2022 to January 2023, food prices rose by 10.1 percent and food at home prices increased by 11.3 percent, the highest in 40 years. The USDA estimates that food price inflation will be between 5.5 and 10.3 percent in 2023. A decline in direct government payments will also reduce net farm income (USDA ERS). Production costs overall are likely to increase slightly. Reduced fertilizer prices will be offset by higher interest rates, rental rates for land, and higher labor costs. Access to labor remains an issue for many Michigan farmers. Wheat, corn, and soybean prices are likely to decline this year. There has been some increased acreage nationwide devoted to wheat. Soybean crush in the U.S. is expected to increase as more and more soybean oil is used for fuel uses.

General Economic Conditions and Trade

Assessing future economic conditions is difficult. Core inflation, the rate of inflation less price changes in food and energy prices, remains high. As a result, the Federal Reserve is likely to raise interest rates two or three times this year. The USDA estimates that global real GDP will increase by 2.8 percent; the U.S. and North American economy is estimated to grow by 1.4 percent (Kenner et al). This may be somewhat optimistic but if the Chinese economy rebounds after the Covid shutdown the global economy should grow. Shipping rates have also declined which will make goods less expensive, including U.S. agricultural commodities, as well as other goods and services. This should also boost global economic activity and has the potential to improve the basis for Michigan producers.

U.S. agricultural exports from October 2022 through the end of September 2023 are estimated to be $184.5 billion (Kenner et al). While exports in 2023 are expected to decline relative to 2022, they are forecasted to be higher than 2020 and 2021 (Meyer). The three largest markets are China at a forecast of $34.0 billion, Mexico at $28.0 billion, and Canada at $27.8 billion. Exports to Canada are expected to decline primarily due to a decline in demand for U.S. corn (Kenner et al). Rising interest rates will maintain a strong value of the dollar which will continue to make U.S. exports more expensive. One

possible bright spot is a stronger Mexican Peso which will make U.S. exports to Mexico more affordable to Mexican firms and consumers. However, there is an ongoing dispute between the U.S. and the Mexican government concerning biotech corn that may curb U.S. exports to Mexico.

The situation in Ukraine remains a source of global uncertainty. Currently, agricultural products are being shipped from the Black Sea although there has been some damage to some ports. Russia has been able to find markets for its agricultural products which has reduced global food insecurity slightly. It remains to be seen how many acres in Ukraine will be farmed. Some of the major grain producing areas in Ukraine are in the active war zone (Meyer). Land that is mined or has unexploded ordinance on it restricts Ukraine's ability to plant crops. This could restrict agricultural output in Ukraine for several years. Some Ukrainian farmers believe grain production in Ukraine will decline by 37 percent compared to 2022 and 60 percent compared to 2021. In addition to invaded and mined land, Ukraine suffers from transportation disruptions, stolen agricultural machinery, and interruption in electricity service (World Grain).

Shipping costs might be lower. There are fewer drought regions east of the Mississippi River and the water level along the lower Mississippi has risen. While the drought in the plains states has eased, it is still unusually dry especially in the Southern Plains..

As is always the case, weather will play a major role in determining prices and farm income. As a result, these estimates are likely to change over time. These figures are designed to give a general idea of what can be expected this year assuming normal temperatures and precipitation.

Inputs

The outlook for inputs is mixed. According to the Energy Information Agency (EIA), the price of diesel in January of 2023 was 41 cents a gallon less than the average price for 2022. However, that was still $1.20 a gallon above the 2021 price and about $2.00 a gallon above the price in 2020. Provided there are no international disruptions, the price of diesel is likely to continue either decline or remain steady. The recent OPEC decision to restrain oil production has increased the price of fuels somewhat.

As a result of rising inflation, the Federal Reserve has raised interest rates. In 2022, farm interest expenses rose 19 percent and now account for 6.5 percent of all farm expenses (Penson and Shelton). Interest rates are likely to increase further in 2023. In the Chicago Federal Reserve District, which includes Michigan, interest rates on agricultural loans are at their highest level in 15 years (Oppedahl).

Table 1 shows the estimated cost of production for a typical crop farm in Indiana. The actual results for an individual farm in Michigan will be different, but it does provide a general idea of the cost of production for the major field crops.

