

IOWA STATE UNIVERSITY

Economics

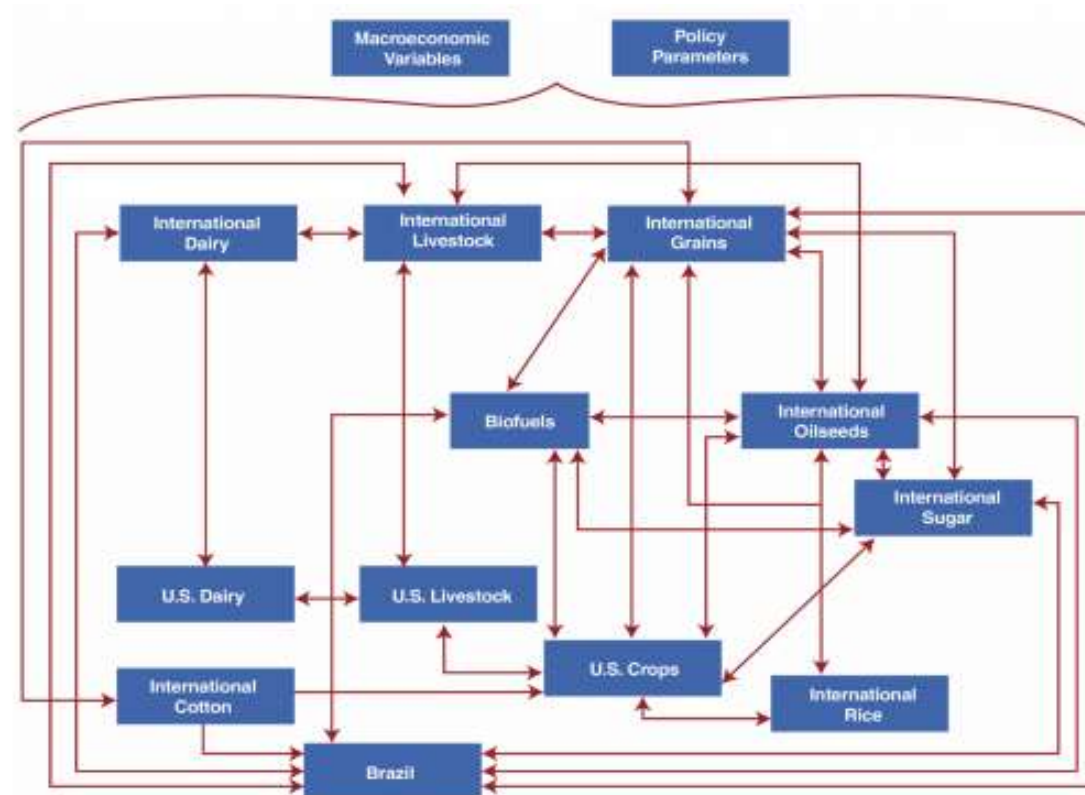
National and Iowa Impacts of African Swine Fever in the United States

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Overview

- Countries that have the disease will not import from ASF impacted countries, nor will ASF free countries
- Immediate closure of all pork export markets
- Market prices fall to clear the U.S. pork market
- Scenario 1: ASF gets into feral hogs and cannot be eliminated, this is the “all-years” scenario
- Scenario 2: it is eliminated in two years, this is the “two-years” scenario

