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Possible Economic Impacts from aMPV and HPAI in the Iowa Turkey Industry

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Abstract
We assess the potential economic impacts to the state of Iowa from outbreaks of Avian Metapneumovirus (aMPV) and Highly Pathogenic Avian Influenza (HPAI) in the Iowa turkey industry. We use an input-output model assessing the direct impact at the processing level for a 5% and a 30% decline in processing activity from the diseases and the indirect and induced impacts at the turkey production level, as well as other sectors of the Iowa economy. The results show a statewide loss in employment of 182 jobs, $72 million in revenue, and $4 million in tax revenues in the 5% scenario, and over 1,000 lost jobs, $434 million in lost revenue, and $24 million in lost tax revenues in the 30% scenario. Aside from the losses directly attributable to the turkey processing industry, approximately 24% of total sales losses would be to the turkey farming industry in Iowa, or, from about $17 million in the 5% scenario to $105 million in the 30% scenario. The impacts would be especially felt in the counties of Buena Vista and Muscatine where the state's two turkey processors are located, but the effects are statewide.

Introduction

Avian Metapneumovirus (aMPV) is an acute respiratory virus of commercial poultry leading to high mortality rates. It spreads very quickly and can destroy flocks in a matter of weeks. In late 2024, USDA approved several types of vaccines to treat and prevent aMPV, including imported modified live vaccines.[1] Vaccine rollout has begun, but with regulatory approvals occurring relatively recently, implementation across the industry is not yet complete.

aMPV was first identified in the United States in the fall of 2023 and quickly spread. All poultry industries and their extended marketing chains were already dealing with another highly contagious disease, Highly Pathogenic Avian Influenza (HPAI), when aMPV arrived. Together the aMPV and HPAI have the potential to decimate turkey production in Iowa. In 2024, Iowa lost 260,800 turkeys to HPAI, and the Iowa Turkey Federation (ITF) estimates another 570,000 could have been lost to aMPV. In 2024, Iowa raised 10.9 million turkeys, ranking seventh in turkey inventories (figure 1).

