



Minutes of the 31<sup>st</sup> annual meeting of the

## **WESTERN COMMITTEE ON PLANT DISEASE**

16 November, 2006

Inn at the Forks Hotel, 75 Forks Market Road  
Winnipeg, MB

In Attendance:

Name

Organization

*Chair:*

Khalid Rashid\* Agriculture and Agri-Food Canada

*Secretary-Treasurer:*

Robert Spencer Alberta Agriculture, Food & Rural Development

Grant Holzgang	Saskatchewan Agriculture & Food
Rob Spencer	AAFRD
Khalid Rashid	AAFC
Ron Howard	AAFRD
Sandi Scott	Alberta Research Council
Habib Quayyum	Pest Management Regulatory Agency
David Kaminski	Manitoba Agriculture, Food and Rural Initiatives
Mardi Desjardins	MAFRI
Debbie McLaren	AAFC
Barb Gradin	PMRA
Philip Northover	MAFRI
Peter Sholberg	AAFC
Bruce Gossen	AAFC
Lyle DePauw	Saskatchewan Wheat Pool
Coreen Franke	Saskatchewan Wheat Pool
Todd Friday	
Robert Homford	
Rod McLeod	Chemtura
Sheau-Fang Hwang	AAFRD
Scott Henry	Bayer Crop Science
Kurt Anaka	Syngenta Crop Protection
Gerald Martens	BASF Canada
Brian Rex	CFIA
Kanwal Kochhar	CFIA
Sherry Bishop	CFIA
Winnie McNabb	Pioneer Hi-Bred



<u>Name</u>	<u>Organization</u>
Derwyn Hammond	Canola Council of Canada
Taras Happychuk	CFIA
Mike Gillis	ICMS Inc.
Bill McPhee	BC Tree Fruit Co.
Gayle Jespersen	British Columbia Ministry of Food and Lands
Richard Smith	
Sima Mpofo	Olds College
Andy Tekauz	AAFC
John Heard	MAFRI
Mike Gremier	
Terry Gregoire	North Dakota State University Extension
Mike Hatton	
Gary Turnbull	
Fouad Daayf	
Scott MacDonald	BASF Canada
Gary Platford	
Tom Fetch	AAFC
Randy Clear	
Brent McCallum	AAFC

### **1.0 WELCOME & INTRODUCTIONS KHALID RASHID, CHAIR**

Come to order 8:10 AM. Chair Khalid Rashid outlined housekeeping items (CCA Credit signup, acknowledged sponsors) and made brief welcoming remarks. Brief introductions of participants were made around the room.

### **2.0 ADOPTION OF THE AGENDA**

Move adoption of the agenda as presented. (Tekauz/Gossen – Carried)

### **3.0 MINUTES OF THE 30<sup>TH</sup> ANNUAL MEETING IN 2005, CANMORE, AB ROBERT SPENCER, SECRETARY**

Minutes of the 2005 meeting were available on the website and when the option to forego review of the minutes was presented, those in attendance accepted. 2 changes had been sent in prior to the meeting from D. Kaminski.

Move acceptance of the 2005 minutes as presented. (Kaminski/Northover – Carried)

### **4.0 BUSINESS ARISING FROM THE MINUTES**

#### **4.1. TREASURERS REPORT, ROBERT SPENCER**

The WCPD bank account remains at the CIBC in Morden, MB. The account goes dormant on a regular basis, due to the lack of transactions. Some activity is required to maintain an open account. Steps have been taken to ensure this occurs, through a regular withdrawal and re-deposit from a distance.

Expenses for the past year were \$0.00, as there were no charges incurred.



Total Expenses 2005 .....	\$0.00
Balance forward 26 April, 2006 .....	\$3357.17
Deposit amount (from CIBC) .....	\$0.01
Balance 16 October, 2006 .....	<b>\$3357.18</b>

In response to a motion put forward at the 2005 WCPD meeting, the options for increasing the money contained in the account were investigated. Following the 2006 meeting (due to the necessity of signing forms) \$2000.00 will be placed in a FlexiGIC account with the CIBC. This account yields approximately 3% annually. This account type allows for withdrawal from the account (minimum amount is \$1000) as long as a minimum of \$1000 is maintained in the account.

The balance of money in the account will be used for expenses incurred from bringing in a speaker for the 2006 meeting.

K. Rashid made comment that the Slide Set account exists separately to this account and might be combined in future.  
(Spencer/McNabb – Carried)

**Post-Meeting note:** WFPM covered honorarium for speaker (T. Gregoire). FlexiGIC signed at 3.6% with \$2000 placed in account.

#### *4.2. DISPOSITION OF 2005 RESOLUTIONS*

Only resolution was to thank the Local Arrangements Committee for a successful event.

#### *4.3. CORRESPONDENCE*

Most correspondence comes by email. Nothing specific was received this year.

### **5.0 APPOINTMENTS**

#### *5.1. NOMINATIONS COMMITTEE*

The nominations committee was comprised of K. Rashid, P. Northover, C. Franke  
(Mpofu/Jespersion – Carried)

#### *5.2. RESOLUTIONS COMMITTEE*

The nominations committee was comprised of R. Spencer, D. Kaminski, P. Sholberg  
(Mpofu/Jespersion – Carried)

### **6.0 REPORT FROM EDITORS**

#### *6.1. GUIDELINES EDITORS REPORT, MARDI DESJARDINS – PRESENTED BY MARDI DESJARDINS*

Once again a big THANK YOU! to the Chapter Chairs for their time and effort in preparing the Guidelines and also for their patience with the many questions that come their way from the editors. For the last edition of the Guidelines there were two Chapters (Cereals and Shade Trees) that were not updated and were posted to our website with a note indicating that they were represented by the last revised edition for that Chapter. At this point in time we are not anticipating any problems with revisions for this year. Co-



editor Tracy Shinners-Carnelley has been away on leave but will be back at her desk early in the new year and available to once again participate as co-editor of the Guidelines.

Chapters in a word processor format suitable for review and revision are available to the Chapter Chairs on the Western Committee website. No changes to format were made for last year's revision and none are planned for this year. The Chapter number for some chapters has changed due to the removal of the Mushroom chapter from the guidelines and chapter numbers for references between chapters have been changed accordingly. The completed Guidelines are available in an Acrobat format file for general viewing on the Western Forum website and the previous version remains available until the new edition is completed and posted.

A reminder for those updating material in the Guidelines, when revising chemical control recommendations, please do not include rate information since the Committee wishes to keep rates out of the document due to liability issues. This is especially important now that the document is posted on the internet and has a wider audience than previous methods of distribution.

For this year, the deadline for getting the revised Chapters to your editor is set as November 17<sup>th</sup>. If Chairs anticipate that they may need additional time, please indicate the anticipated completion date so that work flow can be planned. The completed revisions can be returned in either hard copy or electronic format. (Desjardins/Kaminski – Carried)

## *6.2. SLIDE EDITORS REPORT, PHILIP NORTHOVER/RHONDA KURTZ – PRESENTED BY PHILIP NORTHOVER*

In 2006, no new slide sets were sold. The chequing account is with TD Canada Trust in Edmonton, but access is via the branch in Winnipeg, MB. Mardi Desjardins and Philip Northover have signing authority. The current bank balance (as of October 13th, 2006) is \$2998.26

Estimated cost of scanning: \$400.00 (0.43 cents/slide for 850 slides)  
Estimated cost of meta-tagging, database formatting: \$600.00

After a motion at the 2005 WCPD meeting, it was determined that the slide editors be given authority to look into the cost of digitizing all or some of the slides and then proceed at their discretion.

There was also the suggestion of closing this account and looking at a GIC, this will be done once payment of the slide scanning vendor (KW Data Solutions) has been processed. We have not been invoiced yet.

The digital images are arranged on CD's comparable to the slide set collection (though the Greenhouse collections were placed on a single CD)

### Key Differences between WCPD and APS Digital Image collections:

1. Search Function in APS is much more sophisticated, WCPD set is somewhat similar in principle.
2. Images in APS digital Image collections are actually of relatively low resolution (this is deliberate to prevent copyright violations) (a thumb nail and larger image). WCPD images consist of a thumbnail, larger image, and high resolution image which is of considerably higher resolution ready for printing
3. WCPD is now bilingual (English and French), APS is working towards (English and Spanish for all their image sets)

### Western Committee on Plant Disease Digital Image Collection

The WCPD slide set collection was replaced with digitized images on CD-ROM in 2006. Each of the slides from the original slide collection has been scanned at 300dpi, allowing each image to be printed at photo



quality to a size of up to 20x30 inches with no distortion/pixilated appearance. The images have also been enhanced through the scanning process to eliminate the discolouration associated with the age of some of the slides, and remove scratches and dust particles.

