Diagnostic Center for Population and Animal Health:

Safeguarding Michigan's Animals & Agriculture

MICHIGAN STATE UNIVERSITY | College of Veterinary Medicine

The **Diagnostic Center for Population and Animal Health** (DCPAH) at the Michigan State University College of Veterinary Medicine (MSU CVM) currently does not receive any funding from the State of Michigan. MSU CVM requests an appropriation of **$1.5 million annually** to subsidize the costs of **surveillance**, **emergency preparedness**, and **routine diagnostics** that protect Michigan's farm animals and food supply.

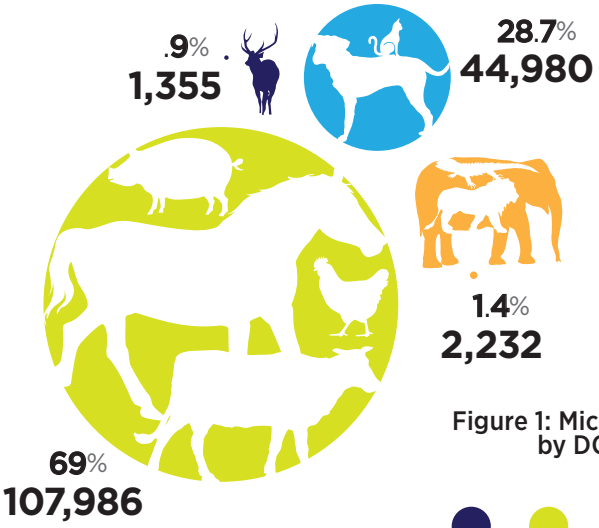

Figure 1: Michigan Animals Tested by DCPAH, FY 2015

Got Diagnostics?

In this global world and economy, not only does business travel fast, but disease agents can too—with devastating impact. How does Michigan safeguard against the threat of foreign animal or emerging diseases? Both the Michigan Department of Agriculture and Rural Development (MDARD), and Department of Natural Resources (MDNR), along with the Michigan State University College of Veterinary Medicine (MSU CVM) play critical roles in the detection and/or treatment of diseases. An essential part of the arsenal in this war is diagnostic veterinary medicine—the ability to accurately and quickly diagnose diseases that could have a major impact on human and animal health. The rapid and accurate detection and reporting of animal diseases is the mission of the Diagnostic Center for Population and Animal Health (DCPAH), part of the MSU CVM. In fiscal year 2015 alone (July 1, 2014 - June 30, 2015) DCPAH performed tests for more than 150,000 Michigan animals, more than 2/3 of which were farm animals (see Figure 1).

To demonstrate a portion of the role DCPAH plays in protecting Michigan from an animal disease event, the Product Center in the MSU College of Agriculture and Natural Resources assessed the potential economic impacts of four diseases of critical importance to Michigan, illustrating how DCPAH's very existence would save millions.*

Bovine Tuberculosis (TB)

According to MDARD's latest "Michigan Agriculture Facts and Figures," cattle are raised in 80 of Michigan's 83 counties and in 2013, cash receipts for Michigan cattle and calves totaled $541 million. Michigan's dairy herds are ranked first in the nation for gross income per cow and seventh for total production (9.2 billion pounds of milk in 2012; a value of $1.9 million). Dairy farms contribute $14.7 billion to the state's economy. (MDARD) Maintaining Michigan's current TB-free status in the majority of the state and containing endemic bovine TB to the Modified Accredited Zone is crucial to ensure that beef and dairy cattle and products can move and trade freely. An analysis of the impact of losing TB free status in Michigan estimated the total economic impact of the outbreak was $35.0 million in 2001 (Wolf). This figure included the effects on related industries (indirect impacts) and household spending (induced impacts). In 2015, adjusting for inflation, the economic impact of losing TB free status in Michigan is estimated to be $48.8 million. There are several costs incurred as a result of a TB outbreak; in addition to lost milk production, the value of beef sold also declines, and there would potentially be decreases in exports due to the loss of confidence in (reputation of) Michigan agriculture if a possible TB outbreak were not handled quickly. Also, state spending to control the disease would increase. For example, from fiscal year 1997/98 through fiscal year 2000/01, the state appropriated $37.0 million to control the outbreak; of this amount $33.8 million was General Fund/General Purpose (Thiel). To a great extent, the current DCPAH facility was built to ensure that a TB outbreak such as the one in the late 1990s does not happen again.