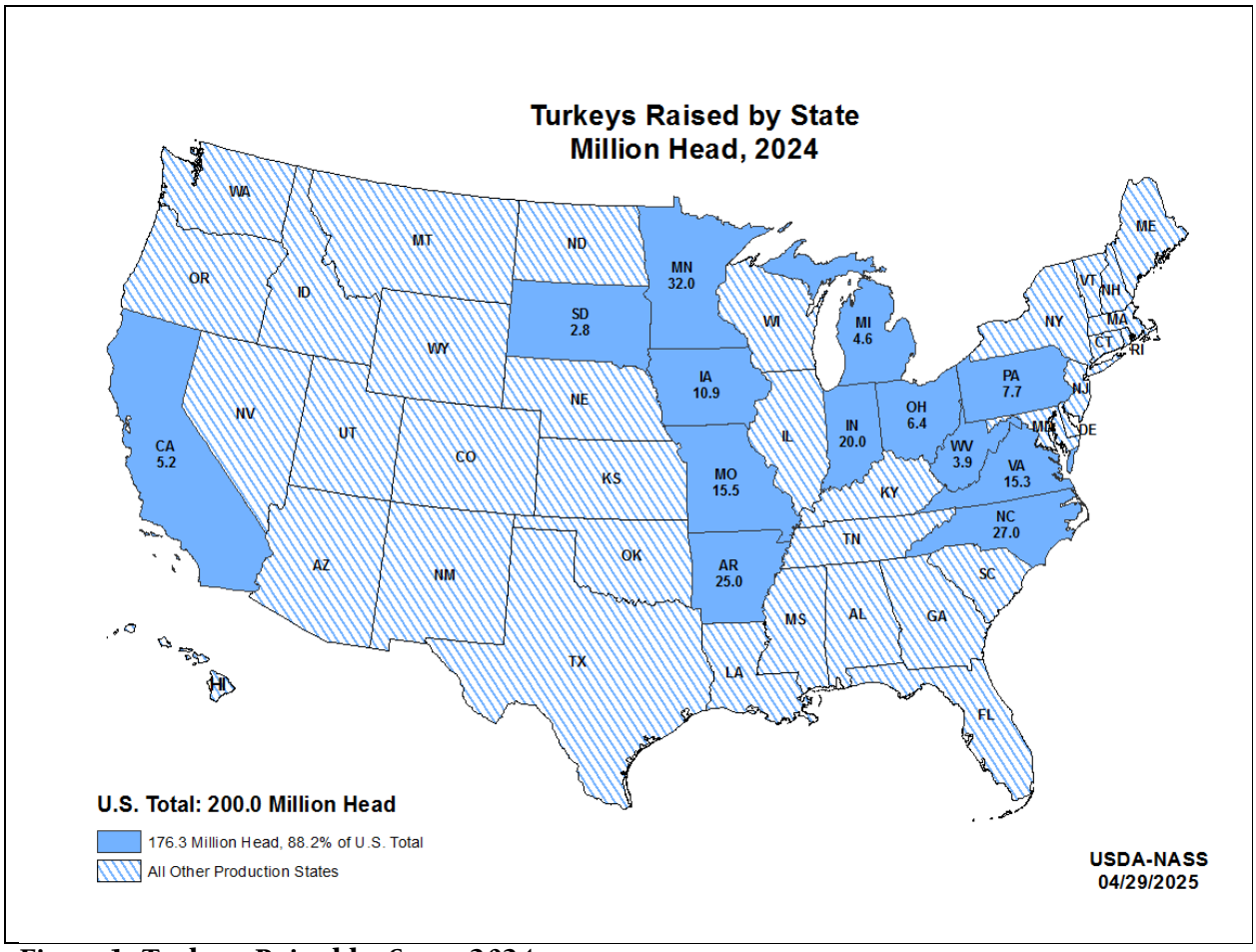

Figure 1. Turkeys Raised by State, 2024.

Source: USDA-NASS, https://www.nass.usda.gov/Charts_and_Maps/Poultry/tkymap.php, last accessed 5/10/2025.

[1] More information on aMPV vaccine approvals is available on the USDA-APHIS website: https://www.aphis.usda.gov/veterinary-biologics/avian-metapneumovirus-questions-answers.

Table 1 shows the Iowa and US production and value of turkeys for the past decade. In terms of bird production, Iowa represents on average 5% of US turkey production and 7% of US turkey value.[2]

Table 1. Iowa and US Turkey Production and Value, 2015–2025

	Head (1000)		Pounds (1000)		Value ($1000)		
	Iowa	US Total	Iowa	US Total	Iowa	US Total	$/lb
2015	9,100	233,100	353,990	7,038,136	$ 287,086	$ 5,707,928	$ 0.81
2016	11,700	244,000	460,980	7,486,978	$ 380,769	$ 6,184,247	$ 0.83
2017	12,000	245,200	484,800	7,544,391	$ 313,181	$ 4,873,677	$ 0.65
2018	11,900	244,750	477,190	7,598,289	$ 243,367	$ 3,875,131	$ 0.51
2019	11,700	228,500	498,420	7,468,001	$ 288,585	$ 4,323,977	$ 0.58
2020	11,700	223,000	505,440	7,292,775	$ 358,357	$ 5,170,582	$ 0.71
2021	11,700	216,500	512,460	7,177,299	$ 420,730	$ 5,892,563	$ 0.82
2022	11,700	210,000	508,950	6,655,358	$ 543,050	$ 7,101,269	$ 1.07
2023	11,500	218,000	508,300	6,985,506	$ 477,802	$ 6,566,375	$ 0.94
2024	10,900	200,000	504,670	6,575,604	$ 283,120	$ 3,688,916	$ 0.56
2025	10,700*						

Sources: *Poultry - Production and Value*, annual summaries, National Agricultural Statistics Service, United States Department of Agriculture, various years.
* 2025 is an ITF estimate.

As the number of turkeys produced in both Iowa and the United States have declined in recent years, notice in table 1 that the price per pound was trending downward until the global pandemic of 2020. Following supply chain issues which no doubt contributed to increases in the price of turkey for 2021 and 2022, prices have again been falling the past two years. Overall, the price trend from 2015 to 2024 has been essentially flat and since these data are not adjusted for inflation, the real price per pound has been falling.

Before turkeys reach retailers, food service, and industrial consumers, however, live turkeys are sold from the farm to food processors. The turkey processing industry is of special importance to Iowa because of the presence of two processors in the state who process nearly all of the state's turkeys. Tyson Foods processes turkeys for its Hillshire Farms brand at its sole turkey processing facility in Buena Vista County, Iowa. The other processor is West Liberty Foods, which processes turkeys at its turkey processing plant in Muscatine County, Iowa. Turkeys harvested in both plants are utilized in further processing, adding to their overall economic and supply chain significance.

Figure 2 is a graphic provided by staff of the ITF. Figure 2 shows the origin of turkeys slaughtered in Iowa in 2024. The industry estimated total inventory (11.1 million turkeys) closely matches that published by USDA-NASS (figure 1 and table 1). Two features of figure 2 are worth addressing in greater detail. First, most of the turkey production in Iowa is co-located with the state's two turkey processing facilities. Second, figure 2 highlights how Iowa's two processing plants slaughtered 2 million additional turkeys that are grown in other states, predominantly South Dakota and Missouri. These turkeys satisfy excess turkey processing capacity in the state.

[2] Readers interested in details of the Iowa turkey industry's historical production and structure are referred to Lawrence and Bortz (2008).