The CD-ROM collections are as follows:

CD-ROM	Number of Images	Slide Set Price	Digital Image Price
Cereals	103	\$190	?
Forage Legumes	59	\$109	?
Fruit (Tree)	70	\$130	?
Fruit (small fruit)	57	\$104	?
Grasses	61	\$113	?
Greenhouse Ornamental, Vegetable, and Greenhouse Disease Management	150	\$120+\$130+\$28 =\$278	?
Oilseeds	85	\$157	?
Ornamentals	59	\$109	?
Potatoes	60	\$111	?
Shade Tree & Shelterbelts	48	\$89	?
Special Field Crops	105	\$195	?
Vegetables	143	\$265	?

Work on slides conducted during digitization process:

All of the images in the slide sets are included in the digital image collection. Slides were scanned by KW Data Solutions a company specializing in image data base development, based out of Winnipeg.

Due to the condition of some slides, a number were remounted, in order to fit into the slide scanner. Most scratches present on the slides, were removed, from the digital images. Most images are approximately 5306 x 3536 pixels in size, which would allow pictures of photo quality (20x30 inches) to be produced on photographic paper. (See examples passed around)

Due to colour changes over time associated with some slide films, the colour was adjusted, to account for these changes.

When possible a number of slides were cropped to remove excess empty space on the slide.

As some slides sets are quite large (Vegetables, Fruit, and Greenhouse) a means of searching for images was added into all of the collections. All images on all CD-ROM's are "meta-tagged", gives each picture an identity that can be used in retrieval of the image.

Information contained in data base program:

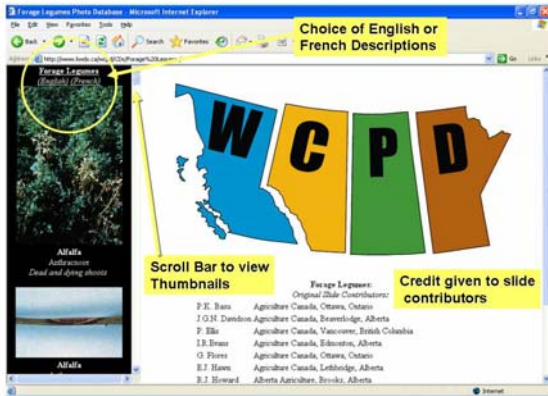
1. English Host Plant Name (except potato set)
2. French Host Plant Name (except potato set)
3. Latin Name of Host (Genera and Specific epithet)
4. Disease Name in English (From WCPD Guidelines)
5. Disease Name in French (Based on Ginns 1980 and the Quebec Society for the Protection of Plants 4<sup>th</sup> Edition 2003)
6. Scientific name of fungal teleomorph (if applicable) Bacterium name. English name of virus. General Physiological problem name in English (eg. Nutrient Deficiency)
7. Scientific name of fungal anamorph. French name of virus. General Physiological problem name in French
8. Scientific name of fungal synanamorph (if applicable). Virus abbreviation. Specific Physiological problem name in English (eg. Copper deficiency)



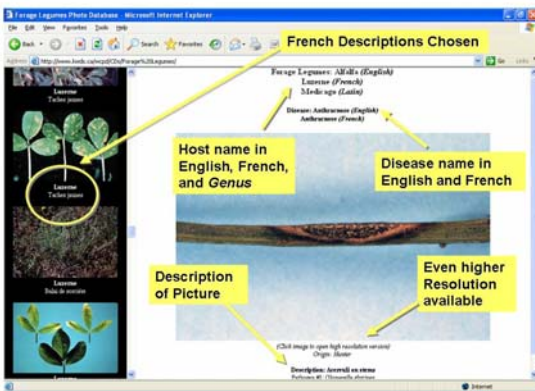
9. Specific Physiological problem name in French.
10. Description of slide provided (eg. leaf, seed, etc.)
11. Person/persons or organization who provided the slide for digital Image

Quick Info on how the Digital Image Collections work:

The program requires that the user have Internet Explorer already installed on their computer. The first screen observed upon opening the CD-ROM will look something like this (depending on the digital image collection).



Thumbnails contain the images arranged in alphabetical order based on English Host Name. Clicking on an image, brings up a larger image with information on the picture. Option to get a higher resolution image is offered.



Issues/Questions arising from Digitization of Slides:

1. Pricing—Currently APS charges \$US59.00-\$79.00 for its Digital Image collections. Based on Slide Set pricing all of the WCPD Digital Image collections would exceed these prices considerably. Sell at cost or for profit?
  - 1a. Inventories—Do we keep a number in storage until they sellout, or do we have them copied as an order comes in—done professionally or by slide editor (there are difference in CD quality). Cost/CD will vary by method. KW Data Solutions-pricing estimate below (but other companies as well can perform this function:

For professionally printed CD's on archival grade discs including jewel cases and printed sleeves: The normal minimum order is 25 copies per CD-ROM. We also have a much smaller printer capable of as few as 1. For either quantity of printing I would estimate a cost of \$ 4.85 per disc this includes jewel case and sleeves (full colour). However the discs and sleeves for shorter runs are not exactly the same both will be photo quality however the short run CD's are less glossy in appearance.



2. Image Collections Updates? Previous slide set editors attempted to keep slide sets at or below 100 to prevent the sets from becoming too large. This is no longer an issue. No slide collection has an image of every disease mentioned in the respective chapters (see back pages for a list of diseases lacking images). A single DVD can hold the entire collection (all 850 slides) though no searching is possible.

Is goal to get a photograph of every disease mentioned in the guidelines? Currently there are a large number of diseases that are not in the slide sets.

Future updates are not that difficult, further html code needed, for new images. Potential exists to have all images on line and restricted to subscriber access only, new images could be made available through webpage.

- 2a. Standards for future submissions -What should the resolution requirements for digital images submitted for inclusion be? Most high resolution images in the collection are equivalent to a 10megapixel digital photograph i.e. .jpg images for web use are not always suitable for printed publications, but fine for most internet and PowerPoint presentations. Of course, slides can still be scanned in at any resolution.

3. Future of Slide Sets? Does WCPD continue to sell the slide sets? Or is the digital format the only format WCPD will be supporting / selling?

Replacement Slide Set Editor Needed:

On September 29<sup>th</sup>, 2006, Rhonda Kurtz retired from MAFRI, and relinquished her duties as Slide Set/Digital Image Editor. A replacement for Rhonda will be needed.

Some discussion occurred regarding the price of the sets, including production costs, recuperation of digitization costs, Intellectual Property concerns, listing of original contributors, disclaimers for copyright use, etc. A decision on a replacement editor and the price of the slide sets was deferred to the Nominations and Resolutions committees. (Franke/Tekauz – Carried)

**6.3. WEB SITE EDITORS REPORT, RALPH LANGE – PRESENTED BY KHALID RASHID**

The Western Forum on Pest Management (WFPM) web site is located at [www.westernforum.org](http://www.westernforum.org). The site currently has content from the Western Committee on Crop Pests (WCCP) and Western Committee on Plant Disease (WCPD); the sites for each of these committees are sub-pages linking from the WFPM home page. The former WCPD website (<http://www.arc.ab.ca/extranet/wcpd/wcpd.htm>) has been removed. A page for the Western Committee on Livestock Pests has also been created, but is not currently visible to users, since no content has been submitted, nor is any expected.

The WFPM site continues to be hosted by Geo-Hosting <http://www.geohost.ca/>. The WFPM has a one-year “Bronze” contract, and is entitled to 100 MB web space and 100 GB web traffic per month. Currently WF is using 54.5 MB of web space, an increase of 22.27 MB from last year. Much of this space is being used for archived guideline files: these could be easily removed and archived elsewhere if space becomes limited. Average web traffic for the past month was 210.9 MB, up from 8.9 MB for the same period last year. The busiest month to date was September 2006 (580 requests for pages). The bronze account also entitles WFPM to 50 e-mail addresses. These could be used redirect messages to WFPM officers, chapter editors, etc.; none are currently in use. The domain westernforum.org was registered through Geo-Hosting on 06 May, 2004 and is renewable on an annual basis. The site was created and is maintained using Microsoft FrontPage 2000.



