FOOD CHAIN LINKS FROM GATE TO PLATE

**Food Chain-Related Employment**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>STATE TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employment</td>
<td>100,339</td>
<td>72,407</td>
<td>56,608</td>
<td>138,989</td>
<td>391,731</td>
</tr>
<tr>
<td>Food Chain-Related as Percent of Total</td>
<td>19.4</td>
<td>14.4</td>
<td>10</td>
<td>27.9</td>
<td>18.8</td>
</tr>
<tr>
<td>Population</td>
<td>774,215</td>
<td>784,175</td>
<td>843,406</td>
<td>754,349</td>
<td>3,156,145</td>
</tr>
<tr>
<td>Total GDP in $ Billions (2017)</td>
<td>$46.3</td>
<td>$41</td>
<td>$63.1</td>
<td>$40.4</td>
<td>$190.7</td>
</tr>
<tr>
<td>GDP Linked to Ag-Related Industries in $ Billions</td>
<td>$10.3</td>
<td>$6.7</td>
<td>$5.5</td>
<td>$13.5</td>
<td>$39</td>
</tr>
<tr>
<td>Production (crops, livestock, forestry, fishing, etc.)</td>
<td>$2.2</td>
<td>$1.5</td>
<td>$1.2</td>
<td>$6.1</td>
<td>$11.3</td>
</tr>
<tr>
<td>Processing</td>
<td>$5.9</td>
<td>$4.2</td>
<td>$3.5</td>
<td>$6.3</td>
<td>$22.5</td>
</tr>
<tr>
<td>Other Ag-Related Manufacturing (chemicals, machinery, etc.)</td>
<td>$2.3</td>
<td>$1</td>
<td>$0.8</td>
<td>$1.1</td>
<td>$5.1</td>
</tr>
<tr>
<td>Ag-Related Percentage of total GDP</td>
<td>22.3%</td>
<td>16.4%</td>
<td>8.7%</td>
<td>33.4%</td>
<td>20.4%</td>
</tr>
</tbody>
</table>

LINKS TO IOWA STATE UNIVERSITY

**Education**

Most undergraduate students enrolled at Iowa State come from Iowa. **Total enrollment was 33,391 (28,294 undergraduate students) in fall 2019.**

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<tbody>
<tr>
<td>Total direct contacts for Extension and Outreach was 613,000 for FY19; however, all data sets are not available by county.</td>
<td>26,738</td>
<td>21,132</td>
<td>11,943</td>
<td>31,131</td>
<td>90,998</td>
</tr>
</tbody>
</table>

**Alumni**

Iowa State has about 268,000 alumni worldwide, and more than 25,000 College of Agriculture and Life Sciences alumni living in Iowa.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>18,335</td>
<td>15,266</td>
<td>41,495</td>
<td>38,775</td>
<td>113,871</td>
<td></td>
</tr>
</tbody>
</table>

*Reflects 2017 data. The sum of economic impact values for the four congressional districts does not equal the state total. The state and district values are obtained from a unique input-output model built specifically for that region. The figures include the direct employment and value added produced within these industries, plus the related spinoff activity that they stimulate in the remainder of Iowa’s economy, from crop farming; cattle ranching and farming; dairy cattle and milk production; poultry and egg production; hog and other animal production; forest nurseries, forest products and timber tracts; logging; fishing; hunting and trapping; support activities for agriculture and forestry; food and beverage manufacturing; ethanol and other basic organic chemical manufacturing; fertilizer manufacturing; pesticide and other agricultural chemical manufacturing; and farm machinery and equipment manufacturing.

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Navigating 2019’s Unique Crop Challenges
From dealing with the impact of a wet spring on crop growth and development, to remediating flooded soils, to managing crop harvest after a snow, Iowa State University agronomists have offered practical tips for navigating 2019’s unique crop challenges. Their educational efforts helped farmers minimize soil compaction during harvest, add cover crops to protect soil and water quality, and make informed management decisions about their individual cropping systems. The Integrated Crop Management (ICM) Conference attracted nearly 900 participants and more than 2,000 people attended 14 Crop Advantage Series held across the state last winter.

Protecting Soil and Water
Pursuing science-based approaches to nutrient management research in collaboration with the University of Iowa and the University of Northern Iowa, the Iowa Nutrient Research Center has supported nearly 80 water quality projects across the state that advance the science of nutrient management.

New research shows “multi-purpose oxbows” can effectively reduce nitrate-nitrogen, earning them a spot in the Iowa Nutrient Research Strategy’s menu of conservation options. Oxbows are floodplain wetlands that form when a stream or river cuts a straighter path through a loop of its natural meander as it migrates within its floodplain or when a stream is channelized. They often flood, providing habitat for species that need shallow water habitats.

New Screening Tool Quickly Detects Bovine Tuberculosis
A new screening tool developed by Iowa State University agricultural and biosystems engineers and the U.S. Department of Agriculture can dramatically reduce the time to detect strains of bacteria that cause a serious livestock disease and impact the health of millions of people worldwide. The new tool collects extremely low levels of volatile organic compounds emitted by the bacteria, making it possible to differentiate between strains of Mycobacteria that do and do not cause bovine tuberculosis.

Better Handling for Sick or Injured Swine
Iowa State University researchers are developing effective and practical procedures for humanely transporting sick or injured pigs. The ISU team adapted handling tools for on-farm use: a sked (human rescue system), a sled and a deer sled. After hands-on testing researchers determined the sked was the easiest tool to use overall. Researchers will continue their testing to further reduce risk and stress to pigs and make moving animals safer and less stressful for swine producers.

Social, Mental, Economic Tools for Success
Farmers, landowners, and ag professionals learned about decision points and program rules during 93 farm bill meetings led by extension and USDA representatives in 2019. Mental health resources were provided at more than 50 of these meetings. Additional mental health resources are available from extension including Iowa Concern: a toll-free hotline (800-447-1985), live chat, and website offering free access to stress counselors, an attorney, and referral services.

The Iowa Agriculture and Home Economics Experiment Station has addressed the needs of Iowans since 1888. The Experiment Station fulfills a Congressional charge for land-grant universities to advance science for the citizens of their state. Experiment Station research helps Iowa remain a world leader in food production and address societal issues intimately linked to agriculture: economic development, life sciences, the environment, public policy, families and communities.

With a presence in each of Iowa’s 99 counties, Iowa State University Extension and Outreach helped over 10,300 companies and organizations and nearly 16,000 farmers across the state last year. Agriculture and Natural Resources Extension has a network of campus-based state specialists and field specialists including: agricultural engineering, commercial horticulture, farm management, field agronomists, beef specialists, swine specialists and dairy specialists.

The College of Agriculture and Life Sciences delivers quality, experiential educational programs, that provide opportunities for students to build skills in leadership, communications and cultural competency, within and across disciplines. The college’s undergraduate student body is the third largest among agricultural colleges in the nation. More than 98 percent of graduates are placed within six months of graduation. And, supportive alumni and friends provide more than $4 million in scholarships annually through the college and its departments.