

**Testimony of Rick Roush, Dean, and Calvin Norman, Extension Educator, Penn State
College of Agricultural Sciences
before the Senate Agriculture and Rural Affairs and Game & Fisheries Committees
regarding Chronic Wasting Disease (CWD)**

April 13, 2022

Chairs Vogel and Schwank, Chairs Laughlin and Brewster, and distinguished members of the Senate Committees, on behalf of College of Agricultural Sciences at Penn State University, I am honored to participate in today's discussion on Chronic Wasting Disease.

In contrast many other agricultural and rural topics, Penn State is not a leader in research on CWD. My understanding is that we were asked to participate today because of Penn State Cooperative Extension's role in public education on many topics, including this disease. Cooperative Extension is rightly seen as an "honest broker" on topics as diverse as broadband access, diabetes and shale gas, providing independent factual information, and thus has considerable credibility and activity in educating the public about unpopular realities and actions needed for CWD.

We do have expertise at Penn State on CWD surveillance and management, including David Walter (Adjunct Associate Professor of Wildlife Ecology in the Pennsylvania Cooperative Fish & Wildlife Research Unit of U.S. Geological Survey, USGS) and Justin Brown (DVM, PhD, Assistant Teaching Professor associated with the Animal Diagnostic lab, with 15 years on CWD).

Dr. Walter's research has included the dispersal of deer and has been funded by the Pennsylvania Game Commission, Cornell University, the New York Department of Environmental Conservation (NY DEC), the Ohio Department of Natural Resources (OH DNR), and the USGS over the past 8 years. He is working statewide with the Minnesota Department of Natural Resources (MN DNR) and USDA funding looking at ability of culling to remove family groups of deer and relatedness of deer positive for CWD. Dr Walter is also working with Cornell University on several projects to bring together all state agencies and CWD surveillance data in every state in the Midwest and west to finally compile data across states because CWD has no boundaries.

In contrast, the Animal diagnostic lab at Penn State is not funded to test for CWD, but is the most centrally located of the PADLS labs and has an incinerator, so could assist during high volume collection periods (i.e., hunting season).

Unfortunately, neither Walter or Brown were able to attend today, so I'm reporting on Penn State's behalf, along with Calvin Norman, who's participating first-hand in the Extension educational efforts on CWD.

I've been learning about CWD for least six years now. If I have anything personally to contribute to this debate, it's that I've studied the transmission and management of several other diseases,

and can comment objectively on this one. CWD is a very difficult problem. I share frustration that we don't have any simple and effective techniques to stop it. Viruses and bacteria are easy to detect and decontaminate compared to prions, which are a completely different agent that require a completely different expertise.

I have questioned experts at Penn State about the prospects of using mRNA vaccines (for which Pfizer and Moderna have demonstrated novel efficacy against COVID) and selection for resistant deer. I've been convinced that selection is an especially long shot.

The most likely way forward currently is to more widely adopt and promote the new "gold" standard for testing and surveillance of CWD, the "**Real-time quaking-induced conversion**" (**RT-QuIC**) assay. Samples in the RT-QuIC assay are literally shaken and this "quaking" action breaks apart aggregates of prion protein which are further incubated, amplifying the amount of misfolded prion to detectable levels.

RT-QuIC thus amplifies the prions present for improved detection, whereas other methods cannot, such as **Immunohistochemical diagnosis (IHC)** and **enzyme-linked immunoassay (ELISA)**, a commonly used type of laboratory test to detect specific proteins). RT-QuIC can more reliably overcome detection problems. There have been some issues with supply of the necessary substrate but we understand there is a company in MN that produces it.

There is at present no reliable rapid test for hunters, even though some advertisements have claimed as much.

Some key points:

1. Approval of RT-QuIC, instead of IHC and ELISA, needs to be made the gold standard for prion detection in animals and the environment
2. RT-QuIC can readily identify infectious prions responsible for CWD in ear tissue (attached), blood, and environmental samples (soil, plants) within days
3. Increase detection ability with RT-QuIC is a game changer for detection of new hotspots and our ability to react to these new areas of CWD infection
4. Each state (agencies, universities, federal) needs to have one or, preferably multiple, certified labs to perform RT-QuIC and no longer rely on USDA NVSL for confirmation (Currently only UPenn in PA has RT-QuIC as far as we know but all confirmation is needed by USDA)
5. Statewide hunter recruitment and retention is needed because they are the only barrier to preventing deer populations from growing and disease spreading.

Outreach and Education: Calvin Norman

- **Extensive Public/Private Partnerships**
 - CWD is an issue that transcends state lines.