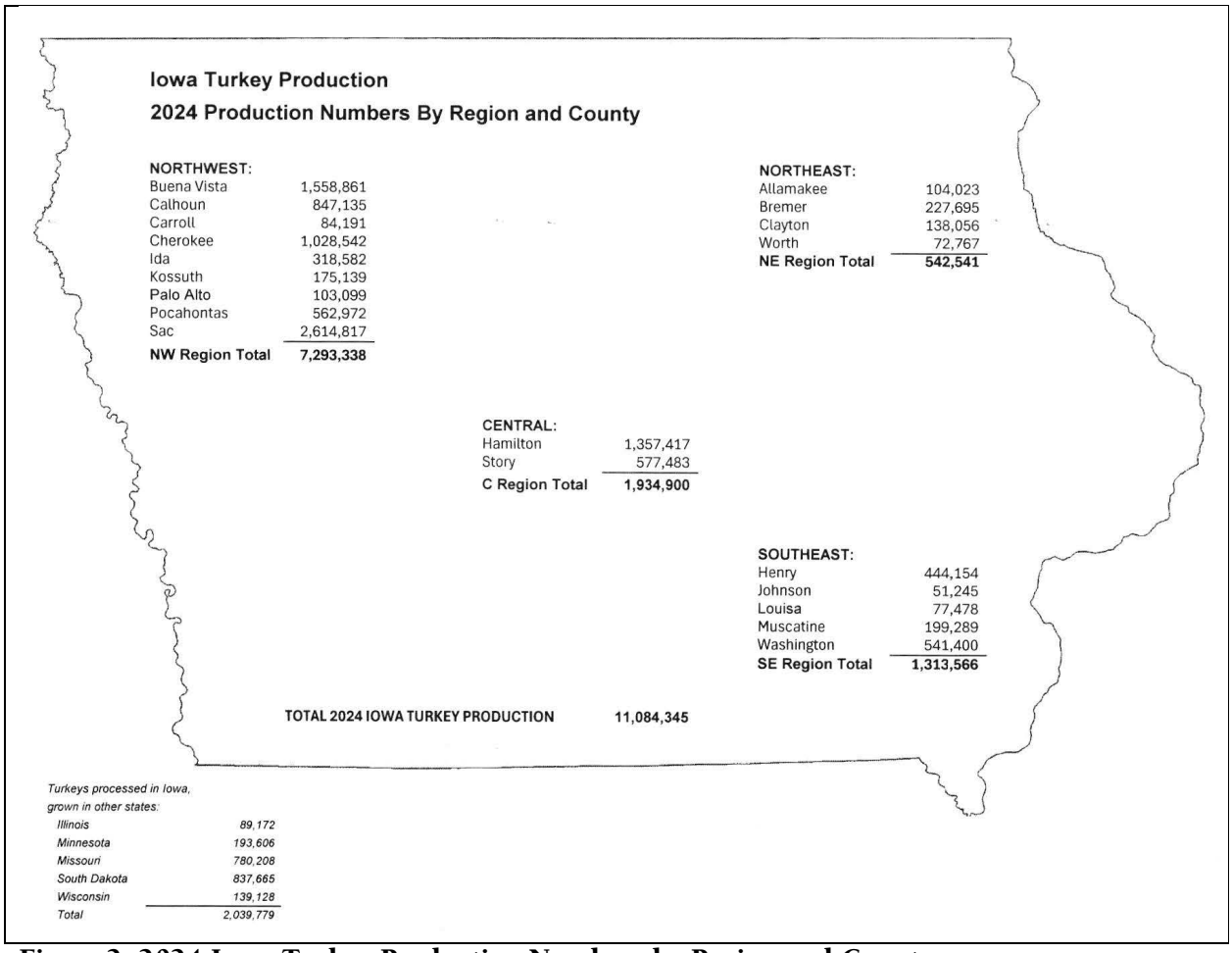

Figure 2. 2024 Iowa Turkey Production Numbers by Region and County.
Source: ITF.

The value of the processed turkeys into meat is more difficult to determine because of the different types of products manufactured and domestic versus export sales. A private firm, WATTPoultry USA, does attempt to track processing information, and USDA does report occasional projections of the wholesale price per pound of turkey. Table 2 provides the data for 2023 for the top 20 turkey processors in the United States, with the Tyson and West Liberty plants highlighted. The "Estimated Sales" values are simply our estimates using a median price of wholesale turkey provided by the USDA of $1.35/lb in 2023. One thing to notice is that the sum of production for the two Iowa processing facilities is 572 million pounds. Table 1 shows that for 2023, USDA estimates that Iowa produced a little less than 509 million pounds of live birds, hence the additional 63 million pounds in table 2 is likely imports from other states, but the discrepancy also may reflect differences in measurement from USDA values versus the WATTPoultry estimates based on processor surveys.