Annual costs (Canadian dollars) to WFPM for the website are \$10 for domain registration, \$75 for hosting, \$5.95 for GST, totalling \$90.95. Costs were paid on-line by the R. Lange, and then submitted to the WFPM treasurer. The next hosting and domain bills are due May 6, 2007.

I have been adding WCCP content as requested and WFPM material when submitted by WFPM executive or guideline editors. Items can be submitted as MS-Word text, or as .PDF files. Whenever possible, please create PDF files from MS-Word files, as PDFs from WordPerfect documents repeatedly cause uploading problems.

The site has been accessed by computers from 146 different organizations, not counting computers with irresolvable numerical addresses. The biggest identifiable user domain is gov.ab.ca, followed mts.ca, but other users include Cornell University and ivanhocambridge.com (a company that runs shopping centres!). 88.8% of requests come from irresolvable addresses, or .net, .com or .ca domains. The remainder come from USA Educational computers (1.5%) or from 32 foreign countries (9.9%, 28 non-English speaking). For the period 12 September 2006 to 12 October 2006, 1752 requests were made for WCPD documents, 364 for WCCP documents, and 913 for WFPM or general files such as logos (Table 1).

### Hosting Pest Management Research Reports

From a technical standpoint, PMRR could easily be hosted on the WFPM website. If necessary, additional storage and traffic space could easily be purchased. For example, annual fees for the “top of the line” package with our current hosting company (1000 MB of web space, 1000 MB of traffic per year) would be \$300 plus domain charges. Simple posting of document files is straightforward, however certain features such as searching may be beyond my technical expertise. In addition, the 6 – 8 weeks required for preparing the reports for posting, plus time for conversion to PDF and HTML are beyond what I can reasonably allocate to WFPM. I would be willing to work with a “PMRR” editor or editors, should such a position be created.

**Table 1. Requests for specific pages on the WFPM web site, September 12 – October 12, 2006.**

<b>Number of requests</b>	<b>Page description</b>
570	Provincial outline maps from home page logo
214	WCPD interiorscape
179	WCPD greenhouse
137	WCPD small fruit
133	Acrobat Reader download
125	Folder with WCCP guidelines and minutes
117	WCPD ornamentals
116	WCPD 2004 - 2005 tree and small fruits
112	WCPD potatoes
99	2005 WCPD minutes
93	WCPD main page
91	WFPM meetings
78	2005 WCCP minutes
75	WCPD 2004 - 2005 special crops
71	WCPD special crops
62	Main WCPD guidelines page
60	2004 WCCP minutes
53	Purple ball bullet
53	WCPD 2005 minutes
52	WCPD guidelines Appendix B
37	WCCP main page
36	WCPD 2004 - 2005 cereals



- 36 WCPD 2004 - 2005 interiorscape
- 35 2004 WCCP minutes
- 35 WCPD committee members
- 30 WCPD grasses
- 29 WCPD Meetings
- 29 WCCP guidelines
- 28 WCPD mushrooms
- 27 WCPD 2003 - 2004 shade and shelterbelt trees
- 24 Editable WCPD guideline files
- 23 Past WFPM meetings
- 23 WCPD guidelines Introduction
- 22 1998 Western Forum agenda
- 22 1999 WCPD minutes
- 21 2005-2006 CFIA Pest Management Network presentation
- 21 WCPD forage legumes
- 21 WCPD oilseeds
- 20 WCPD Links page
- 20 WCPD operational guidelines

Some very brief discussion of the Pest Management Research Reports, with more work for the site?

(Rashid/Howard – Carried)

## **7.0 STATUS OF CPS PUBLICATIONS AND MEETINGS**

### *7.1. DISEASES & PESTS OF VEGETABLE CROPS IN CANADA (R. HOWARD)*

Somewhat of a follow up on discussion at 2005 meeting. Recapped sales history and how the book came about. The Canadian Phytopathological Society (CPS) appointed a review committee comprised of Ron Howard, Bruce Gossen, and Mary Ruth McDonald. Entomological Society of Canada (ESC) is not willing to be involved in a monetary way in this project, however members will help update the material. CPS sent a letter to ESC to discuss the arrangement. Approval is required from the ESC general meeting.

A single large volume format versus individual smaller volumes was presented. The format using smaller sections of the larger version will be done. This will allow the revisions to be completed more quickly. There will be about 6 or 7 volumes. The focus is for commercial producers and home gardeners. It will be written in plain language, with contributors acknowledged.

The volumes will be: Diseases and Pests of Root and Bulb Vegetables; Greenhouse Vegetables; Culinary and Medicinal Herbs; Leafy Vegetables; Cruciferous Vegetables; Vine Crops; Tomatoes/Peppers/Eggplants (maybe also potatoes). The work will start on Root and Bulb Vegetables, Greenhouse Vegetables and Culinary and Medicinal Herbs. Detailed Table of Contents are done, and recruiting of contributors and editors is underway. The original pictures and text will be scanned to use as a baseline. Revision work has begun. The plan is to proceed to the other volumes as finish the first ones.

Question arose as to Eng/French. It will be done in English first, however the French will not be far behind. The timeframe for the project is a couple of years. Bruce Gossen is preparing a business plan for these books, looking at costs and revenues. A. Tekauz



made comment that the French version is no longer available, but the digitized version is available. Bruce Gossen indicated that new pictures are needed..

### *7.2. DISEASES OF FIELD CROPS IN CANADA (B. GOSSEN)*

Over 100 individuals contributed to this book. 8000 copies were initially printed, with 6000 sold to date. A reprint is required, however the cost is astounding. There are some small errors, but they are not considered significant, so revisions would be made. It is expected that a reprint will occur in 2008. The French version has about 1200-1500 copies sold of the original 3000 printed.

### *7.3. ANNUAL MEETING OF THE CANADIAN PHYTOPATHOLOGICAL SOCIETY (B. GOSSEN)*

The 2006 CPS meeting was a joint CPS and American Phytopathological Society, held in Montreal. It was a great meeting with many people and is considered a great success. The APS had a bit of a panic and proceeded to buy back rooms, but the rooms ended up being full anyways. The finances for this meeting are not final yet, but it is expected that the CPS had a good profit. Good times were had by all.

The next meeting will be held in conjunction with the Plant Canada 2007 meeting. This will be held June 10-14, 2007 in Saskatoon, SK at the former Centennial Auditorium. Over 600 people are expected. Karen Bailey is in charge.

### *7.4. CANADIAN PLANT DISEASE SURVEY (B. GOSSEN)*

Notices were sent out for this year's survey. Submissions are expected by mid to late November. Robin Morrall has been able to reduce costs for this from CPS, due to less hard copy usage and by being very particular about requirements for manuscripts, reducing editing time. CPS is considering a small cost for publishing (looking a year or 2 from now). Contact Robin Morrall to participate. Deadline for drafts is November 20, 2006. Expect the drafts back from review November 27, 2006. Authors' corrections are due back December 11, 2006 and the final document will be out by January 2, 2007.

## **8.0 REPORTS FROM THE PESTICIDE INDUSTRY**

### *8.1. BAYER CROPS SCIENCE (SCOTT HENRY)*

Scott presented information on Proline, a currently unregistered product. It is expected to be available soon. Proline is a triazolinthione, with the active ingredient prothioconazole. It is systemic, rain stable and has physiological effects similar to strobilurins. It has a wide disease spectrum, with activity on Ascomycetes, Basidiomycetes and Deuteromycetes. It has been registered in cereals, canola, pulses, peanuts, rice, turf and vegetables (elsewhere). It is expected to be registered in Canada for 2007.

In Canada, it will be registered on canola for *Sclerotinia*, *Leptosphaeria*, *Alternaria*, *Botrytis*. Should be better than Rovral Flo. Applied at 20-50% bloom. It will also be registered on cereals for major head and leaf diseases, with activity against FHB (suppression) in wheat and barley. Better than industry standard for decreased



mycotoxins. Better for leaf diseases in barley than industry standards, but might not be as good for rusts. Also registered in pulses for *Ascochyta*, *Sclerotinia* and *Botrytis*. It is considered another option for these crops.