CARD Model Interactions

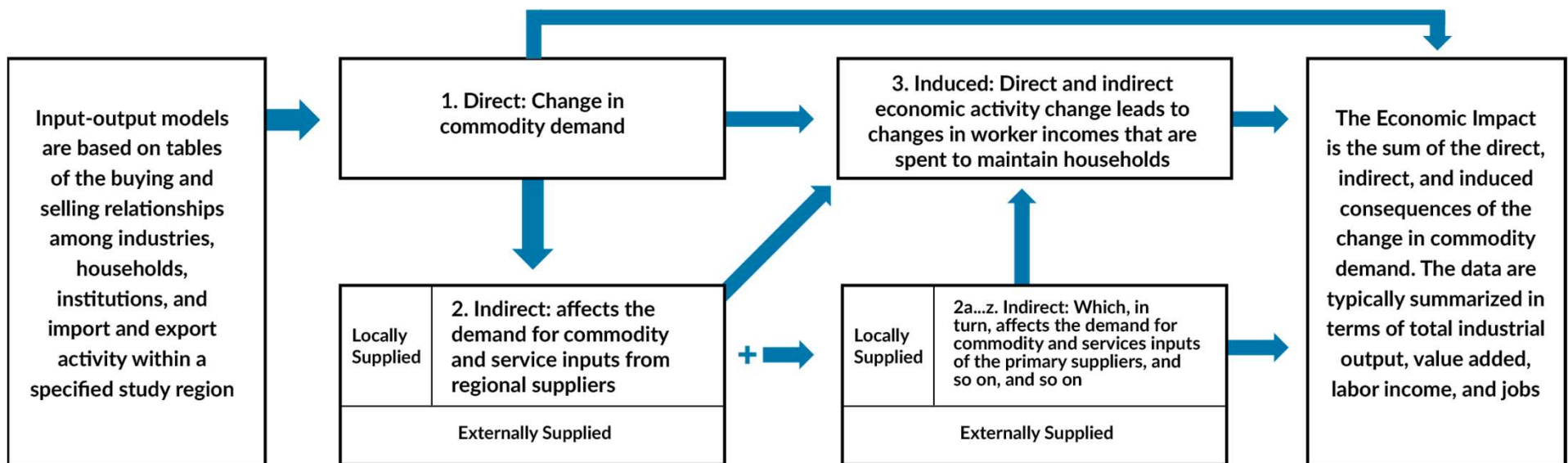


Commodity Coverage in CARD's Deterministic Model of U.S. Markets

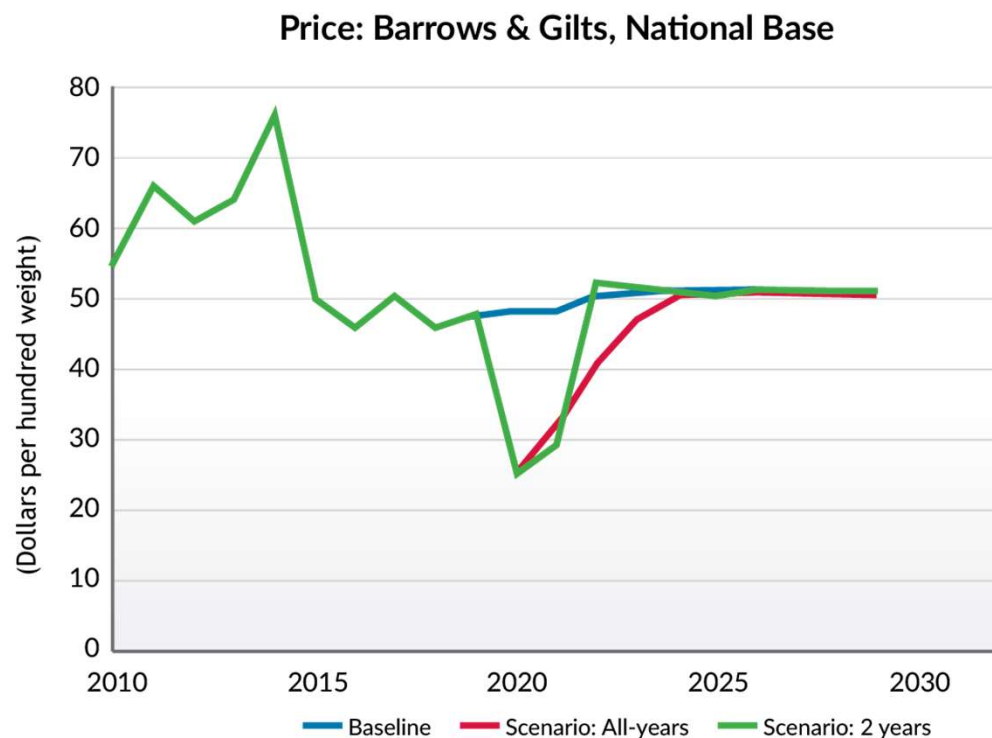
| Crops | Crop-based products | Livestock and poultry | Animal-based products |
|--|--|--|---|
| Corn Wheat Soybeans Upland cotton Long-grain rice Short/medium grain rice Sorghum Barley Oats Sunflower seed Peanuts Canola Hay Sugar beets Sugarcane Switchgrass | Ethanol Biodiesel Sugar High-fructose corn syrup Distillers grains Corn gluten feed Corn gluten meal Corn oil Corn stover Soybean meal and oil Sunflower meal and oil Canola meal and oil Peanut meal and oil Cottonseed Cottonseed meal and oil | Beef cattle Dairy cattle Hogs Chickens Turkeys | Beef Pork Chicken Turkey Fluid milk American cheese Other cheese Nonfat dry milk Butter Evaporated milk Ice cream Eggs |

