Iowa’s Only Full-Service Veterinary Diagnostic Laboratory

**IMPACT:** A 1% increase (or decrease) in Iowa’s Animal Agriculture Economy = $325 million impact on Iowa

- Partners to serve and grow Iowa’s $14.6 billion livestock and poultry industries and $17.9 billion animal protein processing sectors
- Protecting the safety and security of our food supply
- Fully accredited by the American Association of Veterinary Laboratory Diagnosticians
- One of 11 Tier 1 labs in the U.S. National Animal Health Laboratory Network

The caseload at the diagnostic laboratory has doubled over the past 5 years

The $4-million direct appropriation through Agriculture and Natural Resources allows us to:

- Continue to provide unbiased, critical diagnostic services to meet the needs of Iowa animal owners and consumers
- Position Iowa to continue to participate in national animal health networks and surveillance programs for domestic diseases
- Be prepared to detect and capably respond to the introduction of transboundary (Porcine Epidemic Diarrhea Virus 2013-14), foreign animal diseases (Highly Pathogenic Avian Influenza Virus 2015), and emerging diseases (Senecavirus A 2015-16)
- Provide the research infrastructure to be the nation’s leader in food-animal diagnostic medicine
- Preserve and continue to grow Iowa’s access to export markets: 22% of U.S. pork, ~11% of U.S. beef, ~19% of U.S. chicken is exported

Iowa State University is requesting an inflationary increase of $80,000 (2%) for the ISU Veterinary Diagnostic Laboratory.

### Preserving Animal Health and Access to Export Markets

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<th>% of Domestic Production Being Exported (Carcass Weight Basis)</th>
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<tr>
<td><strong>Beef</strong></td>
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Agricultural Economies are Increasingly Dependent on Exports
WORLD CLASS VETERINARY DIAGNOSTIC LABORATORY

IN NEED OF WORLD CLASS FACILITY

WORKLOAD, BIOSAFETY, AND BIOCONTAINMENT NEEDS DEMAND NEW FACILITY

The Iowa State University Veterinary Diagnostic Laboratory (ISU VDL), located on the campus of ISU’s College of Veterinary Medicine, processes over 75,000 case submissions and conducts approximately 1.5 million diagnostic tests annually. The caseload has doubled in the last five years.

The ISU VDL offers comprehensive diagnostics with fast and reliable results. Those results come with prompt expert interpretation and consultation. The lab’s consistent excellence in providing same-day test results and being a reliable source of information for the public are reasons why it is one of the preeminent veterinary diagnostic labs in the world.

ISU VDL is the only one of its kind in Iowa, and one of only 11 fully accredited Tier 1 labs in the U.S. National Animal Health Laboratory Network. As such, the ISU VDL plays a key role in national surveillance and animal health programs for domestic, emerging, and foreign animal diseases.

VDL FACES CHALLENGES

- COMPROMISED BIOSAFETY AND BIOCONTAINMENT
- SEVERE OVERCROWDING
- OUTDATED PLUMBING, ELECTRICAL, HVAC SYSTEMS

A NEW LAB WOULD:

1. Provide a safe environment to conduct testing
2. Assure disease pathogens do not escape from the lab
3. Meet present space needs and provide desperately needed surge capacity
4. Allow for development and implementation of new and emerging technologies
5. Support competitiveness and growth of Iowa’s export-centric agricultural economy
Executive Summary

The Veterinary Diagnostic Laboratory is a fully accredited, diagnostic, teaching and research laboratory located on the campus of Iowa State University's College of Veterinary Medicine. The laboratory offers comprehensive advanced diagnostics with fast and reliable results and prompt expert interpretation and consultation.

The laboratory serves as a primary hub of activity, yet its economic benefits extend well beyond campus borders. Iowa citizens, veterinarians, and agricultural industries benefit from the services provided by the Iowa State University Veterinary Diagnostic Laboratory (ISUVDL).

