

Minutes of the FGC Pest Management Technical Advisory Committee
Monday, 11 December 2006: 2:00 – ~3:15 PM PST
Teleconference

<p>Present: Robb Bennett (Chair), BC MoFR Dave Kolotelo, BC MoFR Peter de Groot, CFS Sault Ste Marie David Reid, BC MoFR Ward Strong, BC MoFR Jim Corrigan, BC MoFR Roger Painter, BC MoFR Keith Thomas, BC MoFR Chris Walsh, BC MoFR</p> <p>Regrets: Staffan Lindgren, UNBC Dan Gaudet, Vernon Seed Orchard Company Jack Woods, SelectSeed Tim Crowder, Timberwest Forest Company</p>	<p>Coast pest management Nursery and seed pest management CFS pest management research Ministry orchards MoFR pest management research Interior pest management FGC (guest) Guest Guest University pest management research Interior industry orchards Forest Genetics Council Coast industry orchards</p>
---	--

ACTIONS:

Kolotelo	Organize <i>Fusarium</i> manuscript contract details
Kolotelo, Painter, Bennett	Letter RE: TSC seed testing funding
Bennett	Circulate project reports
Bennett	Transfer documents to new website
de Groot	Circulate ConeSys backgrounder
Corrigan	ConeSys – orchardists’ comments to de Groot
Strong	Develop <i>Synanthedon</i> proposal
Bennett	Pursue <i>Contarinia/Mayetiola</i> proposal with SFU lab
Corrigan	Circulate adelgid data to PM TAC
Strong	Pesticides trials – discuss germination tests needs with Kolotelo
Bennett et al.	Develop 2007/08 field guide work plan
Bennett	Pesticides trials – contact Arborjet & PMRA
Strong et al.	Continue 2007/08 project proposals development

<p>NEXT MEETINGS: Strong & Bennett Pesticides trials subcommittee PM TAC</p>	<p>23 January 2007 late January 2007 12 February 2007, 2:00 PM PST</p>
---	---

CALL TO ORDER at 2:00 PM followed by brief outline of the meeting agenda. Minutes and action items from previous meetings (31 Oct & 14 Nov) were then reviewed.

BUSINESS ARISING FROM 31 OCT MINUTES.

- **Organize *Fusarium* manuscript for FGC Extension Note (Bennett, Kolotelo).** Mike Peterson is willing to write the *Fusarium* manuscript. Kolotelo will organize contractual details (Bennett will administer the contract). Work to be completed in current fiscal year.
- **Prepare letter regarding Tree Seed Centre seed testing funding (Kolotelo, Painter, Bennett).** Carry forward. TSC has contributed \$2.5k towards fungal assay work in current fiscal year.
- **Improve organization of budget reporting structure (Bennett, Painter).** Bennett & Painter are working to organize co-ordination of project numbers in Tree Improvement and Research Branches (as well as other improvements to reporting process).

- **Circulate project annual reports (Bennett).** Carry forward. No progress to report.
- **Limited access website for document posting/storage (Douglas, Bennett).** Douglas has arranged set-up of website. Bennett will work on transfer of documents but this is a low priority for him currently. Carry forward.
- **Project extension notes (Bennett, Strong).** Ongoing. An article on mountain pine beetle situation in Vernon area will appear in next issue of *TicTalk*.
- ***Leptoglossus* pop'n studies (Strong, de Groot, Lindgren).** This work is covered off by current research as well as proposals for 2007/08 work.
- **Initial 2006/07 proposals development (Strong *et al.*).** Ongoing, see below.

BUSINESS ARISING FROM 14 NOV MINUTES.

- **Organize ConeSys workshop, transfer funds to FGO (Bennett *et al.*).** Workshop plans progressing, venue booked. De Groot to circulate ConeSys background note to PM TAC, Corrigan to circulate orchardists' perspectives notes to de Groot. [**Note added 9 Jan 2007** – by subsequent general consensus, workshop was cancelled in favour of smaller meeting of ConeSys proponents with smaller segment of BC seed production community.]
- **Circulate *Synanthedon* extension note (de Groot).** Done.
- **Develop *Synanthedon* proposal (Strong).** No recent progress. Carry forward.
- **Pursue *Contarinia/Mayetiola* proposal with SFU lab (Bennett).** No recent progress. Carry forward.
- **Develop *Dioryctria* proposal (Strong).** Ongoing, see below.
- **Develop *Leptoglossus* M/R/R proposal (Strong *et al.*).** Ongoing, see below.
- **Develop adelgids proposal with UBC lab (Strong).** Ongoing, see below.
- **Circulate Kalamalka adelgids data to PM TAC (Corrigan).** In progress, carry forward.
- **Discuss adelgids work with Kolotelo (Strong).** Some confusion existed over separation of adelgid projects. "General" adelgid research project is being handled by Strong and UBC lab. Seed extraction issues resulting from larch adelgid infestations will be addressed as an operational seed extraction project (to be organized by Kolotelo, Walsh, Bennett, Corrigan, etc) the next time this issue arises (was not a problem in 2006 crop).
- **Develop *Leptoglossus* host finding proposal with SFU lab (Strong).** Ongoing, see below (acoustics research is completed as far as PM TAC project is concerned, infra-red work will continue with PM TAC support).
- **Discuss *Leptoglossus* antibody work with Kolotelo (Strong).** Antibodies technique only works for very freshly attacked seeds as enzyme degradation of antibodies occurs very rapidly after attack. Exclusion bags and subsequent seed set data provide a good alternative estimate of damage inflicted through *Leptoglossus* feeding activities.
- **Develop pesticides proposal (Sub-Committee).** Ongoing, see below.
- **Fast-track 2006 pesticides trials seed extractions (Strong).** Done. Strong will send data on ## of germination tests required to Kolotelo.
- **Develop 2007/08 field guide work plan (Bennett).** On going, carry forward.