IMPLAN Model Outline

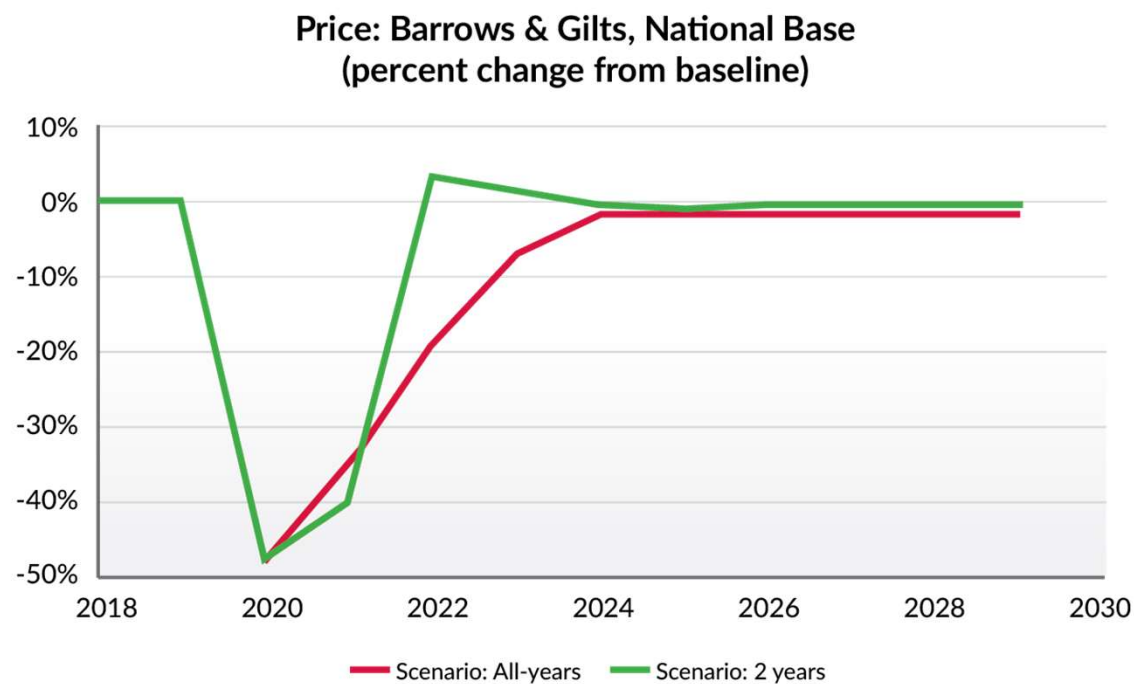
When There is a Change in the Demand for a Particular Supplied by an industry in the Mode, We Get Three Types of Economic Consequences: Direct, Indirect, and Induced