The overriding objective of this study was to describe the economic contribution of the ISUVDL. Particular objectives included:

1. Estimate the total economic contribution of the ISUVDL.
2. Estimate the total economic contribution of construction activity associated with a new ISUVDL.
3. Estimate the total economic contribution of animal agriculture production in Iowa.
4. Estimate the total economic contribution of the animal processing sector in Iowa.
5. Describe the contribution of the ISUVDL in relation to business continuity in animal agriculture, competitiveness, surge capacity, and the importance to human, companion animals, wildlife, research, and teaching.

Objectives 1 through 4 considered the contribution of various workings to the Iowa economy. Impacts were calculated using the IMPLAN Input-Output (I-O) modeling system. Objective 5 describes the contribution of the ISUVDL across several key aspects. Many of these benefits cannot be precisely quantified and others will exist only in times of emergency. Therefore, a panel of experts was used to evaluate the contribution of the ISUVDL. These experts are all independent of the ISUVDL but familiar with its services.

Key Findings

- The ISUVDL had $22.5 million in expenditures in 2015, and 140 jobholders earning $11.0 million in labor income. After considering all multiplied through relationships with suppliers to the ISUVDL and workers converting their incomes into household spending, the ISUVDL annually supports $39.0 million in regional output and $23.34 in value added, of which $19.57 million is labor income to 265 jobholders.

- Construction-related spending of $124 million between 2016 and 2020 for a new ISUVDL would stimulate $41.16 million in total annual output in the region and $20.10 million in value added, of which $14.95 million would be labor income to 227 total jobholders.

- Iowa livestock production provides $14.62 billion in direct economic output and livestock processing provides $17.96 billion in direct economic output. The combined direct economic output of livestock production and processing, $32.58 billion, equates to $10.487 for each of Iowa’s 3.107 million people. For the livestock production and processing industries, direct economic output is analogous to annual sales. The $124 million cost of a new ISUVDL equals about 0.38% of the annual direct economic value of the livestock sector. Therefore, a contribution to the size of the Iowa livestock sector by the ISUVDL of 0.38% would, from a statewide perspective, pay for a new lab within just one year.

- Workers linked to animal producing sectors generated $339 million in state tax receipts for Iowa in 2015. Those in animal products processing industry accounted for $140 million in state taxes. The total tax contribution from both groups is $479 million.

- A panel of stakeholders was asked about the contribution of ISUVDL to the livestock sector in Iowa. They were asked to provide this value as a percent of the total added value of the livestock sector under both normal conditions (peacetime) and under an animal health emergency. This value was then compared to the income and sales taxes paid by participants in the livestock sector to the state of Iowa. The results suggest that the lab generates enough tax receipts to repay a $124 million state investment in two years under normal circumstances and in less than one year in an animal health emergency.

IOWA STATE UNIVERSITY
Veterinary Diagnostic Laboratory

To view the full report visit vetmed.iastate.edu/vdl
Impacting Iowa’s Animal Agriculture Industry

Investments in advanced diagnostic technologies have positioned the ISU VDL to effectively respond to introduction of new diseases in the last three years:

1st to identify and culture the new and highly virulent viruses Porcine Epidemic Diarrhea virus (PEDv) and Swine Delta Coronavirus in the U.S. in 2013 and 2014
- 1st to sequence and fully characterize PEDv in the U.S.
- 1st to identify “where in the world” these new viruses came from

Played a major role in diagnosis and response to Highly Pathogenic Avian Influenza virus (HPAI) in Iowa in 2015
- Partnered with IDALS, USDA and poultry producers to conduct tests for continuity of business during the outbreak
- Conducted testing to allow re-population of sites

1st to identify an emerging vesicular disease (Senecavirus A, SVA) affecting U.S. swine.
- Provided diagnostics for an unprecedented number of vesicular disease-associated foreign animal disease investigations to rule out foot-and-mouth disease in 2015 and 2016
- Urgent testing required to resume movement of pigs and sale of pork out of Iowa’s slaughter facilities

Access to innovative diagnostic technologies are essential for supporting and growing Iowa’s export-centric animal agricultural industries.