Table 2. 2023 Largest 20 US Turkey Processors

Firm	HQ	Total Live Weight (million lbs)	Slaughter Plants (number)	Estimated Sales ($ millions)
Jennie-O Turkey Store	Willmar, MN	1,100	4	$ 1,485
Butterball	Garner, NC	1,060	4	$ 1,431
Cargill Protein	Wichita, KS	900	3	$ 1,215
Farbest Foods	Huntington, IN	639	2	$ 863
Prestage Farms	Clinton, NC	436	2	$ 589
Tyson Foods	Springdale, AR	363	1	$ 490
Cooper Farms	Fort Recovery, OH	311	1	$ 420
Perdue Foods	Salisbury, MD	298	1	$ 402
Virginia Poultry Growers Cooperative Inc.	Hinton, VA	293	1	$ 396
Michigan Turkey Producers	Grand Rapids, MI	230	1	$ 311
West Liberty Foods LLC	West Liberty, IA	209	1	$ 282
Dakota Provisions	Huron, SD	160	1	$ 216
Foster Farms	Livingston, CA	155	1	$ 209
Turkey Valley Farms	Marshall, MN	138	1	$ 186
Plainville Farms	New Oxford, PA	132	1	$ 178
Pitman Family Farms	Sanger, CA	118	1	$ 159
Kraft Heinz Co.	Madison, WI	66	1	$ 89
Northern Pride Inc.	Thief River Falls, MN	50	1	$ 68
Koch's Turkey Farm	Tamaqua, PA	45	1	$ 61
White Water Processing Co.	Harrison, OH	30	1	$ 41

Source. WATTPoultry. https://www.wattagnet.com/, provided by ITF.
Estimated sales are authors' calculations based on median of USDA projected seasonal wholesale price per lb. found at https://ers.usda.gov/sites/default/files/_laserfiche/outlooks/107464/LDP-M-351.pdf?v=66921, page 27, last accessed 5/9/2025.

The purpose of this report is to analyze the potential economic impact from aMPV and HPAI on the Iowa turkey industry and the Iowa economy. We construct our analysis from 2023 as a base year. There are different ways of ascertaining impacts. One could model the farm sector, remove the

portion of birds from production to model financial losses from disease, and consider the impacts downstream to the processing and other industries. However, Iowa processors handle turkeys from other states as well, so the farm sector modeling approach would also necessitate a complex multi-state model. Although HPAI and aMPV directly impact bird production, because the two processing plants in Iowa process the vast majority of Iowa turkeys, and because both diseases are impacting producers nationwide, we can assume that each processing facility in the country is facing the same or similar percentage reduction in turkeys.[3] This assumption simplifies the analysis to a consideration of slaughter reductions at the level of the manufacturer, and then allowing that reduction to impact the upstream, downstream, and horizontally linked industries in Iowa as in figure 3.

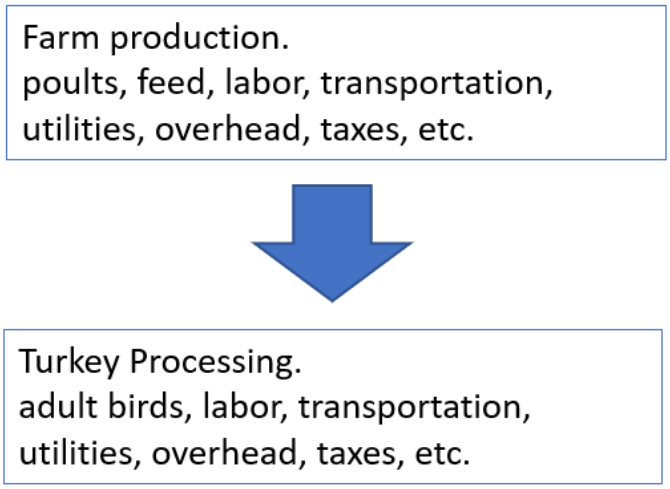

Figure 3. Iowa Turkey Marketing Chain.

For this report, we estimate the economic impact of two outbreak scenarios on the Iowa economy using an Input-Output (I-O) economic model, Impact Analysis for Planning (IMPLAN). The model, which was originally developed by the US Forest Service, is maintained by IMPLAN Group LLC of North Carolina, and purchased via license by the Center for Agricultural and Rural Development (CARD) at Iowa State University. We focus on the IMPLAN model for the state of Iowa.

IMPLAN is an industry-centric model that often aggregates different but similar industries into single industries. Unfortunately, IMPLAN does not distinguish between the poultry processing industry in general and the turkey processing industry in particular. Nevertheless, Iowa does not have a substantial chicken broiler industry (nearly all chickens in Iowa are layers), and importantly, the two Iowa counties that have turkey processing (Buena Vista and Muscatine) have little in the way of other poultry processing. Because of this, we can feel safe using the industry values in the IMPLAN model for Muscatine and Buena Vista counties as being almost entirely representative of the Tyson and West Liberty Foods turkey processing facilities.

