

**Thousand Cankers Disease Research and Management Operational Meeting
June 13-15, 2017
Purdue University, West Lafayette, IN**

Workshop Results Summary Video (25:50)

<https://www.youtube.com/watch?v=1z8R-uh0eWg&index=31&list=PLVrv1vgCwEkkIBCTMNvJUem4Nxbvc7Etc&t=15s>

Action Plan Summaries and Needs for Further Effort*

REGULATORY ISSUES (0:01-8:20 min) Dan Kenney, OH Dept. of Plant Health

- Do we need to regulate *G. morbida* or just WTB?
 - [Must both organisms be present for TCD to become regulated?]
 - [Working Principal Concern = “pathogen present and beetles within the tree”]
 - *G. morbida* may be a weak pathogen; not necessarily [environmentally persistent]
- How widespread [across the U.S.] is *G. morbida*?
 - [Is the pathogen available in other (e.g., non-TCD compromised) locations? Is it vectored by other insects in the environments?]
- [Based on expected outcomes validated by science] What constitutes a quarantine-able detection?
- [Are there] Opportunities for harmonization?
- [Determine if TCD should be managed via] County level vs. statewide quarantines?
- Are appropriate products being regulated? [Have there been appropriate/adequate] Risk assessment[s]?
 - [Do we need to regulate nursery stock/small diameter stems and scion wood? Can wood veneer be exempted?]
 - [It is probable that compliance agreements be used to address this issue?]
- What [are scientifically-based, supportable] criteria [that] must be met to lift quarantine?
 - [Processing steps needed? Treatment steps needed? Will compliance agreements address these needs/circumstances?]
- [Increase and optimize the] Efficacy of fumigation, heat, vacuum steam, MeBr?

(Excerpts compiled by WE Klingeman, Plant Sciences, The University of Tennessee from the summary video presentation recorded June 15, 2017)

RESEARCH ISSUES (9:00 – 16:00 min) Dr. Bill Klingeman, Univ. Tennessee

Future Research Needs and Directions Overview

Additional points (P.1)

- [Have we sufficiently defined the “disease” of TCD]
- [Will] Biocontrol approach[es provide appreciable levels of control for TCD?]
- [What do we expect will be the] Effect of environment on [WTB & TCD]
- [Establish protocols for] Testing cultivars = screen walnut germplasm [for TCD resistance]

[More “Research Needs” Bullets]

- Standardize *Geosmithia morbida* culture collection [and create a durable] repository
- [Gain better understanding about:]
 - What does beetle gain from fungus?
 - How important is GM in TCD?
 - How do we screen cultivars for resistance to WTB
 - Role of climate change
 - Insect stress tolerance
 - Epidemiology vs. etiology
 - Threshold for insect/pathogen/host
 - What do WTB trap catches mean?
 - [How does trap capture relate to actual population that is interacting with walnut trees within a localized environment?]
 - [Would trap cropping be an effective management technique?]
- Expansion of the TCD website to include more research items
- [Increase visitor experience to a more] Dynamic website

(P.2)

- Need to capture impact (true loss [consequence and value]) of TCD
- Resource and Wood value and impact by TCD
- Synthesis paper on what is known about impact across urban [areas] versus [within] wildland [unmanaged areas, including parklands]
- [A phylogeographic gap exists regarding] Distribution of WTB in Mexico
 - [What is the genetic diversity of *P. juglandis* from these areas? What about genetic diversity of walnut species in these areas?]
- Host-pathogen interaction
- What do detections (WTB, GM) mean at the landscape level?

Specific [Research] Needs

High Importance

- WTB impact on walnut in absence of GM
 - on tree health
 - Gm – WTB relationship [What does *P. juglandis* gain from *G. morbida*]
 - [need to examine axenic culturing of trees with *P. juglandis* present]
- In a fluctuating environment, what will be the effect on TCD?
 - [How does *P. juglandis* respond to environmental conditions that fluctuate?]
 - [Consequence of variable] precipitation, drought events, temperature, [etc.]
- Impact of TCD - urban, forest, plantation
 - Synthesis paper [get feedback from] urban foresters, others involved
- Screening germplasm for resistance to WTB [prior to engaging in breeding programs] & [screening specifically for resistance and interactions to the beetle.
- Determine relationship between underlying WTB populations [particularly with regard] to trap catch [yields observed in the field]

Medium Importance

- Research on mitigating TCD with treatments (and management group)
- Stress tolerance of TCD to [variable] environment[al conditions] (cold, drought, heat)

MANAGEMENT (16:15 – 20:30 min) Lenny Farlee, Forestry & Natural Resources, Sustaining Hardwood Extension Specialist, Purdue University

Best Management Practices [for walnut and where TCD is or could be present]

- [We need to] Updates [the] message [being conveyed to stakeholders and the public] [Responses should direct inquiries to updated points of information] for outreach
- Be [shoul be] cautiously optimistic, [retain] credibility [by (nuanced) acknowledgement that] [walnut will not need to be eradicated where the trees are being grown, yet we only have 10 yrs of data on which we're basing decisions]
- Have a early detection and rapid response plan
 - [Coordinating trapping, insecticides, with other actionable responses]
 - [Plans should be made on a statewide basis; with] state-level recommendations
- Optimize diagnostics, [response] implementation, [steps to take for good] sanitation [practices and maintain regional] vigilance [/monitoring for new outbreaks]
 - Contractual agreements (Buyer/landowner/logger)
- [Differential] Message: East vs. West [consequences to TCD may be different depending upon where the problem is occurring]
- [Opportunities for] applied research:
 - [Should include] testing systemic pesticides [as part of a concerted IPM approach]
- IPM, Detection, [Better] Interactions with walnut trees in urban [environments]
 - [How can we work more effectively in the urban environment and with urban foresters?]

“What happens next?” (20:30 – 25:50 min) Phil Marshall, IN DNR