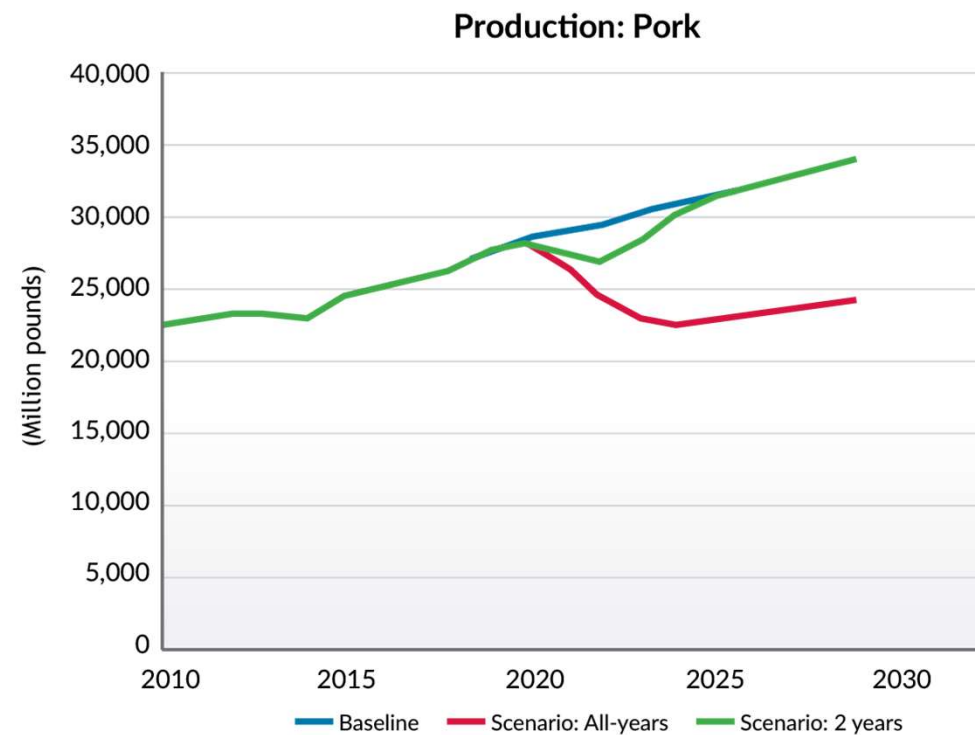
Impact of ASF on U.S. Live Hog Prices (Levels)



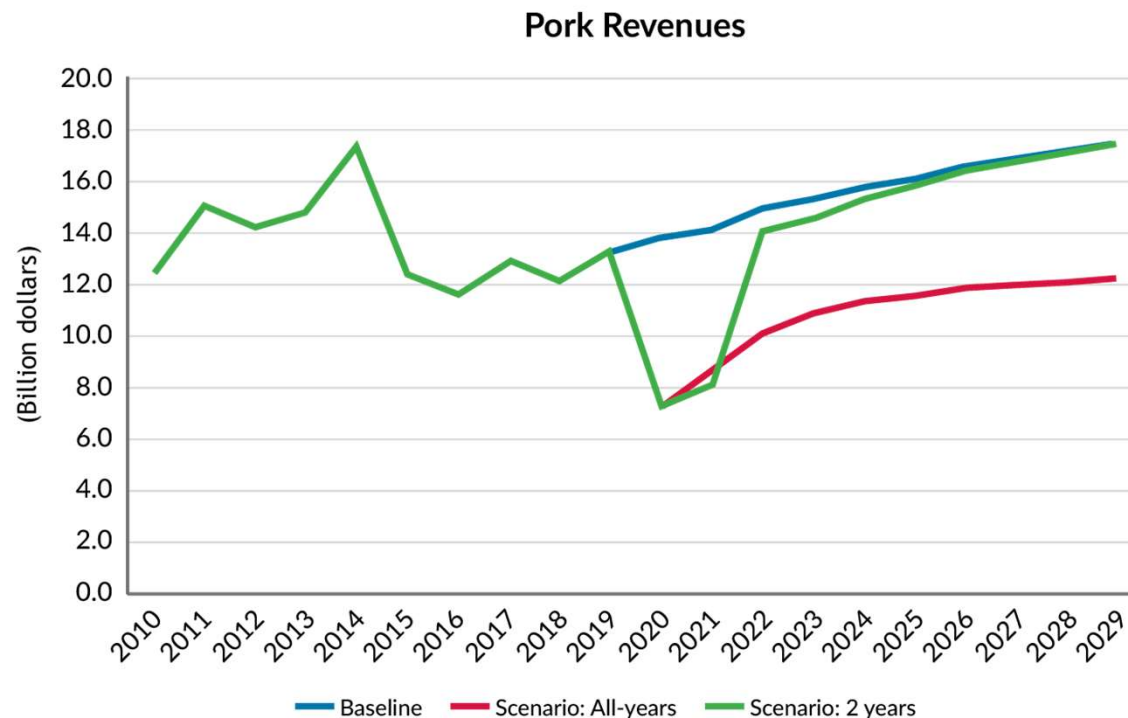
Impact of ASF on U.S. Live Hog Prices (Percent Change from Baseline)