The Input-Output Model (IMPLAN)

In this section, we explain the I-O model framework and the data generated by the model.[4]

[3] National Turkey Federation estimates that 60–80% of commercial turkey flocks nationwide have been impacted by aMPV.

[4] Some of the discussion and language in this section is taken directly from Crespi and Dumortier (2025).

An I-O model is best thought of as a matrix equation of demand and supply transactions that connects all industries in an economy. That is, a matrix where all of the commodities produced in an economy are in the rows, and all of the industries that use those commodities are in the columns, including imports into and exports out of that economy. Next, account for the regional absorption of the commodities across the economy (essentially, what percentage is sourced locally, however "local" is defined), and you have a basic framework of the I-O matrix equation. The economy can be as narrowly defined as a city or county, as the entire state itself, or as the entire country.

For this analysis, we examine the economy of the entire state of Iowa but limit the hypothetical processor impacts to Buena Vista and Muscatine counties. The total demand for the commodities must equal the amount produced, and the equation that converts supply into demand via a calibrated I-O multiplier (also called a "technology") matrix is known as the Leontief Production Function (Leontief, 1986). In the I-O analysis, a researcher can make changes to one or more industries, such as increasing or decreasing the industry's output, and then the model adjusts the inputs and outputs of the other industries to accommodate the changes. The values in the matrix are based on data gathered by a variety of entities, most notably, but not entirely, the US Bureau of Economic Analysis (BEA). The particular I-O model used for this report is called IMPLAN. IMPLAN is the most widely used I-O model in the United States and has been used in countless analyses. IMPLAN uses the publicly available data along with its own data acquisitions and calculations to relate all purchasing and expenditure relationships between and among industries in an economy. The base data in this report will be for 2023 (the latest IMPLAN data available and also the year before aMPV began to decimate Iowa flocks, although HPAI was already emergent). The data are adjusted for inflation to 2025 dollars. There are known drawbacks of I-O studies in general and IMPLAN in particular as noted by Crespi (2024).[5] We next discuss what results IMPLAN will generate.

IMPLAN's Economic Impact Variables

In this report, we examine the hypothetical reduction of turkey processing due to a decrease in supply of adult birds. IMPLAN generates many results, the most commonly reported are the four main economic impact variables defined below.

I. Output: Output is generally the revenues generated in a year. Revenues are money coming into an industry for a given year. In our case, this would be revenues generated by the turkey processing industry and other industries impacted in Iowa. Since we are examining a case of a decline on turkey processing, these revenue numbers will be negative, showing how much the processing industry was impacted.

[5] Specifically, Crespi (2024) points out the following concerns inherent in I-O models, "The first is the base year of the data used. Because all government agencies have lags in their reporting of data, sometimes by a year or two, IMPLAN is guessing as to the 2024 impacts based upon data collected in 2022 and earlier and then adjusting for inflation and other effects determined by IMPLAN's developers (see IMPLAN Data Sources, 2017; IMPLAN Farm Data Procedures, 2017). Secondly, IMPLAN is based on very large, aggregated building blocks of data about U.S. industries and, as such, IMPLAN is limited in what economists would call a general equilibrium approach to the study of impacts. In short, IMPLAN does not examine linked market changes in supply and demand. One market's linkages through the economy to other markets are not directly modeled in production-function, input-output analysis. Third, the production function utilized by IMPLAN is restrictive. IMPLAN enforces a Leontief production function on all of its industries whereby proportions of inputs to production used in the recent past are assumed to remain the same when changes are made to an industry. While such fixed proportions arguably make sense for some industries like agriculture and forestry (e.g., roughly fixed proportions of seed, land, labor and fertilizer may be used to produce a crop in one year and might be assumed to be the same the next), we still must question the usage of fixed proportions for industries like trucking, construction, financial, or service industries that can more easily alter their input combinations when the output from another industry changes."

II. Employment: This category is often misunderstood when reading I-O model reports. Employment in IMPLAN is not full-time equivalent employees. It is often better to think of employment in I-O models as "jobs," which reflect the number of jobs lost by any hypothetical contraction of the industry. If you work in a factory during the day but also work in a restaurant at night, IMPLAN's "employment" counts you as having two jobs in two different industries. If your employer gives you an extra duty that used to be done by someone else you have two jobs in the same industry. With the employment category especially, given a reduction in processing, the I-O models are showing what jobs might be eliminated, which may be more than the total number of employees eliminated.

III. Labor Income: This is wage and salary to workers and employers. In IMPLAN, income also includes estimates of any employee benefits. For our study, this amounts to proprietor income, wages, salaries, and employee benefits for workers in Iowa.