Estimated Economic Savings: $48.8 million

Avian Flu (Highly Pathogenic Avian Influenza, HPAI)

In 2014, total farm sale of eggs in Michigan was $325.3 million. IF HPAI were to hit the major egg producing region of Michigan, the delay in testing without DCPAH is predicted to result in the state losing 60% of its layers (and egg production) with at least a 3 month lag time for replacement layers, and an additional loss of $10.9 million in indirect costs for related industries and consumers. These conservative estimates do not include the impact on meat exportation if turkey farms were also affected, or for the cost of the disposal of eggs or birds that would need to be destroyed to stop the outbreak. If 20% of those losses were avoided as a result of DCPAH's diagnostic response, the total economic savings is estimated at $27.2 million.

Estimated Economic Savings: $27.2 million

Chronic Wasting Disease (CWD)

Currently, CWD has been identified only in Ingham and Clinton counties. DCPAH is one of only nine facilities in the country approved by the USDA to test for CWD. If uncontrolled, this disease would affect both the hunting and related leisure industries, as well as negatively impact hunting license revenue. A study of the CWD outbreak in Wisconsin, which was not completely contained quickly, estimated the economic impact of the disease to be $5.0 million (Bishop). Assuming a similar 10% decrease (year one) and a sustained 6% decrease in hunting due to CWD in Michigan, a conservative estimate of license fee losses would be $3.1 M (first year), and a permanent annual decline of $1.9M. The state would also have to increase spending to eradicate the disease. In fiscal year 2002/03 Wisconsin spent $14.7M on such activities. Adjusting for inflation, similar spending in Michigan would now be $18.9M.

Estimated Economic Savings: $5.0 million

Foot and Mouth Disease (FMD)

Limiting the impact of FMD is particularly important due to the disease's ability to spread rapidly and the fact that it impacts cattle, hogs, sheep, deer, goats, and other animals with divided hooves. Once established, FMD is difficult to eliminate and usually requires the depopulation of herds. Therefore when FMD is suspected, all animal and product movement stops to prevent possible disease spread. The consequences of this disease are severe given trade restrictions and overall economic impact. For example, one estimate of the economic impact of the 2001 FMD outbreak in Great Britain was $14B (FootAndMouthDiseaseInfo.org). Since some diseases may have a similar presentation, rapid and accurate diagnosis is needed to limit the impact on producers and processing facilities. Assuming DCPAH provides preliminary testing, in this scenario, based on the 2001 Great Britain outbreak, it is estimated that instead of depopulating 50 percent of the animals in the Thumb region (Bay, Huron, Saginaw, Sanilac and Tuscola counties), only 25 percent of the animals have to be destroyed (more rapid diagnosis/containment). Given the wide range of susceptible animals, the potential economic impact is quite large. Using data from the 2012 Census of Agriculture, limiting the loss of animals in the Thumb region to 25% saves $128.9 million in farm income. The estimated total economic impact of this savings is $207.6 million. Since these figures are based on 2012 farm sales, the actual numbers could be somewhat higher.

Estimated Economic Savings: $207.6 million

References

FootAndMouthDiseaseInfo.org. *Fact Sheet: Industry Economics.* http://footandmouthdiseaseinfo.org/factsheet industryeconomics.aspx

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*For the full report from the MSU Product Center, please visit: **cvm.msu.edu/dcpah/funding**.

Photos Courtesy of MSU Communications and Brand Strategy

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