Sunflower is not on the label as of yet, but the USA is putting it on. A minor use will be needed. Dry beans were tested for *Sclerotinia*, etc., but more research is needed.

### 8.2. BASF CANADA (SCOTT MACDONALD)

Scott discussed a number of the new products that are available from BASF, or products that are being developed or use expansion pursued.

- Acrobat (dimethomorph)
- Apogee – released April 2006 for vegetative growth control of Apples and suppression of fire blight
- FreshSeal –water-based coating applied post-harvest for greenhouse vegetables for maintenance of firmness and reduction of shrivelling.
- Headline – new uses for corn (field/sweet), soybeans, alfalfa for seed production, rest of crop group 6
- Lance – new uses for alfalfa for seed production
- Pristine – registered in July 2006; 2:1 ratio of boscalid:pyraclostrobin; Berry group, Bulb group, carrot, strawberry, stone fruit group; other crops on priority list

## 10:15 - 10:50 Coffee Break

### 9.0 REPORTS FROM GOVERNMENT AGENCIES

#### 9.1. PEST MANAGEMENT REGULATORY AGENCY (DR. HABIB QUAYYUM)

Report on emergency, new, temporary and minor use registrations in 2005-2006, as well as a couple of biopesticides. Reported that 17 URMULEs were granted this year, 14 Emergency uses, 1 proposed full registration, 1 regulatory note, 3 new registrations.

#### 9.2. CANADIAN FOOD INSPECTION AGENCY (BRIAN REX)

Presented a review of the various quarantine pests that have been discovered over the past 5 years, with information as to the monitoring and containment of those pests. These included:

- Sudden Oak Death (*Phytophthora ramorum*) Sudden Oak Death (*Phytophthora ramorum*) – First found in 2003; in 2004 10 homeowner sites identified and eradicated; in 2005 survey detected positives; National Survey Protocol re-drafted; Surveys conducted in 2006 in sites in BC, ON, QC and Atlantic provinces; Some positive samples from sites positive in past years.
- Chrysanthemum White Rust (*Puccinia horiana*) – found in 2005; re-survey of all positive locations negative; positive sample in October 2006 in floral shop with trace back to production facility.
- Plum Pox Virus (PPV) – regulated areas in Ontario and Nova Scotia, surveys in both areas with positives detected; no surveys in BC or QC because negative last



3 years; Strain D in Canadian survey, new strain (PPV-W) detected in 2 trees in one isolated site.

- Blueberry Scorch Virus (BIScV) – 2 strains, USDA feels BC strain more aggressive than Eastern U.S. strain; 2005 survey conducted to determine if more aggressive strain present or Pest-Free status; One positive in QC in 2005; 2006 surveys in ON, QC, NS
- Potato Cyst Nematodes (GOLDEN NEMATODE, *GLOBODERA ROSTOCHIENSIS*; PALE CYST NEMATODE, *GLOBODERA PALLIDA*) – Golden Nematode detected in Newfoundland in 1962 and Vancouver Island in 1965; Pale Cyst Nematode reported in Idaho in April 2006; Golden Nematode detected in Quebec in August 2006; extensive surveying to delimit infested area;
- Stem and Bulb Nematodes (*Ditylenchus dipsaci*) – regulated pest for India; must be tested to certify free of pest; several detentions in field peas in AB and Southeastern SK during testing of all export consignments in 2004-2005; 7 positive samples since 2004; no positives since November 2005; sampling representative of exports
- Asian Soybean Rust (*Phakopsora pachyrhizi*) – major concern to US; not anticipated concern for Canada;
- Soybean Cyst Nematode (*Heterodera glycines*) – regulated pest – soybeans, potatoes, root crops, soil; found in Southern Illinois; Last Canadian survey = 2002; 2006 survey of ON, QC, MB
- Grapevine Phytoplasmas (Flavescence Dore; Bois Noir) – surveys of vineyards planted with off-continent vines (France/Germany) in last 3-4 years; survey for visual symptoms; surveys planned for BC, ON, QC, NS
- Wheat Stem Cereal Rust (*Puccinia graminis f.sp. tritici*, UG99 strain) – first detected in Uganda, then spread to Kenya and Ethiopia; on radar screen for North America, as majority of varieties are not resistant; to be discussed by Grains Panel at NAPPO

### 9.3. OTHER PRESENTATIONS – GARY KRISJANSSON AND TIM MACDONALD

Due to the nature of their topics (New containment standards / Pesticide Risk Reduction Program), of concern/interest to both pathologists and entomologists, these presentations were scheduled for the WFPM meeting to be held the next day.

## 10.0 DISEASE SITUATION REPORTS AND GUIDELINE UPDATES

### 10.1. CEREALS (ANDY TEKAUZ)

#### MANITOBA

##### Environmental Conditions

Conditions early in the growing season generally were generally ideal for seeding and most cereal crops emerged optimally whether planted in early or mid-May. Soil and/or atmospheric moisture were adequate for normal growth until late June/early July, but subsequently, hot and very dry conditions in most regions (except in west-central MB) resulted in plant stress, and tillering and head size in some cereal crops was adversely



affected. For some regions, this was the driest period for the past 100 years, with little or no rain received from seeding to maturity. As such, crop maturity was advanced by about 2-weeks, and harvesting operations were completed much earlier than normal. The growing conditions resulted in clean grain, and (somewhat surprisingly) yields were ah near normal or normal levels, except for later-seeded crops that could not benefit from early season soil moisture or rainfall. An unusual situation in 2006 was that barley from Manitoba could be and was selected for malt because of low disease pressure, particularly from FHB.

## **SASKATCHEWAN**

### Environmental Conditions

Spring moisture conditions were adequate across the province except for areas in north-eastern and east-central regions where surplus moisture prevented or delayed early seeding. Emergence was generally rapid and uniform and translated into few establishment or seedling blight problems, except for the regions above, where root rots and crop yellowing were evident. By early June over 75% of crops were rated as being in good to excellent condition, with development of spring crops rated as normal or slightly behind normal, and that for fall/winter cereal development as normal to slightly ahead. Despite some localized flooding, by late June both spring and winter cereals were rated as 80% good or excellent and having normal development. Hot and drying conditions began in early July, improving crop development further. By mid-July, some leaf disease development had been reported in south-east and east-central regions and fungicides were being applied despite the drier conditions. Estimated for excellent yields began to be decreased by the end of July, as a result of continued hot, dry conditions which resulted in most regions having 'short' or 'very short' topsoil moisture. At this time and into mid-August crop damage besides by drought, was also being caused by insects (wheat stem sawfly, wheat midge, grasshoppers), localized hail, wind, and gophers. Harvesting was in progress by mid-August and by early September, 62% of crops had been combined, well ahead of the 5-year average of 32%. Rain in mid-September hampered further harvesting, but as barley had been 90% harvested, 43% was expected to grade 'malt', 46% CW1 and the remainder CW2, quality levels higher than the 10-year average (30% malt). Continued rain into late September led to bleaching and sprouting concerns for those crops left to be harvested. Overall, yields are and quality are expected to be higher than normal.

### **ALBERTA (Central Region Only)**

Note that no survey data is, or has been forthcoming from southern Alberta or the Peace River Region of Alberta for many years.

### Environmental Conditions

Growing conditions in Central Alberta generally were good in 2006. A warm, dry May was followed by a warm, damp June and a warm dry first half of July, with high rainfall in the last half of the month. This led to good seeding conditions, favourable crop and disease development, and forecasted good yields. Crop maturity was 10 to 14 days earlier than average, and the dry spell in July hurt yields somewhat.



## Disease Highlights

### • CEREALS:

**WHEAT** – Leaf rust levels in MB averaged 10.2%, with levels highest in western MB to the SK border. SK averaged 5.3% infection, however there were heavily infected fields on the eastern border of SK. Early season incidence was the result of good conditions for pathogen overwintering. Leaf rust that overwintered on winter wheat in SK was the first report of this occurring in SK.

Stripe rust developed earlier and more severely in southeastern and central-eastern SK than had been noted before. It is suggested that this confirms a new strain able to withstand warmer conditions. In AB, stripe rust levels were significant in the central region. This disease continues to increase in incidence in AB. Leaf spots were relatively low in SK, however the occurrence of physiological leaf spot was higher than normal. Fusarium head blight (FHB) levels in MB were the lowest they have been in a number of years. FHB levels were very low in SK, found mainly in irrigated areas or in a few fields in the east-central region. MB crop diagnostic lab reported a number of calls on ergot in spring seeded wheat and other cereals. Smuts were at trace levels in MB.