IV. Value Added: This is the regional equivalent to an industry's addition to gross domestic product (GDP). It is the difference between output and the inputs used for the creation of that output including the labor income as well as the taxes on production and any imports. It can be thought of as that portion of profit that does not include the capital expenses. Value added is what gets added on net to the economy.

Economic Impact Effects
For each of the above economic impact variables, IMPLAN generates three economic impact effects:

1. Direct Effects: These are the changes to an economy's final demand directly from the hypothesized change to the industry under examination. So, this would be changes to the Iowa economy's final demand at the processor level from the loss of turkeys due to HPAI and aMPV.

2. Indirect Effects: These occur through industry-to-industry (business-to-business) purchases within and across industrial supply chains. In our case, when the turkey processors spend money and pay taxes buying inputs from other industries, that spending indirectly impacts the rest of Iowa's economy.

3. Induced Effects: When employees are subtracted from an industry, they spend less money on goods produced in other industries, and, in turn, those industries produce less and hire fewer employees who also have less to spend and less to pay in taxes, etc. These are the induced effects from the economic impact of reduced turkey processing.

Output Multiplier
Finally, there is the output multiplier. This is a measure of the output's (revenue's) direct effect on the economy's total (direct+indirect+induced) output. Multipliers can be created for any combination of the economic impact variables; however, we will present the output multiplier as it is the most common. It is calculated simply as the total output divided by the direct output. A multiplier of 2 means that every dollar of revenue lost directly by an industry results in an additional dollar of lost spending across the economy. A multiplier of 1.5 means a reduction of 50 cents, etc.

IMPLAN Results
We consider two scenarios: a 5% reduction in turkey processing activity (relative to 2023), and a 30% reduction in turkey processing activity. We only consider two scenarios. Because of the underlying economic assumption of constant returns to scale in production, much of IMPLAN's I-O modeling is linear. This means that to ascertain an impact between these low and high scenarios, one can interpolate between the two scenarios. We impose our hypothetical processing reductions to occur in Buena Vista and Muscatine counties; however, we allow the indirect and induced impacts to occur throughout the state of Iowa using IMPLAN's multi-regional input-output (MRIO) analysis (Clouse,

2017). MRIO controls for not only direct, indirect, and induced impacts along a supply chain, but also feedback effects across regions.

Table 3 shows IMPLAN's values (in 2025 dollars) for employment, labor income, and output for Buena Vista and Muscatine poultry processing industry. Table 3 is our base case. Because these counties have no significant chicken processing, these numbers are most likely only for the two turkey processing plants. Notice that the output is $668 million. Our estimate in table 2 using WATTPoultry's slaughter numbers and a median USDA price in the United States of approximately $1.35/lb is similar to IMPLAN's values. An output of $668 million is roughly $1.17/lb, which is a reasonable value for 2025.[6]

Table 3. Iowa Turkey Processing 2023 Baseline

Region	Employment	Labor Income	Output
Buena Vista and Muscatine Counties	1,759	$126,669,015	$668,192,287

Source: IMPLAN model

Economic Impacts

Tables 4 and 5 show the economic impacts across the state of Iowa from the reduction in processor revenue (output) in Buena Vista and Muscatine counties. Table 5 is a 5% reduction in output, and Table 6 is a 30% reduction in output. Because I-O models trace revenues through an economy, the 5% to 30% reductions in output can be interpreted as reductions in the physical units of turkeys and turkey products, as reductions in the price per unit, or, more likely, as some combination of the two. The I-O analysis uses a fixed proportions technology that assumes inputs along the supply chain remain constant for the counterfactuals. Thus, a reduction in one industry along the chain leads to reductions of inputs and outputs related to that industry with repercussions for the indirect and induced effects commensurate with the hypothetical reductions. We make one adjustment to IMPLAN's results in light of the model framework. We do not include losses in the grains and oilseeds industries. Although important to the turkey supply chain as feed, an argument can be made that poultry exists in Iowa because of the proximity to feed, feed does not exist because of the poultry. With other extant demands on feed from animals and exports, the losses to the grain and oilseed industries would be overstated in an I-O model. Had we included these industries in the following results, the losses presented in tables 4 and 5 would have been larger by 1–2%.

Let us consider table 5 first. A 5% reduction in turkey processing would lead to a drop of 87 employees (e.g., "jobs") in the processing industry (direct impact) and an additional 95 jobs lost in other industries (indirect and induced impacts). A 5% output decline in the turkey processing industries in Buena Vista and Muscatine counties is the equivalent of approximately $33.4 million, and there is a predicted $39-million loss in revenues in the rest of the Iowa economy. This leads to a multiplier of 2.16, meaning for every dollar lost in the turkey processing industry, an additional 2 dollars is lost in the rest of the economy.