QUESTIONS FROM CASES BECOME FUNDED RESEARCH PROJECTS
In 2013-2016, VDL faculty obtained nearly $4.2 million through 58 grants to advance knowledge on diagnosis and control of PEDV, HPAI, and SVA.

vetmed.iastate.edu/vdl
INVEST IN A PROVEN LEADER

MODEL OF SERVICE, TEACHING, AND RESEARCH

ISU VDL RECEIVES CASES FROM PRACTICING VETERINARIANS

ISU VDL DIAGNOSTICIAN SELECTS TESTS BASED ON HISTORY

SEROLOGY  HISTOPATHOLOGY  BACTERIOLOGY  VIROLOGY
MOLECULAR DIAGNOSTICS  TOXICOLOGY & NUTRITION  CLINICAL PHARMACOLOGY

RESULTS COORDINATED TO ARRIVE AT DIAGNOSIS

RESULTS AND DIAGNOSIS TRANSMITTED TO ASSIST PRACTICING VETERINARIANS AND ANIMAL OWNERS

ECONOMIC IMPACT ON IOWA

Annually, Iowa’s livestock production and processing sectors contribute $32.58 billion to the state’s economy (Schulz, Swenson, Hayes, Holtkamp 2017).

DIRECT ECONOMIC IMPACT

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<th>Iowa livestock production</th>
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<td>Iowa livestock processing and products</td>
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<td>Total Impact</td>
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The $124 million cost of a new VDL equals about 0.38 percent of the annual direct economic value of Iowa’s livestock production and processing sectors.

A contribution to the size of the Iowa livestock sector by the VDL of 0.38 percent would, from a statewide perspective, pay for a new lab within just one year! A 1 percent increase (or decrease) has a $325 million dollar annual impact on Iowa’s economy.

VDL PLAYS KEY ROLE IN ADDRESSING:

1. **Porcine Epidemic Diarrhea**
   
   When *Porcine Epidemic Diarrhea* virus (PEDv) swept through the U.S. pork industry, the VDL was again at the forefront of the efforts to curb the devastating consequences of this challenge.

2. **High Path Avian Influenza**
   
   When *High Path Avian Influenza* (HPAI) rocked the poultry industry, the VDL was essential in the process to identify and develop solutions.

3. **Chronic Wasting Disease**
   
   The VDL supports efforts to protect Iowa’s deer and elk from the debilitating effects of *Chronic Wasting Disease* (CWD).

Built in the 1970s, the ISU VDL facility is insufficient for conducting essential work serving the food animal, pet, and wildlife industries in Iowa and beyond. Infrastructure from over 40 years ago is woefully inadequate to facilitate the distinguished staff and work being done at the lab.

The major challenges include:

- Compromised biosafety and biocontainment due to layout, airflow, and crowding
- Overcrowding with little to no room to accommodate the newest technologies to keep ahead of emerging diseases
- Outdated plumbing, electrical, and HVAC systems

When built, the ISU VDL had 11 faculty and 20 technical staff members. Today, there are **25 faculty and more than 115 technical staff**. The value of the learning environment for future veterinarians and researchers cannot be overstated. In the present facility, limitations are placed on people, equipment, and progress.

A new facility would not only meet present needs, but position the lab to accommodate future growth. This infrastructure investment will greatly enhance the diagnostic service and discovery capabilities within the state and serve to support animal health, food safety, public health, and the competitiveness Iowa’s animal agricultural industries for the current and future generations of Iowans.

Estimated cost for the new Veterinary Diagnostic Lab is $124 million with $100 million ($20 million per year for five years) requested from state appropriation, $20 million raised in private funds, and $4 million from Iowa State University.

As proposed, VDL’s net assignable space will increase from 60,000 square feet (current) to 83,000 square feet, and 27,500 square feet of the present facility will be repurposed to meet critical research and teaching needs at the College of Veterinary Medicine.

www.vetmed.iastate.edu/vdl

Ames, Iowa

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