Common root rots in wheat were low overall in AB.

MB observed a trend continuation, with severe outbreaks of Wheat Streak Mosaic (WSM) virus. It is now found in almost all winter and spring wheat fields at trace levels or higher. It was noted that there were severe local outbreaks.

**OATS** – Crown rust remained at trace to light levels across MB and eastern SK, due to unusually hot and dry conditions. Cultivars containing only gene Pc68 for crown rust resistance are now vulnerable to the disease. Cultivars with better resistance genes will not likely be available commercially in 2007.

Pyrenophora leaf blotch and halo blight were observed in SK, and were not observed in 2005.

FHB severity appeared to be low, however seed sampled from infected fields averaged 14.4% infection. The predominant species was *Fusarium poae*, as opposed to *F. graminearum*. Naturally occurring outbreaks of WSM virus were observed in MB.

**BARLEY** – FHB severity was low in MB and very low in SK. In MB, seed infection levels were high, with the predominant species *F. poae*.

Scald occurred at a moderate level in central AB, with severe levels in some areas. Net blotch severity in central AB was also significant, with the observation that the spot form of net blotch is becoming more prevalent. Physiological leaf spotting was more prevalent in AB. Loose smut was relatively high in 6-row barley in MB. False loose smut and covered smut were not found in MB barley this year.

Common root rot levels were higher on average in AB than in previous years.

BC did not report any serious disease problems in cereals this year, with drought the primary concern.

There was discussion regarding listing resistance reactions in 5 categories (follow up on discussion from last year's meeting). Will make the changes to the Guidelines.



Andy Tekauz presented a paper on the relationship between DON and *Fusarium graminearum* on wheat, barley and oats. Of note was that less *Fusarium graminearum* was needed to get higher DON levels in oats. See Andy for paper.

#### 10.2. FORAGE LEGUMES

SHEAU-FANG HWANG

Spring black stem/leaf spot was the most commonly observed foliar disease in AB, SK and MB. In the Peace region of AB, winterkill, associated with snow mould and crown and root rot, was observed. A number of other leaf spots and other diseases were observed, including yellow leaf blotch.

Included in the report was a note regarding CFIA efforts to improve access for alfalfa to China (verticillium wilt).

#### 10.3. GRASSES

BRUCE GOSSEN

Wet conditions during the fall of 2005 in most parts of the prairies set the stage for a good forage crop in 2006. Winter conditions were generally moderate and there were no reports of significant winter damage to forage crops. Warm spring temperatures and adequate moisture got the crop off to a good start. Hot dry weather prevalent across the region during much of the summer and disease levels were generally low. Overall, first-cut forage yields were above average, but considerable yield variation occurred across the region.

**Manitoba** - There were reports of snow mold injury to turf grasses in spring. Later, there were outbreaks of powdery mildew on bluegrass turf and a few fields of perennial ryegrass with rust. High temperatures and dry conditions in the summer kept disease levels low.

**Saskatchewan** - Snow mold damage on fine turf was minimal. Infection was generally superficial and the turf recovered quickly. Seven forage grass samples were received at the Provincial Crop Protection Laboratory in 2006: a sample of wildrye with ergot, and six samples of alfalfa/brome hay mixtures, where the brome was infected with: *Fusarium poae* (one sample), septoria leaf blotch (*Septoria nodorum*) (two samples), leaf spots caused by *Psuedoseptoria bromigena* (two samples), and leaf spot caused by *Pyrenophora bromi* (one sample).

**Alberta** - No high or unusual levels of disease were noted.

**British Columbia** - No high or unusual levels of disease were noted. Nematodes were a common problem on golf greens of *Poa annua*.

#### 10.4. GREENHOUSE CROPS

ROBERT SPENCER

**British Columbia**  
**Cucumber:**



Powdery mildew (*Sphaerotheca fuliginea*) continues to be the major disease, affecting every greenhouse in BC. Year-around cropping and limited number of fungicides are the major constraints in controlling the disease effectively. Currently, Nova, Pristine, Milstop and Sulphur are available to the growers. Although the biological control agent, *Pseudozyma flocculosa* (Sporodex) is registered on greenhouse cucumber, it is not available to growers due manufacturing issues. *The Plant Products Ltd. (registrant), with the support of the BC Ministry of Agriculture and Lands, conducted trials in 2005 and 2006 to gather more data for resuming Sporodex production.*

Gummy stem blight (*Didymella bryoniae*), fusarium stem rot and pythium root rot were also reported this year.

#### **Pepper:**

Powdery mildew (*Leveillula taurica*) was reported, but manageable, on peppers.

#### **Tomato:**

Botrytis stem canker (*Botrytis cinerea*) and bacterial stem canker (*Clavibacter michiganensis*) are the two major and common diseases of tomato. A research project “Evaluation of spray pruners for target delivery of fungicides to tomato leaf cut-wounds to control botrytis stem canker” is underway to assess the efficacy of fenhexamid (Decree), dicloran (Botran), potassium bicarbonate (Milstop) and *Trichoderma harzianum* (Rootshield) against conventional foliar-spray in controlling botrytis stem canker.

#### **Greenhouse Ornamentals:**

Chrysanthemum white rust (Quarantine Pathogen), caused by *Puccinia horiana*, has been recently detected on greenhouse-grown Belgian Mums in a greenhouse facility in the lower mainland of BC. This facility has been placed under quarantine by the CFIA and eradication measures are currently underway.

Fusarium stem/root rot, caused by *Fusarium solani*, on greenhouse gerbera has been reported in 2006. On the same crop, *Fusarium oxysporum*, responsible for fusarium wilt, has also been isolated from the internal stem tissue; however Koch’s postulation has to be preformed to confirm its presence.

#### **Alberta**

No organized disease surveys were conducted for greenhouse crops in 2006. Growers reported dealing with many of the same old problems.

#### **Cucumbers:**

Root and stem rot, powdery mildew and gummy stem blight were reported. Powdery mildew continued to be a serious problem. Serious infections of gummy stem blight were seen in min-cucumber fruit.

#### **Tomato:**



Gray mold (*Botrytis*) was reported in low incidence. One greenhouse in the Medicine Hat area also had powdery mildew.

**Peppers:**

Internal fruit rot (*Fusarium proliferatum*). Infection incidence in 2006 was reported at close to 5%. Bumblebees used for pollination were found to carry spores around, although the disease was also found in greenhouses not using bumblebees. Research at ARC Vegreville showed that a *Fusarium sp.* isolated from seeds of an orange variety was related to *F. proliferatum*.

**Poinsettia:**

Powdery mildew was observed.

**Bedding Plants:**

Powdery mildew was observed on bacopa, hybrid petunias and potted roses. A number of pH or EC-related issues were reported for various ornamental crops (geranium, tuberous begonia). An unidentified disease (black leaf and stem spots) was observed on geranium, however the cause could not be determined.

**Tree Seedlings:**

*Fusarium* root rot in white spruce was serious.

**Saskatchewan**

The disease issues in bedding plants were the lowest seen in 8 years. Powdery mildew was a big issue in greenhouse cucumbers throughout the season, even at times when it should not have been an issue. The provincial lab received one sample of greenhouse peppers infected with *Penicillium spp.*, causing leaf spot and fruit rot.

**Manitoba**

The 2006 greenhouse season was very quiet disease wise. Very few phone calls came into MAFRI staff, and very few samples were submitted to the Crop Diagnostic Centre.

10.5. OILSEEDS

WINNIE MCNABB

The growing conditions during spring were good for most of the prairie region although parts of northeastern and east-central Saskatchewan received excess moisture which delayed seeding. The onset of hot dry conditions in early July throughout most of the prairies resulted in stress to the canola crop during the flowering stage. As a result, spraying fungicide for Sclerotinia control was reduced and decisions on spraying were often being made on a field by field basis. The continuing warm temperatures in August contributed to an early harvest for many Manitoba and Saskatchewan growers. Harvest was also ahead of normal for Alberta with rain delays later in the season. In spite of heat stress which would have caused some flower abortion, crop yields were generally good. Statistics Canada estimates released on October 5<sup>th</sup> estimated Manitoba yields at 32.1 bu/ac, Saskatchewan yields were 25.8 bu/ac while Alberta's crop yield estimate was 31.4 bu/ac.