At the bottom of table 5, we present the other industries most impacted by declines in the turkey processing industry. The industries used by IMPLAN are based upon definitions using the North American Industry Classification (NAICS) system of the US Bureau of the Census. The industries are broadly defined. Outside of the processing industry (e.g. direct impact), the five main industries impacted (e.g., indirect and induced impacts) are listed as in table 4 as: 1) Poultry and egg production; 2) Other animal food manufacturing; 3) Wholesale-nondurable; 4) Truck transportation, and 5) Real estate.

[6] Email communication with ITF staff on 4/29/2025 recommended $1.10/lb.

Table 4. Top-5 Indirectly Impacted Industries

	Industry	NAICS Codes	Brief Description
1	Poultry and egg production	112310-112390	Primarily engaged in raising poultry (including turkeys) for meat or egg production. The eggs produced may be used as table eggs or hatching eggs.
2	Other animal food manufacturing	311119	Primarily engaged in manufacturing animal food (except dog and cat) from ingredients, such as grains, oilseed mill products, and meat products.
3	Wholesale - nondurable	424110-424990	Broad category that includes wholesalers for a variety of agricultural products.
4	Truck transportation	484110-484230	Industries primarily engaged in providing freight trucking.
5	Real estate	531120-531390	Broad category that encompasses real estate services from brokerages to warehouse rentals.

Source: https://www.census.gov/naics/, last accessed 5/27/2025.

Not surprisingly, "poultry and egg production" tops the list. IMPLAN does not separate egg, layer, and turkey farming, aggregating them all into one industry. Nonetheless, because we only allowed the processing industries in Buena Vista and Muscatine to decline, and since these are only for turkey, the impacts through the rest of the state reflect those counties' connections to the farming inputs that feed into those counties. In other words, we are reasonably sure these indirect and induced impacts reflect turkey farming across the state and not other poultry/egg production. At a 5% reduction in processing (a $33.4 million dollar loss), the Iowa turkey farming industry loses $17.5 million from farm-related revenues and an additional $4.8 million in induced spending. As a percentage of total output losses ($72.3 million), the $17.5 million loss to turkey farming represents 24% of the total losses. The next industry impacted is animal food manufacturing (6% of the losses), followed by wholesalers (4%), trucking (2%) and real estate (1%). Iowa's state GDP is currently projected at $205 billion (State of Iowa, 2025). The decline in value added to state GDP from a 5% reduction in turkey processing is $18.5 million.

Table 5. 5% Processing Reduction

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	(87)	$(6,333,451)	$(7,885,571)	$(33,409,614)
2 - Indirect	(59)	$(4,076,374)	$(7,339,682)	$(33,176,341)
3 - Induced	(35)	$(1,614,479)	$(3,281,315)	$(5,728,514)
	(182)	$(12,024,304)	$(18,506,568)	$(72,314,469)
Multiplier	2.16			

Top 5 Indirect and Induced Impacts on Industries by Output Reductions

Industry	Indirect	Induced	Total	% of Total Output
Poultry and egg production	$(17,456,294)	$(4,819)	$(17,461,113)	24%
Other animal food manufacturing	$(4,288,573)	$(3,617)	$(4,292,190)	6%
Wholesale - nondurable	$(3,103,031)	$(89,344)	$(3,192,375)	4%
Truck transportation	$(1,716,234)	$(55,646)	$(1,771,880)	2%
Real estate	$(421,490)	$(139,912)	$(561,402)	1%

Table 6 is interpretable in the same way as Table 5, only with higher impacts due to the 30% decline in processing output with jobs lost exceeding 1,000, total output declining by $434 million statewide, and a loss in state GDP of $111 million.

Table 6. 30% Processing Reduction

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	(525)	$(38,000,705)	$(47,313,424)	$(200,457,686)
2 - Indirect	(357)	$(24,471,022)	$(44,062,827)	$(199,113,689)
3 - Induced	(213)	$(9,690,786)	$(19,695,540)	$(34,384,441)
	(1,094)	$(72,162,513)	$(111,071,791)	$(433,955,816)
Multiplier	2.16			

Top 5 Indirect and Induced Impacts on Industries by Output Reductions

Industry	Indirect	Induced	Total	% of Total Output
Poultry and egg production	$(104,738,693)	$(28,927)	$(104,767,620)	24%
Other animal food manufacturing	$(25,732,919)	$(21,708)	$(25,754,627)	6%
Wholesale - nondurable	$(18,619,745)	$(536,253)	$(19,155,997)	4%
Truck transportation	$(10,298,656)	$(334,042)	$(10,632,697)	2%
Real estate	$(2,530,275)	$(839,826)	$(3,370,101)	1%

Tax Impacts

The revenue, income, value added, and employment losses are only part of the losses to the state. With decreased revenues and decreased incomes, there will be tax revenue impacts as well. IMPLAN estimates (table 7) that a 5% loss in processing will result in a $4 million loss in tax receipts (local,

state and federal), increasing to almost $24 million if the processing decline is 30% (table 8). In terms of budget shares, regional impacts are greatest in the counties housing the processors.