Table 1: Per Acre Variable Costs of Production: Dollars per Acre

	Corn	Soybeans	Wheat
Fertilizer	247	88	132
Seed	124	74	44
Pesticides	119	75	45
Dryer Fuel	43	0	0
Fuel	27	16	16
Machinery Repairs	34	29	29
Hauling	19	6	8
Interest	35	18	16
Insurance and Miscellaneous	48	41	9
Total Variable Costs (per acre)	**696**	**347**	**299**

Source: Langemeier

Table 1 shows that fertilizer and fuel prices are declining as is corn drying. Most other costs are stable, with only interest rates trending upward. It is important to note that table 1 does not include all cost items. Land rent, labor, property taxes, and returns to management are four items that are not considered in table 1.

Nationwide, cropland values increased by 14.3 percent and pastureland values increased by 11.5 percent (Penson and Shelton). These increases will likely be reflected in higher rental rates. Cash rents in Michigan averaged $144 an acre in 2022 (Birkey).

One very important input that tends to be overlooked is labor. Labor shortages will continue to adversely impact agriculture. This will adversely impact fruit and vegetable producers. The lack of labor will limit the growth of the dairy industry. Labor shortages exist throughout the supply chain and have particularly impacted transportation. A shortage of labor has also impacted the potential for expanded food processing. This, in turn, could limit expanded farm output. This is especially true for meat processing.

One source of good news is the decline in fertilizer costs. The price of natural gas has declined which has helped reduce the price of nitrogen fertilizers. Global uncertainty may impact access to potash, which increases the need for alternative sources such as the proposed potash facility in Michigan.

Wheat

Global wheat production is forecast to rise by 2.4 million tons to 1.06 billion primarily due to higher production in Australia and Russia (USDA WASDE - 633). Global consumption is forecast to increase by 1.4 million tons to 791.2 million. Ending stocks are estimated to be 269.3 million tons which would be the lowest since 2016/17 (USDA WASDE - 633).

Planted winter wheat acreage in the U.S. is up 11 percent from the 2022 crop year, and output is forecast to be 1.89 billion bushels on higher area and yield (USDA). Food use is forecast to be 977

million bushels, and exports are forecast to be 825 million bushels (USDA). The 2023/24 season average farm price for wheat is forecast to be $8.50 a bushel which is down 50 cents a bushel from the previous year, but still the second highest on record, and $3.45 higher than the price in the 2020/21 crop year (USDA).

Exports of wheat are forecast to be $8.3 billion from October 2022 through September 2023 (Kenner et al).

Corn

The USDA estimates that that 91.0 million acres of corn will be planted this year, and that output will be 15.085 billion bushels (USDA). Including carryover, total supply is estimated to be 16.377 billion bushels. Food, seed, and industrial use is estimated to be 6.690 billion bushels, corn used for ethanol is estimated to be 5.250 billion bushels, and feed and residual use is forecast to be 5.600 billion bushels (USDA). The USDA estimates that the price of corn will be $5.60 a bushel in 2023, a decline of $1.10 from 2022 (USDA).

U.S. corn exports are estimated to be $16.6 billion, or 2.200 billion bushels (USDA). Exports would represent 14.6 percent of production in 2023. Current export sales are running at half the level of the previous year (Kenner et al). This is primarily due to high global prices that restrict demand and competition from other corn exporting countries (Kenner et al). Ethanol exports are forecast to be $3.6 billion, a decline of $500 million from last year's record of $4.1 billion. High prices offset volume declines (Kenner et al). Global demand for ethanol remains strong.

U.S. corn producers are likely to face increased competition from Brazil, Paraguay, Turkey, Indonesia and perhaps Ukraine (USDA WASDE - 633). However, demand from China is likely to increase as hog production increases, and the economy expands as a result of the lifting of Covid restrictions in that country.

Soybeans

Soybean acreage planted is estimated to be 87.5 million acres the same as the previous year (USDA). However, due to higher yields output is forecast to be 4.5 billion bushels, an increase of 5 percent from 2022 (USDA). Total soybean crush is forecast to be 2.31 billion bushels which would be a record. Soybean oil used for biofuel is estimated to be 12.5 billion pounds which would be an 8 percent increase (USDA). The average price of soybeans is forecast to fall from $14.30 a bushel in the 2022/23 crop year to $12.90 in 2023/24 crop year (USDA). The price of soybean meal is forecast to be $410 a ton down from $450 a bushel (USDA).