Surveys of the canola diseases were conducted in 33 Manitoba fields and in 101 Saskatchewan fields. In Alberta, a survey specific to clubroot was undertaken. Sclerotinia disease levels were low across all three provinces as the result of high temperatures coupled with low precipitation during most of the flowering period. In Manitoba, Sclerotinia was observed in 39% of the fields with a mean incidence of 3.1% which was similar to the 2005 level. Sclerotinia was present in 34% of the fields in Saskatchewan with a mean incidence of 1.1% which is comparable to incidence in other dry seasons in the province.

Surveys of Manitoba canola fields identified blackleg stem lesions in 61% of the fields with a mean disease of 6.1%. Basal stem cankers from blackleg were present in 39% of the fields with a mean disease incidence of 7.9. Surveys of canola fields in Saskatchewan identified blackleg disease in 38% of the fields with a mean disease severity of 5.2%. In the SK survey, for two fields which had suffered from hail damage, the disease incidence reached 100%. Samples were collected from these two fields for race identification. Although no official survey for blackleg was conducted in Alberta there were reports of blackleg appearing on products classified as resistant which is indicative of new races of the fungus. These reports were primarily from the east-central region of Alberta. Only a few submissions of blackleg infected canola from commercial fields were made to Dilantha Fernando at the University of Manitoba.

Fusarium wilt was found in 18% of Manitoba fields with a mean incidence of 1.2%. The Saskatchewan survey did not find any Fusarium wilt. Fusarium wilt was observed near Lavoy, Alberta although an examination of other fields in the area of the affected variety didn't pick up Fusarium wilt. Research at ARC in which isolates of *Fusarium oxysporum* fsp *conglutinans* were examined, found that they are homogeneous for virulence on selected checks and most belong to VCG A which corresponds to VCG 010, the same group that contains most cabbage yellows isolates.

Other diseases such as foot rot, Alternaria black spot and aster yellows were present at very low levels in both the Manitoba and Saskatchewan surveys. However, there were reports of Alternaria in central Alberta and a number of fields in the Meadow Lake, Rabbit Lake area were affected by aster yellows. Staghead and brown girdling root rot disease did not show up in surveys.

Clubroot has now been identified in 7 counties in Alberta primarily in the region around Edmonton. Surveys of 244 canola fields found 66 new cases of clubroot in 2006. The spread of this disease continues to be a major concern in this region.

The final disease survey reports for Manitoba and Saskatchewan will be published in <http://www.cps-scp.ca/cpds.htm>



From samples submitted to seed labs, chemical injury was the major problem identified in canola, flax and sunflower. The number of samples diagnosed with disease was much lower than in 2005.

The flax survey covered 42 flax crops in Manitoba, 41 crops in Saskatchewan, and four in southern Alberta (4% were Solin). PasmO was the most prevalent disease although severity was lower than in previous years due to dry conditions in July and August. It was found in 92% of the crops surveyed with a range in severity from trace to 5% in most crops and only up to 20% stem area affected in 13% of the crops. Fusarium wilt/root rot complex was observed in 85% of the crops with low severity levels. Powdery mildew was at a long-time low since it was first observed in 1997, and was found in only three crops at traces to 5% leaf area affected. Traces of Alternaria blight were observed in several crops. Rust and aster yellows (Phytoplasma) were not observed in 2006. Lodging in flax was at long-time low in 2006.

A total of 53 sunflower crops (80% confection, 20% oilseed) were surveyed in Manitoba. Dry and above normal temperature conditions were favourable for the sunflower growth and unfavourable for disease infections and development. Incidence and severity of sunflower diseases were at a long-time low. Downy mildew was observed in 42% of the crops at trace to 10% infected plants, much lower than in previous years. Sclerotinia wilt/basal stem infection was present in 72% of the crops surveyed, with incidences ranging from trace to 10%, which is a normal disease incidence in most years. Sclerotinia head rot and mid-stem breakage were present in 47% of all crops surveyed with incidence ranging from traces to 5%. Rust was present in 66% of the crops with severity ranging from trace to 20% leaf area affected. Verticillium wilt was present in 87% of the crops surveyed, with incidence ranging from trace to 20%. *Septoria helianthi* and *Alternaria* spp. were observed in 57% of the crops with trace to 20% of the leaf area affected. Powdery mildew and stem lesions caused by *Phoma* and *Phomopsis* were observed at trace to 5% infected tissue.

There was discussion following presentation of the report regarding exposed clubroot galls and the potential for windborne spread of inoculum. The conclusion was that there is the possibility of resting spores moving with windborne soil.

### 12:15 - 13:30 Lunch Break

#### 10.6. ORNAMENTALS

SIVA SABARATNAM

This report was presented by Gayle Jespersion

#### **British Columbia**

##### ***Quarantine Pathogen:***

(1) Chrysanthemum white rust, caused by *Puccinia horiana*, has been recently detected on greenhouse-grown Belgian Mums in a greenhouse facility in the lower mainland of BC. This facility has been placed under quarantine by the CFIA and eradication measures are currently underway.



(2) *Phytophthora ramorum* (causal agent of Ramorum blight and dieback, sudden oak death) continues to be the primary quarantine pathogen that concerns the BC ornamental nursery industry.

***New and Common Diseases:***

(1) anthracnose of seed-grown *Gaultheria shallon* (Salal) seedlings caused by *Colletotrichum acutatum* resulted in a severe Salal seedling dieback, grown for landscape ground-cover in an ornamental wholesale nursery.

(2) Fusarium stem/root rot, caused by *Fusarium solani*, on greenhouse gerbera has been reported in 2006. On the same crop, *Fusarium oxysporum*, responsible for fusarium wilt, has also been isolated from the internal stem tissue; however Koch's postulation has to be preformed to confirm its presence.

3) *Glomerularia corni* Peck. aka *Glomopsis corni* caused severe damage to *Cornus canadensis* in an ornamental wholesale nursery in 2005 (Causal agent identified by Dr. Brenda Callan, Canadian Forestry Service, Pacific Forestry Centre, Victoria, BC).

4) Damage from Black Root Rot caused by *Chalara elegans* (*Thielaviopsis basicola*) has been seen on *Cornus canadensis*, *Arctostaphylos uva-ursi*, *Eleagnus* and, most recently, *Heuchera*. This fungus is often considered to be a "weak pathogen or semi-saprophyte".

**Alberta**

There are no important diseases to report this year. There are several reported incidence of firelight on crabapple, mountain ash and cotoneaster in the southern Alberta. Foliar diseases were less frequent than usual due to hot and dry conditions in July and August.

**Manitoba**

Unusually, severe powdery mildew on a number plants, most notably lilac (*Microspheara alni*), rose (*Sphaerotheca pannosa*), and caragana (*Erysiphe* spp.?). High temperatures and high humidity conditions prevailed through much of July, promoted conditions suitable for the development of powdery mildew on various crops. The severity of damage remains uncertain.

**10.7. TREES**

**RON HOWARD**

A wide range of tree samples were processed by the BC diagnostic laboratory, ranging from leaf and needle disease to blights, cankers and root rots. AB continues to be Dutch Elm Disease (DED) free, with monitoring continuing. SK continues to battle DED, with a number of new communities reporting diseased trees, however a number of communities that had previously had DED had no new cases. A few other diseases were reported, mainly environmental.



MB reported some cases of DED, with a number of trees removed. Stigmata needlecast was reported in spruce. Powdery mildew was observed on basswood and poplar, mainly in higher density plantings. Venturia leaf and shoot blight affected poplars in natural and agro-woodlot operations. Ash anthracnose was also observed early in the season but damage was curtailed by improved weather conditions over the remainder of the season. A number of other samples were submitted for diagnosis to the Plant health lab.

Bronze leaf disease (*Apioplagiostoma populi*) continues to be the chief concern in MB. This disease has spread over a much larger geographic spread than has been previously observed. The main species affected are the Tower poplar (*Populus x canescens*) and Swedish Columnar Aspen (*Populus tremula 'Erecta'*). Trees that had greater than 50% of the canopy infected 3 years ago are now dead. BLD was also found in trembling aspen (*Populus tremuloides*) in 2006.