- Penn State is part of the national Land-Grant System that connects faculty, expertise, and extension educators across the country. These institutions are funded via partnerships with federal, state, and county governments that provides an informed national, state, and local perspective on priorities, needs, and best practices on specific issues.
 - With Penn State Extension's presence and engaged advisory councils in every county in Pennsylvania, as well as partnerships with agricultural industry sectors, Penn State Extension provides a local, on-the-ground reality of issues and needs.
 - The college enjoys close relationships with federal, state, and local government entities, and faculty and educators serve on many agency advisory and expert committees.
- **Trusted Facilitator of Diverse Stakeholders on Controversial Issues**
 - Research has consistently shown that nationally Cooperative Extension is a trusted source of unbiased, science -based information.
 - Due to that reputation, Penn State is an excellent, proven facilitator for solutions to controversial issues with polarized stakeholders. One recent example is in the water quality arena of addressing agricultural water quality contributions to Chesapeake Bay. The Penn State Pennsylvania in the Balance Conference brought together opposed and diverse stakeholder groups over years to develop win/win solutions to complex issues. These working groups provided strategies that were adopted in the state WIP (Water Implementation Plan).
 - CWD stakeholder groups include government agencies, wildlife non-profit organizations, hunters and hunting associations, scientific institutions, and business entities and requires a trusted facilitator to successfully engage all stakeholders to identify and address common issues.
 - The college enjoys high levels of public trust, both with hunters and non-hunters, on wildlife health issues and is a go-to source for information on topics such as the bird deaths in the summer of 2021.
- **Penn State Extension Educational Outreach Capacity**
 - Penn State Extension has invested in state-of-the-art digital infrastructure that enables us to provide access to our educational products and services for millions of individuals every year.
 - In 2020, Penn State Extension had twenty-six million connections with individuals through our website, publications, articles, newsletters, workshops, webinars, videos, online courses, consultations, farm visits, etc.
 - Penn State Extension had 32 million website pageviews, approximately 500,000 registrants for educational sessions, and distributed around 500,000 hard copy publications on science-based solutions.

- As part of a premier, top 25 research institution, our college, through our media releases, had a media reach of 1.9 billion people, communicating out the latest science and research on diverse of topics, including CWD.
- We are often the go to partner for communication and outreach on urgent issues. For instance, our college is leading the communication and education efforts on spotted lanternfly, in partnership with PDA and USDA, and we receive a communication grant from USDA specifically for this purpose. We are the go-to source for the latest research and best practices around avian influenza and have our experts working daily with impacted industries and publics as well as government entities.
- Forestry and Wildlife Team's Newsletter has over 50,000 subscribers with readers from all over Pennsylvania and across the nation.

- **CWD Extension Outreach**

- Extension provided a webinar series on various aspects of CWD. Those webinars are available on demand online at no cost.
- We reach landowners and hunters through our Deer Blog, which has an extensive following.
- We provide CE credits for professionals and host student events such as the Wildlife Leadership Academy, PA-TWS, and other webinars/workshops.
- As research and solutions to CWD develop, we are able to get that information out to the citizens of Pennsylvania and beyond quickly and accurately.
- A new hybrid course from Extension, Venison 101, is targeted at new hunters and teaches them about deer ecology, management, and safe meat handling/preparation practices, including CWD.
- Extension conducted webinars with Pennsylvania Game Commission, North American Deer Association, Wildlife Futures, and UPenn.

- **CWD Media Outreach**

- [Farm and Dairy: How to take precautions against chronic wasting disease this deer season](#)

Located in [News](#) / [College in the Media](#)

This article contains Penn State Extension recommendations for hunters to reduce the potential risk posed by chronic wasting disease in deer.

- [Centre Daily Times: Chronic wasting disease continues to spread among Pa. deer](#)

Located in [News](#) / [College in the Media](#)

Duane Diefenbach, adjunct professor of wildlife ecology and leader of the Pennsylvania Cooperative Fish and Wildlife Research Unit, says reducing deer densities is the best tool for fighting chronic wasting disease.

- [Northeastern deer more susceptible to wasting disease than those to the west](#)

Located in [News](#)

Some deer are more susceptible to chronic wasting disease that is spreading through herds of white-tailed deer across much of the United States, according to Penn State

researchers, who have identified a panel of genetic markers that reliably predict which animals are most vulnerable to the contagious neurological disorder.

- [Chronic wasting disease research with deer in Pa. becomes more crucial](#)

Located in [News](#)

The recent announcement by the Pennsylvania Game Commission that it found 25 more wild deer with chronic wasting disease last year underlines the importance of studies being conducted by a team of researchers in Penn State's College of Agricultural Sciences.

- [Hunt deer despite disease, but be smart, safe, food safety expert counsels](#)

Located in [News](#)

The detection of chronic wasting disease in wild deer in several parts of Pennsylvania has some deer hunters wondering whether they should continue with their fall traditions, but a food safety specialist in Penn State's College of Agricultural Sciences urges them to carry on — but to take precautions.

- [Feedstuffs: Genetic markers may predict CWD susceptibility](#)

Located in [News](#) / [College in the Media](#)

David Walter, adjunct assistant professor of wildlife ecology, describes recently published research suggesting that deer in the Northeast are more susceptible to chronic wasting disease than those from other parts of the country. This research also was covered by the Altoona Mirror and the Bradford Era.

- [Milton Standard-Journal: Hunt deer despite CWD, but be smart, safe, extension food safety expert counsels](#)

Located in [News](#) / [College in the Media](#)

Martin Bucknavage, senior extension associate in food science, offers tips for reducing the potential risks associated with chronic wasting disease. Similar coverage also appeared in WITF.org, Harrisburg; WHYY.org, Philadelphia; the Altoona Mirror; and American Agriculturist, among others