Soybean exports are estimated to be $32.0 billion which is a reduction of $800 million from the previous estimate. Soybean exports are estimated to be 2.03 billion bushels, and soybean meal exports are forecast to be 14.5 million short tons, which would be a record (USDA). Domestic demand for soybean oil has increased, primarily due to an increased interest in biobased fuels, and as a result domestic crush has increased leading to more soybean meal exports to other countries. Conversely, this increased

domestic utilization has reduced soybean oil exports. Soybean oil exports are estimated to be $500 million, a 50 percent reduction from the previous year (Kenner et al). There will be increased competition from South America has Brazil has a record soybean crop (USDA).

About 150 million gallons of biodiesel is produced a year (Meyer), primarily from soybean oil. This has kept the price of soybean oil high. The price of soybean oil is estimated to be 60 cents a pound in 2023/24 down 8 cents from 2022/23 and 13 cents a pound in 2021/22 (USDA).

Dairy

The price of milk is expected to decline in 2023. This is primarily due to weak domestic demand for cheese (USDA WASDE - 633). Throughout 2022 the price of butter exceeded the price of cheese (Teran). Class IV milk prices are also expected to decline due to increased competition in foreign markets. The all milk price is forecast to be $20.70 a cwt. In 2023 (USDA WASDE - 633). In 2022, all milk price in the U.S. averaged $25.56 a cwt. (Teran). The 2023 forecasted milk price would still be the second highest price since 2014 (Shagam). However, high input costs primarily in the form of feed costs, put downward pressure on dairy profits. Continued high feed costs in 2023 will add uncertainty to the dairy sector.

In early 2023, dairy cow slaughter was up (Teran). If this continues there may be upward pressure on milk prices. The dairy herd is forecast to be 9.380 million head, the lowest level since 2019. Output per cow is forecast to increase by slightly more than 1 percent (Shagam).

Total dairy exports are estimated to be $8.8 billion primarily due to lower Class III and Class IV prices (Kenner et al). In 2022, the U.S. exported about 6 percent of milk production on a fat basis and about 23 percent on a skim-solids basis (Shagam). Slow global economic growth and increased competition from other exporting countries will restrict exports in 2023 (Shagam). Exports are forecast to be 13.1 billion pounds on a fat basis and 52.1 billion pounds on a skim-solids basis. This is slightly lower than 2022 (Shagam).

The forecast price of cheese is $1.86 a pound, the price of butter is forecast to be $2.33 a pound. While these prices are below last year, these prices are higher than recent years (Shagam). Whey and Nonfat Dry Milk Powder prices are also forecast to decline. The Class III price is forecast to be $17.90 a cwt. and the class IV price is forecast to be $18.25 a cwt. (Shagam).

Beef

The number of beef cows is at the lowest level since 1962. The number of cattle being slaughtered is up in the first quarter of 2023 but is offset by lower carcass weights (USDA WASDE - 633), eventually the number of cattle going to slaughter will decline as producers are reducing the number of cows. More dairy cows are also going to slaughter (Teran), which will increase the supply of beef in the short run. The primary driver of the decline in beef cattle numbers is a drought in major cattle producing states which has reduced access to forage and higher feed costs (Knight and Taylor). The price of cattle in 2023 will be higher than it was in 2022. Higher beef prices will increase the demand for alternatives, especially poultry products.

The price for fed cattle is forecast to be in the range of $159.00 a cwt. which would be a record (Choe). Feeder cattle prices are forecast to be $203.00 a cwt. for 750-800 pounds steers (Choe).

Beef exports in 2022 reached a record high of 3.536 billion pounds. In value terms exports were almost $11 billion (Knight and Taylor). Exports to China increased by 17 percent, and the value of those exports increased by 31 percent. Cattle imports are expected to be 2.1 million head and increase of 500,000 head, or more than 30 percent (Choe). Many of these cattle will come from Mexico and will be fed and slaughtered in the U.S.

