POLICY BRIEF

AGRICULTURAL BIOSECURITY

Reducing risks and impacts of livestock diseases

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THE ISSUE

Agriculture is a strong part of the U.S. economy and can be critical for economic development in other countries. Reducing the risks and impacts of animal diseases on farms is key to supporting a productive agricultural sector. Improved agricultural biosecurity can also be a strategy for:

- increasing economic security,
- enhancing community resilience, and
- improving farms' environmental impacts.

Animal diseases can spread among livestock, presenting risks to farms and people. Besides the movement of animals themselves, the movement of people and equipment among livestock farms is a primary route of transmission for many highly contagious diseases. In order to maintain a secure food system, we need to be able to effectively prevent, detect, and respond to these kinds of animal disease pathways.

NEW APPROACHES TO BIOSECURITY

A collaborative project among universities across the U.S. has advanced our understanding of how to lessen the impacts of animal diseases. This research has explored the human behavior dimensions of animal disease spread. The research team's findings can inform strategies to reduce the risks and impacts of livestock diseases.

The findings are especially relevant to agriculture policy and management in the U.S. Many lessons could apply to international contexts as well.

Researchers used innovative methods to assess the human aspects of disease prevention in livestock.

KEY POLICY RECOMMENDATIONS

Policymakers and agency staff could use these research insights about human behavior to improve systems for agricultural disease prevention.

(1) Use careful communication of targeted messages

Information provided using visual images is more effective at influencing people's behavior on farms than information based on words or numbers. Communicating with visuals can nudge behavior on farms toward more disease resilient practices that protect animal health.

Policymakers could support programs that develop better communication approaches and tools so that agency staff who help manage agricultural animal health can more effectively mitigate risks.

(2) Create incentives for producers to adopt biosecurity measures

One barrier to adoption of biosecurity strategies is that producers feel they bear more of the costs while downstream sectors in the supply-chain (e.g. retailers, packers) receive the benefits. Policymakers could create additional economic incentives for producers, for example through cost-share programs, to increase widespread adoption that benefits the whole supply chain.

(3) Invest in prevention and preparedness

Investing in sanitary and phytosanitary systems, preventative measures, and pre-crisis preparedness can protect a nation's agricultural sector. Agencies involved in regulating or responding to animal disease risks could engage in pre-crisis planning to coordinate resources, outreach strategies, and communication approaches.

(4) Invest in innovative research capacity

Many of the techniques used by the researchers are novel, such as the use of games to assess the dynamics of decision making, enabling them to determine how farmers and producers would react to disease or pest outbreaks without exposing animals to new infectious threats. These methods show the importance of using real human behavior data to improve response systems.

Agencies could invest in the use of 'serious games' to simulate tactical decisions about motivating biosecurity practices on farms. Research that integrates animal science, social science, and computer modeling can help us understand effective biosecurity measures, compliance, and disease transmission pathways.

'Serious games' simulated real on-farm decisions.

CONCLUSION

Attention to the human dimensions of animal disease risks can inform planning, communication strategies, and incentives to motivate producer behaviors. Future research could test how findings apply in different countries and sectors and explore specific responses strategies with scenarios. With growing global concerns about diseases in animal and human populations, this research provides governments and the wider livestock industry with important ideas for further developing and honing best practice strategies. Any time spent now considering the challenges of maintaining biosecurity during a future crisis can be considered time well spent.

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