Table 7. Tax Losses from a 5% Reduction in Turkey Processing

	Special Districts	County	State	Federal	Total
Buena Vista County	$(108,277)	$(52,079)	$(324,079)	$(1,344,007)	$(1,828,442)
Muscatine County	$(15,418)	$(10,958)	$(78,895)	$(361,646)	$(466,917)
Other Counties	$(152,069)	$(82,013)	$(465,482)	$(993,293)	$(1,692,857)
Total	$(275,765)	$(145,051)	$(868,456)	$(2,698,945)	$(3,988,217)

Table 8. Tax Losses from a 30% Reduction in Turkey Processing

	Special Districts	County	State	Federal	Total
Buena Vista County	$(649,677)	$(312,483)	$(1,944,509)	$(8,064,125)	$(10,970,794)
Muscatine County	$(92,529)	$(65,760)	$(473,439)	$(2,170,046)	$(2,801,775)
Other Counties	$(912,962)	$(492,374)	$(2,794,590)	$(5,963,565)	$(10,163,492)
Total	$(1,655,169)	$(870,618)	$(5,212,538)	$(16,197,736)	$(23,936,061)

Summary

The Iowa turkey industry represents about 5% of United States' turkey production. If an aMPV and/or HPAI outbreak were to reduce turkey processing revenue in the state of Iowa from 5% to 30%, the impacts would especially hit Buena Vista and Muscatine counties where the Tyson and West Liberty turkey processing facilities exist, but the economic impact would be felt statewide. Without widespread usage of vaccines or other amelioration measures, the 30% impact scenario is not seen as worst case, the impact could be higher. The input-output model we use assumes simply that inputs purchased in the past will be purchased in the same proportions under the counterfactual 5% and 30% decline scenarios. But the implication is that our impacts could be larger.

The results show a statewide loss in employment of 182 jobs, $72 million in revenue, and $4 million in tax revenues in the 5% decline scenario. In the 30% processing decline scenario, those numbers become closer to 1,100 lost jobs, $434 million in lost revenue and $24 million in lost tax revenues. The two turkey processors in Buena Vista and Muscatine counties are expected to lose from 87 jobs and $33 million in revenue (under the 5% decline scenario) to 525 jobs and $200 million in revenue (30% scenario). Aside from the losses directly attributable to the turkey processing industry, approximately 24% of total sales losses would be to the turkey farming industry in Iowa, or, from about $17 million in the 5% scenario to $105 million in the 30% scenario. In 2024, the value of Iowa turkeys was $283 million (see table 1), thus the impact on farmers from sales declines in the processing sector would be 6% (under the 5% decline scenario) to 37% (under the 30% decline scenario) of total value at the farm.

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References

Clouse, C. 2017. "Introduction to Multi-Regional Input Output Analysis. IMPLAN, Huntersville, North Carolina. https://support.implan.com/hc/en-us/articles/115009713448-MRIO-Introduction-to-Multi-Regional-Input-Output-Analysis, last accessed 5/12/2025.

Crespi, J. M. (2024). "The Contribution of Agricultural, Forestry, and Fisheries, Production to the US and Iowa Economies." Agricultural Policy Review. Center for Agricultural and Rural Development, Iowa State University.

Crespi, J. and J. Dumortier. "Economic Potential of Grass2Gas Swine Anaerobic Digestion in Iowa." Consortium for Cultivating Human And Naturally reGenerative Enterprises (C-CHANGE). February 20, 2025.

IMPLAN Data Sources, IMPLAN, Huntersville, North Carolina. https://support.implan.com/hc/en-us/articles/115009674448-IMPLAN-Data-Sources 2017, last accessed 5/1/2025.

IMPLAN Farm Data Procedures, IMPLAN, Huntersville, North Carolina. https://support.implan.com/hc/en-us/articles/115009505787-Data-Sources-for-Select-Industries-Farm-Construction-Railroad-and-Government 2017, last accessed 5/14/2025.

Lawrence, J.D. and L. Bortz. (2008). *Iowa's Turkey Industry–An Economic Review*. Iowa State University Extension. Ames, Iowa. January.

Leontief, W. (1986). Input-output economics (2nd Edition). Oxford University Press.

State of Iowa. (2025). Iowa Open Data. https://data.iowa.gov/stories/s/Iowa-s-Gross-Domestic-Product/ubgu-5xaq/, last accessed 5/14/2025.

WATTPoultry. https://www.wattagnet.com/, Rockford, Illinois, table provided by Iowa Turkey Federation, last accessed May 14, 2025.