#### 10.8. POTATOES

JILL THOMSON / FOUAD DAAYF

This report was presented by K. Rashid.

##### **Alberta**

Most diseases were at average or below average levels in southern Alberta. Brown spot (*Alternaria alternata*) was commonly associated with early blight infections. Heat stress in mid-season may have contributed to a slight increase in wilt disease symptoms (verticillium and fusarium).

Hairy nightshade roots producing *Spongospora subterranea* galls were collected by L. Delaney in southern Alberta. The identity of the pathogen was confirmed by L. Kawchuk, using PCR. *This observation has serious implications for disease control of powdery scab in areas where hairy nightshade is a common weed.*

##### **British Columbia**

The samples submitted to the Plant Diagnostic Laboratory, Abbotsford were mainly from commercial fields. The diseases identified included black scurf (5 out of 16 specimens), dry rot (2), late blight (1), pink rot (1), leak (1), powdery scab (1 + ?), soft rot (2), verticillium wilt (1), hollow heart (1).

Severe scab/skin blemish was observed on Ranger Russet tubers from the Okanagan. Dr. G. Lazaravits is being consulted for scab identification. This could also be a case of elephant hide (physiological problem).

Bacterial ring rot was confirmed in table stock potatoes imported from Washington last winter.

J Elmhirst observed a crop of older 'Warba' tubers (full size for table stock), that were badly affected by Pythium leak when dug in the field. She was unable to obtain an isolate to I.D. the Pythium to species.

##### **Manitoba**



It was a very similar year to last year for samples submitted to the Manitoba Crop Diagnostic Centre, Winnipeg. The diseases identified from samples taken from commercial fields included bacterial ring rot (2 out of 93), bacterial soft rot (3), blackleg (2), black dot (8), black pit (1), brown spot (11), early blight (7), dry rot (4), fusarium wilt (4), gray mould (4), late blight (3), leak (8), pink rot (3), Rhizoctonia (3), rubbery rot (2), common scab (1), silver scurf (3), verticillium wilt (12), physiological disorders (11), environmental injury (1).

There has been a very low incidence of samples involving late blight since the first confirmed late blight sample was found quite late in the season. It is very possible that additional cases will be found with tubers in storage.

The high incidence of brown spot is of interest. J. Heard points out that in the field this is not usually distinguished from early blight and that products applied for early blight control are presumably effective against brown spot. Brown spot in association with early blight was also reported in Alberta.

### **Saskatchewan**

The 2006 potato crop was generally healthy, with very few problems.

Regular field scouting was conducted across the province by a consultant hired by the Saskatchewan Seed Potato Growers Association (SSPGA) and no significant problems were observed. To date, no late blight or bacterial ring rot have been detected.

Several instances of skin discolouration have been observed in Norland table potatoes. Black dot and silver scurf were present on tubers from one sample. Physiological and/or genetic factors may also be playing a role in this condition.

The Late Blight Monitoring Network was operated as a joint project with Dr. Ron Pitblado, University of Guelph.

The SSPGA have developed a Virus Management Plan to address issues of crop health in the seed potato sector and this Plan has been submitted to SAF for consideration.

Harvest conditions have been poor – initially very hot, followed by frequent rainy periods and declining temperatures. Storage problems may develop as a result of these conditions.

There were no potato samples submitted to the Crop Protection Laboratory in 2006.

### *10.9. SPECIAL CROPS*

*DEBBIE MCLAREN/PENNY PEARSE*

Downy mildew in buckwheat was more severe than in past years in MB. Canaryseed had some disease in the early season and some heat-related problems in the mid-summer heat. Some caraway growers in SK had devastating yield losses due to blossom blight, particularly in the eastern and northeastern regions.



Ascochyta blight was still prevalent in SK chickpeas, despite hot, dry weather. It is possible that the pathogen is developing more aggressive pathotypes. This same disease was observed in southern AB.

Corn was relatively free from reported diseases, with few samples received in MB.

Blossom blight was limited in coriander and cumin SK this year.

Sclerotinia on Echinacea was reported in BC.

Fusarium root rots were common in fababeans in MB and AB. Chocolate spot was also reported by AB and SK. Other diseases were also reported.

Most disease in field beans in MB and AB appeared to have been caused by bacterial pathogens (common blight, halo blight, etc.). Other diseases were also diagnosed by the MB diagnostic lab. The first report of purple variant of bacterial wilt of bean (*Curtobacterium flaccumfaciens* pv. *flaccumfaciens*) in Canada was reported in AB.

White mold was a problem in many dry bean fields.

Root rots/seed decay was a common disease in MB and SK field peas, caused by a range of pathogens. Ascochyta blight was not a major concern in SK this year, changing from past years. Powdery mildew developed later in the season in SK, with relatively little impact. In AB, PM was observed in many fields, however severity was reduced.

Mycosphaerella blight was prevalent in many central AB fields, however severity was down from last year. Downy mildew was observed in a number of fields surveyed in central AB, with some heavy infections.

Anthraxnose in lentils was not a major concern in SK. Ascochyta blight was prevalent in SK but did not result in much damage.

Root rots appeared to be the most problematic diseases in MB soybeans, with other diseases reported in low levels.

Powdery mildew was reported to be quite severe in experimental lupin fields in central AB.

#### 10.10. FRUITS

PHILIP NORTHOVER / PETER SHOLBERG

Across the prairie provinces, the disease situation was rather light with root diseases of strawberry, and grey mould (*Botrytis cinerea*) in Manitoba and Saskatchewan respectively. Entomosporium leaf and berry spot, Brown Rot, Rust and Fire Blight concerns on Saskatoon berry in Saskatchewan and Entomosporium leaf and berry spot in Alberta, were the most prevalent problems. Raspberry root rots also appeared to be a problem in a number of areas in MB, SK, and AB.

In British Columbia, Fire Blight on apple and pear, root rots and nematode concerns in raspberry, powdery mildews on tree fruits and grapes. On Blueberries root rots and Blueberry scorch virus, were problems of concern in 2006.

#### Manitoba

*Strawberry:* One field that was flooded for much of 2005, had high levels of black root rot (a complex of a number of fungi) in 2006. Grey mould (*Botrytis cinerea*) was a problem this year in plantings in more sheltered areas or had canopies that were too densely foliated. In general, southern Manitoba had very little rainfall. Humidity levels were much higher than normal for the bulk of the season, resulting in long wetting



periods, due to marked changes in temperature from night to day. Sample submissions to the Crop Diagnostic Centre were reduced in number from last year. *Rhizoctonia* root rot samples and Black Root rot samples were also turned in.

*Raspberry*: There were only three sampled submitted to the Crop Diagnostic Centre, Cane blight (*Leptosphaeria coniothyrium*), and two root rots caused by *Fusarium* and *Cylindrocarpon* were turned in. There were no reports of any of these being widespread problems in Manitoba

*Saskatoon Serviceberry*: The lack of rainfall was a benefit in reduction of damage to Saskatoon service berry. Sample submissions were low, with samples of Entomosporium leaf and berry spot (*Entomosporium mespili*), flower blight (*B. cinerea*), and rust (*Gymnosporangium clavipes*) turned in. One grower reported they had extensive powdery mildew in their orchard, observed after harvest had been completed.

*Apple*: Little to report, Fire blight (*Erwinia amylovora*) and Black Rot (*Botryosphaeria obtusa*) samples were diagnosed in 2006.

*Plum*: A sample with plum pocket (*Taphrina communis*) was turned in this year.

Black knot (*Dibotryon morbosum*) continues to be a widespread and ongoing problem in both home plantings of the Schubert Choke Cherry, and on wild *Prunus* species. In 2006, as with other years, homeowners fail to notice the knots until the disease has advanced to the point that there is little chance of successful management.

## **Saskatchewan**

*Strawberry*: Strawberry crown production was excellent in 2006 but the test plots at Outlook were severely injured by hail in mid August. Crown samples examined for pathogenic nematodes and diseases were all negative, except for one sample which had symptoms of grey mould (*Botrytis cinerea*). Very few leaf diseases were noted in fields.