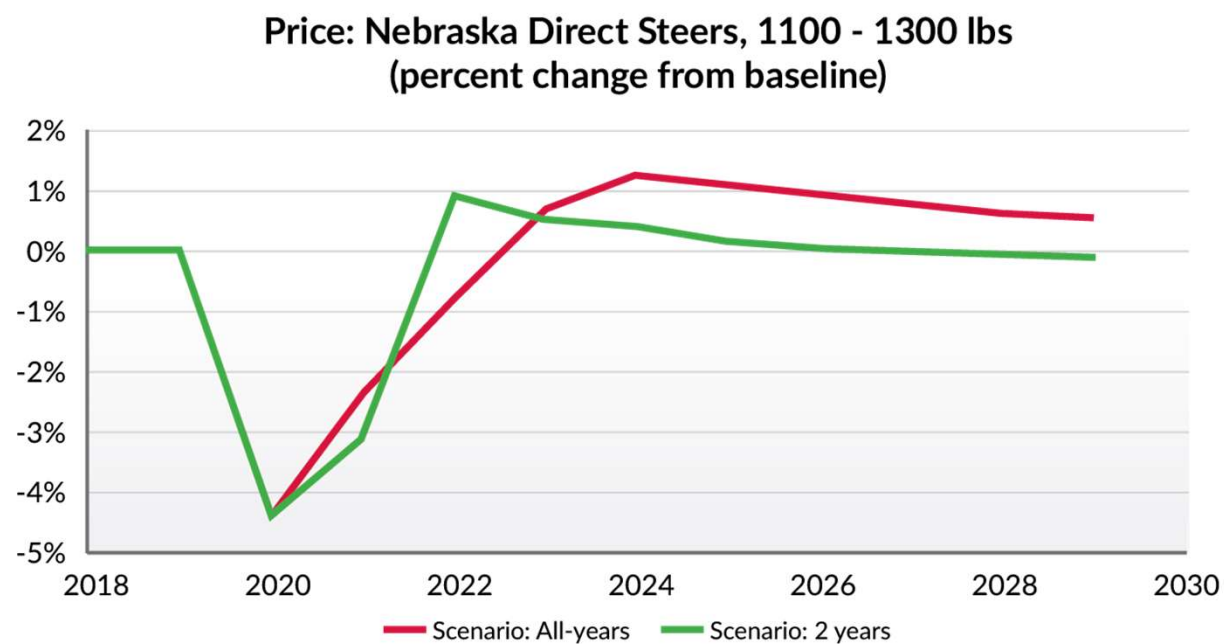
Impact of ASF on U.S. Pork Production



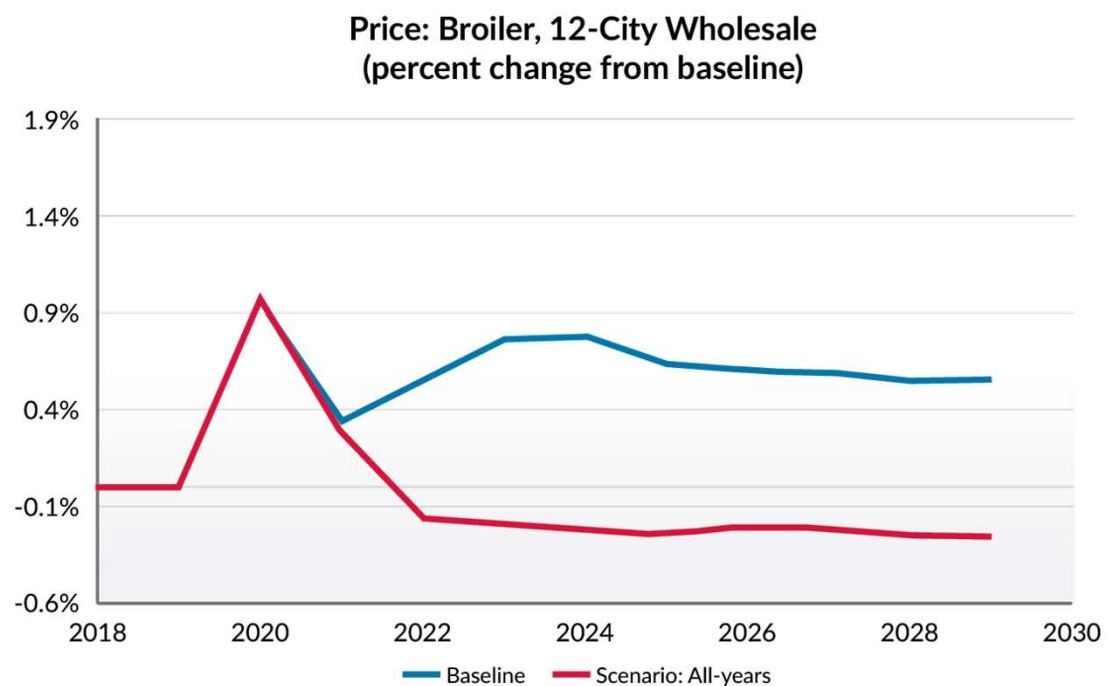
Impact of ASF on U.S. Pork Revenue



Impact of ASF on U.S. Live Cattle Prices (Percent Change from Baseline)



Impact of ASF on U.S. Broiler Prices (Percent Change from Baseline)



Total Annual U.S. Economic Impacts in the All-Years Scenario

| Impact Year | Jobs | Labor Income | Value Added | Output |
|-------------|-----------|--------------------|---------------------|---------------------|
| 20/21 | (6,380) | \$ (317,794,408) | \$ (563,635,854) | \$ (1,026,235,887) |
| 21/22 | (40,772) | \$ (1,742,746,216) | \$ (3,133,789,933) | \$ (6,099,686,705) |
| 22/23 | (79,680) | \$ (3,435,000,850) | \$ (6,182,397,022) | \$ (11,823,032,295) |
| 23/24 | (112,398) | \$ (4,849,488,047) | \$ (8,728,212,009) | \$ (16,616,148,840) |
| 24/25 | (127,001) | \$ (5,478,779,024) | \$ (9,864,758,382) | \$ (18,677,870,992) |
| 25/26 | (129,065) | \$ (5,565,280,949) | \$ (10,022,754,233) | \$ (18,924,035,222) |
| 26/27 | (132,925) | \$ (5,730,211,848) | \$ (10,321,677,252) | \$ (19,479,102,710) |
| 27/28 | (137,735) | \$ (5,940,806,637) | \$ (10,702,287,099) | \$ (20,181,536,388) |
| 28/29 | (142,485) | \$ (6,148,788,621) | \$ (11,078,484,090) | \$ (20,852,837,503) |