Pork

Total pork production is forecast to increase slightly in 2023, based on a small increase in the number of sows and a minor increase in pigs per litter (Choe). Pork output is estimated to be in the range of 27.4 billion pounds which will be an increase of approximately 1.5 percent (Haley). One source of uncertainty is a pending court case with California which may reduce shipments to that state if California's hog management practices on other states is upheld.

Pork exports are forecasted to be 6.35 billion pounds in 2023, up slightly from 2022 (Haley). Exports are about 10 percent lower than 2021, primarily due to the recovery of hog production in China and disruptions in China due to Covid that have suppressed demand (Haley). Total Chinese imports declined by 50 percent with China reducing imports from all of its major trading partners (Haley).

Nationwide, the price of hogs is forecast to be in the range of $67 a cwt. This would be a reduction of about 7 percent compared to 2022 (Choe).

Poultry

Arguably the biggest agriculture story in 2022 was the rise in egg prices. Traditionally on a per gram of protein basis, eggs and chicken legs are the are lest expensive source of protein. By the end of 2022, on a per gram protein basis, eggs were more expensive than chicken breasts, ham, and were equal to the price of ground beef (USDA LDP-M-344). While prices will remain high by historical standards, they will decline in 2023. The primary reason for this price increase was the avian influenza outbreak which reduced the number of layers and flocks were depopulated.

The number of pullets and the number of eggs in incubators indicate that egg production will rebound in 2023 as flocks are repopulated (Grossen and Valcu-Lisman). The average wholesale price of eggs in 2023 is forecast to be $2.07 a dozen which would be a reduction of 27 percent from 2022 (Grossen and Valcu-Lisman).

The avian influenza outbreak also reduced exports. Exports of eggs declined by 42.2 percent in 2022 compared to 2021. Total exports total 226.5 million dozen. Mexico and Canada are dominant destinations for U.S. eggs accounting for almost 60 percent of all exports (Grossen and Valu-Lisman).

Despite the Avian Influenza outbreak, broiler production was in 2022 was a record 46.201 billion pounds. Production in 2023 is estimated to increase by 1 percent to 46.7 billion pounds (Choe). One

reason for this was the fact that average weights were up (Grossen and Valcu-Linsman). Broiler production is expected to decline in 2023 while total broiler meat production is expected to rise (Grossen and Valcu-Lisman). Prices are also forecast to decline to $1.27 a pound, a decline of 13.5 cents from the 2022 average (Grossen and Valcu-Lisman).

Broiler exports in 2022 were 7.278 billion pounds (Grossen and Valcu-Lisman) and are expected to increase to 7.32 billion pounds in 2023 (Choe). Mexico is the dominant export market accounting for 20 percent of all U.S. exports (Grossen and Valu-Lisman).

As is the case with eggs, the Avian Influenza outbreak also impacted the turkey industry. More than 9.5 million turkeys were destroyed in 2022 (Grossen and Valu-Lisman). Turkey production in 2022 was 5.222 billion pounds, a decline of 6 percent compared to 2021 and the lowest since 1995 (Grossen and Valu-Linsman). Output is expected to increase by 6.5 percent in 2023 to 5.560 billion pounds (Grossen and Valu-Linsman). Total turkey exports in 2022 were 408.4 million pounds a decline of more than 20 percent from 2021 (Grossen and Valu-Linsman).

The price of turkeys is forecast to be $1.62 a pound which is 7 cents a pound higher than 2022 (Grossen and Valu-Linsman). The production and demand for turkeys is seasonal, with output and demand reaching its maximum during the holiday season.

Total poultry exports are estimated to be $7.0 billion (Kenner et al).

Summary

Overall, the farm economy will remain healthy in 2023 despite a decline in net farm income. The decline is largely a result of lower commodity prices. However, from a historical perspective, farm income and commodity prices remain high. High feed prices will continue to put downward pressure on livestock income.

Potential sources of risk are rising interest rates and the strong value of the dollar which may put downward pressure on exports. A slowing world economy may also reduce exports.

Rising interest rates will also make credit more expensive. Conversely, a decline in fertilizer prices will reduce some input costs. The outlook for input costs is mixed.

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