2007/08 PROJECTS DEVELOPMENT (See attached update document prepared by Strong. Additional comments follow immediately below.)

- **Pesticides trials.** Bennett will contact Arborjet for access to equipment (injection devices) and materials emamectin benzoate and imidacloprid injectable formulations) and discuss permitting and registration issues with Yvonne Herbison (PMRA). Trials subcommittee should meet in late Jan 2007 to discuss progress.
- ***Leptoglossus* – mark/release/recapture.** Main contractor is primarily interested in theoretical aspects. Maintaining strong co-supervisory contact with contractor's graduate student will be important in order to achieve practical goals.
- ***Dioryctria*.** Project goals with respect to life history and pheromone management are unclear and need further refinement. Pheromone problems (synthesis of 25C component) could possibly be resolved with Gries or Oeschlager labs.

ADJOURN. Teleconference session was adjourned at approximately 3:15 PM PST.

Minutes compiled by R. Bennett, 10 January 2007.

ATTACHMENT

Projects Development-- PM TAC Dec 11 2006 (prepared by Ward Strong)

Below is a list of projects which have been modified or required further justification since the Nov 14 meeting. (I.e. various projects under development are not reported on here as there have been no significant new developments with them since Nov 14 [Bennett comment].)

- **Pesticide trials.**

We will carry on with seed extractions for the 2006 trials. This is now nearly complete. 2007 trials will not be conducted on commercial orchards, but preferably at Kal Research Center and Cowichan Lake Rsch Ctr. We will test emamectin benzoate (injectable), imidacloprid (injectable and foliar spray), dimethoate (foliar spray) and water control (injectable and foliar spray). Robb and Jim will organize trials with technical/scientific help from Ward.

- ***Leptoglossus* host-finding.**

This will no longer be explicitly supported. The Gries lab might choose to piggy-back it onto other projects. [This refers to acoustic component of project only, development of infra-red proposal continues. Bennett comment.]

- ***Leptoglossus* Mark-Release-Recapture.**

The goals of MRR are:

i) Determine within- and between-orchard movement. Over the years we have scratched our heads many times about this information, which is critical to efficient management efforts. As leptos invade orchards in the spring, a distinct edge effect develops. Did these individuals originate from the previous year's population in the same orchard? If they come from other populations, there is no reason to spray late-season populations in that orchard. As time goes on the edge effect declines. Do all individuals stop at the edge of the orchard and then diffuse in, or do initial invaders stop at the edge, and subsequent invaders skip the edge and move further into the orchard? If the former, an edge spray of a residual pesticide might prevent invasion of the whole orchard. If a spray is applied to only a portion of one orchard, or to an entire orchard which is next to unsprayed orchards, will individuals from unsprayed areas re-invade the subject orchard, or do re-invaders originate elsewhere? If from adjacent orchards, perhaps the threshold on adjacent orchards should be reduced. How quickly do they move, and from what distance should we be concerned? What motivates movement-- i.e. perhaps at low densities or high food supplies, they move around very little, while at higher densities or reduced food they move around more. Thus an orchard adjacent to orchards with low cone densities might be more at risk of invasion or re-invasion. We have asked ourselves these questions many times over the years and have always shrugged, but we now have a tool to come up with useable answers.

i) Estimate absolute population density within orchards. Up to now we have been unable to devise an economic threshold because of a lack of information on seed loss caused by monitored densities of leptoglossus. We have good information on the feeding requirements of individuals. We also have a consistent and functional (if not very efficient) visual monitoring system. But it has been difficult determining the instantaneous seed loss caused by monitored densities of leptos, because our only measure has been season-long yield loss from exclusion bags. Lepto densities, sex ratio, and age structure fluctuate dramatically throughout the season, making a concrete density/damage relationship nearly impossible to determine. If we can relate monitored densities to absolute population estimates, we can determine an instantaneous rate of seed loss and thus devise economic thresholds.

- **Adelgid species/life history/management.**

Dave Kolotelo correctly emphasized that aspects other than species composition need to be addressed. The problem was an inadequate title rather than an inadequate project. As of our discussion with John McLean and Babita Bains on Oct 14, four priority areas were determined (life history, species

composition, inter- and intra-orchard dispersal, and density/damage relationship). The most immediate impact on management will be a density/damage relationship so that was identified as the top priority. Life history and dispersal are secondary priorities, followed by species composition.

- **Dioryctria**

i) Life history and pheromone management. While in Montreal last month I talked to Maya Evenden at UA about the dioryctria project. She is familiar with our project (through Felix Sperling and Amanda Roe), is very interested in cooperating with a graduate student, has an abundance of expertise in life history, pheromones, and management of forest lepidoptera. We have a tentative agreement to put a Master's student on this project. She has been identified and will finish her bachelor's this April. I also talked to Richard Trudel who has extensive experience with rearing and life history of dioryctria. He is happy cooperating in this project. Also, it seems that there are differences in our western population of *D. abietivorella* and the Eastern population which we would like to explore.

ii) The pheromone for *D. abietivorella* consists of two components, a volatile 14-carbon acetate which is cheap to produce, and a 25-carbon pentaene of low volatility, which is expensive. In moth abdominal extracts, the 25C compound is found at low titres compared to the 14C compound. In our synthetic blend, there must be more of the 25C compound by a factor of 10. How does the moth adequately volatilize a small amount of the 25C compound? If we could mimic this, we would be able to use much less of the expensive 25C compound in our synthetic blend, thus dramatically reducing its cost. The expense at present is a major impediment to finding a commercial supplier, and to future opportunities for mating disruption which uses large quantities of pheromone.