Total Annual U.S. Economic Impacts in the Two-Year Scenario

| Impact Year | Jobs | Labor Income | Value Added | Output |
|-------------|----------|--------------------|--------------------|--------------------|
| 20/21 | (6,201) | \$ (307,422,781) | \$ (544,447,946) | \$ (975,326,706) |
| 21/22 | (27,188) | \$ (1,146,045,216) | \$ (2,066,891,418) | \$ (3,981,271,074) |
| 22/23 | (39,542) | \$ (1,656,555,877) | \$ (2,988,808,223) | \$ (5,716,747,137) |
| 23/24 | (25,954) | \$ (1,100,336,336) | \$ (1,985,835,379) | \$ (3,586,724,544) |
| 24/25 | (9,374) | \$ (373,612,353) | \$ (680,851,796) | \$ (1,156,895,385) |
| 25/26 | (1,920) | \$ (52,308,994) | \$ (99,872,474) | \$ (110,009,300) |
| 26/27 | (754) | \$ (2,874,681) | \$ (10,973,359) | \$ 29,348,507 |
| 27/28 | (638) | \$ 252,133 | \$ (4,231,916) | \$ 33,799,959 |
| 28/29 | (220) | \$ 16,954,371 | \$ 25,637,803 | \$ 95,398,369 |

Total Annual Iowa Economic Impacts in the All-Years Scenario

| Impact Year | Jobs | Labor Income | Value Added | Output |
|-------------|----------|------------------|--------------------|--------------------|
| 20/21 | (1,100) | \$ (46,387,658) | \$ (93,000,851) | \$ (241,968,195) |
| 21/22 | (5,603) | \$ (224,216,855) | \$ (451,204,466) | \$ (1,149,383,507) |
| 22/23 | (11,768) | \$ (471,485,987) | \$ (948,009,209) | \$ (2,388,420,284) |
| 23/24 | (16,894) | \$ (676,924,938) | \$ (1,360,356,513) | \$ (3,420,866,059) |
| 24/25 | (19,364) | \$ (776,152,451) | \$ (1,559,682,132) | \$ (3,918,534,069) |
| 25/26 | (19,829) | \$ (794,959,008) | \$ (1,597,284,429) | \$ (4,013,991,806) |
| 26/27 | (20,452) | \$ (820,043,070) | \$ (1,647,748,158) | \$ (4,142,132,633) |
| 27/28 | (21,254) | \$ (852,416,811) | \$ (1,712,748,409) | \$ (4,306,196,093) |
| 28/29 | (22,076) | \$ (885,606,711) | \$ (1,779,440,690) | \$ (4,473,264,825) |

Total Annual Iowa Economic Impacts in the Two-Year Scenario

| Impact Year | Jobs | Labor Income | Value Added | Output |
|-------------|---------|------------------|------------------|--------------------|
| 20/21 | (1,089) | \$ (45,766,279) | \$ (91,650,756) | \$ (237,101,882) |
| 21/22 | (3,891) | \$ (155,830,800) | \$ (313,757,499) | \$ (801,034,605) |
| 22/23 | (5,862) | \$ (233,831,028) | \$ (470,569,531) | \$ (1,190,475,856) |
| 23/24 | (4,395) | \$ (176,034,922) | \$ (353,851,828) | \$ (881,819,160) |
| 24/25 | (1,699) | \$ (67,157,023) | \$ (135,126,645) | \$ (332,084,382) |
| 25/26 | (405) | \$ (14,992,549) | \$ (30,142,363) | \$ (70,485,362) |
| 26/27 | (159) | \$ (5,165,953) | \$ (10,464,708) | \$ (22,331,607) |
| 27/28 | (117) | \$ (3,539,283) | \$ (7,147,858) | \$ (14,900,764) |
| 28/29 | (63) | \$ (1,440,193) | \$ (2,945,845) | \$ (4,306,118) |

Bottom Line

- 40% to 50% reduction in live hog prices
- 4% reduction in steer and heifer prices
- Modest changes in corn and soybean prices because pork production expands offshore and U.S. poultry exports increase
- Pork industry downsizes in the all-years scenario
- Cumulative pork industry revenue losses of \$15 billion in two-year scenario and \$50 billion in all-years scenario
- Nationwide job losses after 10 years (direct and indirect) of 142,000 jobs in the all-years scenario. Iowa losses of 22,000
- No jobs impact after 10 years in the two-year scenario