Strawberry crowns planted this spring produced excellent stands this year. Problems were only reported in extremely wet areas in the east central region around Kamsack, and Porcupine Plain, which resulted in some root and crown rot, likely caused by species of *Rhizoctonia* and *Fusarium*. **Grey mould, (*Botrytis cinerea*)** was the only common production problem reported in strawberry fields. Powdery mildew (*Sphaerotheca macularis* f.sp *fragariae*), anthracnose (*Colletotrichum* spp.), and leaf spot diseases, notably angular leaf spot (*Xanthomonas fragariae*), were all present in fields that were surveyed on field calls, but none were considered serious.

*Raspberry*: No general insect or disease survey was conducted on raspberry crops in 2006. The test plots at Segaeer Wheeler farm were surveyed throughout the year.

Few disease problems were reported. Significant losses were only reported from one plantation near White City resulting from a bacterial blight (perhaps *Pseudomonas* spp.)



or fire blight (*Erwinia amylovora*) infection. Cane blight, *Leptosphaeria coniothyrium*, spur blight, *Didymella applanata* and powdery mildew (*Sphaerotheca macularis*) were all present in a number of fields examined throughout the extremely wet areas from Kamsack, Porcupine Plain and Hudson Bay in the east central region. Cane blight was also found in orchards at White City and Kronau.

*Saskatoon Serviceberry*: **Saskatoon-Juniper rust** (*Gymnosporangium nelsonii*) and Quince Rust (*G. clavipes*), were the most prevalent rust species in 2006 and the major disease for a number of growers. Several Rocky Mountain junipers at several sites were so severely infected they appeared to be decorated for Christmas during the gelatinous stage. The Saskatoon berries in the immediate area were very severely infected with no edible fruit. A number of growers throughout the province reported moderate to severe rust infections and swollen twigs, stems and branches as a result of rust infections. Brown rot (Mummyberry), *Monilinia amelanchieris*, was also present and caused significant fruit losses especially in the east central region. A number of other fruit diseases, including **grey mould**, *Botrytis sp.*, *Alternaria sp.* and **powdery mildew**, (*Podosphaera clandestina*) also caused significant loss of fruit in this region.

Cytospora canker and dieback, (*Cytospora leucostoma*), is becoming more common in orchards across the province, especially on aging minimally pruned stands. It appears to be a secondary disease infecting portions of the plants previously injured by root aphids, which severely injure and weaken the plants. Most of the tip dieback on saskatoons infected with Cytospora canker is on shoots with previous damage to buds from tarnished plant bugs and birds. Nectria canker, *Nectria cinnabarina*, is also increasing in many saskatoon orchards, especially in the wetter eastern regions of the province.

Fire blight, *Erwinia amylovora*, was not reported from any fields in 2006.

*Chokecherry*: Chokecherry production in 2006 was much lower than average for the third year in a row. Yields of chokecherry were greatly reduced and many crops were again lost due to late spring frosts and extended cold wet weather during blossoming, based on reports received from growers. Brown rot, *Monilinia fruticola*, a problem in previous years was not reported in 2006.

*Sour Cherry and Pin Cherry*: No diseases were reported.

*Currant and Gooseberry*: Currants and gooseberries were surveyed at the University of Saskatchewan, Lumsden, Cadillac and during a few farm field calls.

Powdery mildew (*Sphaerotheca mors-uvae*) was reported from black currant and gooseberry from the northeast and east central regions of the province which were very wet.

*Apple*: Apple Scab, *Venturia inaequalis*, usually quite rare in the province, was again fairly common in backyards as well as in a few commercial orchards. Severe russetting of fruit as a result of cold injury during blossoming was also common and often mistaken



for apple scab. Many reports of fire blight on apples were received in 2006 from home gardens but few samples were taken. Several test orchards had severe infections this year. A severe outbreak of fire blight (*Erwinia amylovora*) occurred on the test plots at Seager Wheeler farm at Rosthern, where the staff failed to remove suckers from the roots after tillage.

Plum pocket, *Taphrina pruni* (*T. communis*) was a common disease complaint from many areas of the province, mostly on native American plum pollinators in 2006.

### **Alberta**

Largely a quiet year with respect to fruit disease in Alberta, Entomosporium leaf and berry spot (*Entomosporium mespili*) in Saskatoon berries was foremost on the mind of producers, a reflection of the severe problems experienced in 2005. There were several reports of this disease in southern and central Alberta in 2006, which could be attributed at least in part due to wet weather in June. Brown fruit rot (*Monilinia amelanchieris*) of Saskatoon, and Saskatoon-Juniper Rust (*Gymnosporangium* spp.) were also reported.

A pathogen (perhaps a rust or canker pathogen) on raspberries and apples was observed and remained unidentified at the time of this report. There were several reports of fireblight (*Erwinia amylovora*) on apples and crabapples.

## **10.11. VEGETABLES**

**GAYLE JESPERSON**

### **British Columbia**

**Fraser Valley Vegetable Crops:** Environmental factors had a severe impact in 2006. The prolonged, heavy rains and cool temperatures from late April through to the second week of June delayed development and pollination of some crops and flooded some fields. This was followed by a sudden onset of high temperatures (30°C+) and lack of rain starting on June 30th. Early cole crops produced small, stunted plants with small, over-mature heads. Clubroot was present in most cole crop fields. Peas and beans were stunted and yields were down. Early cucurbits were misshapen and quality was poor. Mid-season and later-planted crops produced well with irrigation.

**Interior Vegetable Crops:** Early blight in tomatoes was at a much lower incidence than usual. Heavy powdery mildew occurred in melons, cucumbers, pumpkins, squash, etc. late in the season. To date there has been no *Phytophthora capsici* detected since the small outbreak in 2004 in Kelowna. Only one mating type was found, so we believe it did not overwinter successfully. Sclerotinia rot in squash caused minor damage in a Kelowna crop.

### **Alberta**

In Central Alberta:

The weather in July was hot and dry with a relatively low disease incidence of vegetable diseases. However, abundant rain occurred in August and September, which were favourable for late-season disease development.



- Sclerotinia blight occurred on heads of the cabbage cv. Castello with disease incidence ranging from 0 to 5% in one field and from 0 to 12% in another in mid-August. Wire stem of cabbage caused by *Rhizoctonia solani* ranged from 0 to 4%.
- Some lower pods of green bean contacted the soil and were infected with *Sclerotinia sclerotiorum*.
- Broad bean plants were heavily (>20%) infected with an unidentified virus. Disease symptoms included stunting, mosaic and smaller leaves, and chlorosis. The leaves had a tendency to grow in a more upright pattern compared to those on healthy plants. A few plants (2%) were infected with powdery mildew. Chocolate spot commonly occurred (15%) on the lower leaves of plants.
- Infections of baby carrot with aster yellows ranged from 0 to 10%.
- A five-acre field of zucchini plants was severely (100%) infected with powdery mildew in the late stages of growth but the disease did not cause a significant impact on the yield.

### **In Southern Alberta:**

June weather was cool and wet and favoured seed decay, damping-off and bacterial diseases in some crops. The return of hot, dry weather in July and August slowed or halted the development of these diseases and promoted rapid growth and high yields in many fields. Some hail damage was reported in south-central areas. No organized disease surveys were carried out.

### **Clubroot Survey on Cruciferous Vegetables**

CDC South and University of Alberta staff surveyed seven commercial vegetable farms and market gardens near Edmonton clubroot in August. The farms/gardens contained a total of 70 different vegetable plots at 10 different field sites. Nine types of cruciferous vegetables were examined including bok choy, broccoli, Brussels sprouts, cabbage (white, red and savoy), cauliflower, kohlrabi, and rutabaga. All of the crops surveyed were mature or nearing maturity, with some already harvested. Clubroot symptoms were observed at only one location near Leduc, AB. Greater than 50% yield loss was seen in a field of cauliflower that had a disease incidence of 80%. Approximately 2 acres of infected plants exhibited stunting, wilting and root rot, and many of the heads were small and unmarketable. Roots were severely infested with *P. brassicae*, and numerous large galls were present. Over the past three years of surveys of mixed cruciferous vegetables in Alberta, clubroot has been detected four times at three locations.

### **Saskatchewan**

#### **Field Observations:**

Generally favorable growing conditions resulted in few disease problems being reported in vegetable crops this summer. Some early plantings of warm-season crops (cucumbers and corn) experienced some chilling injury – a problem that the growers were concerned looked like disease. A very high incidence of root maggot damage is being reported in cole crops (cabbage, broccoli etc). Feeding damage by the maggots leaves the roots and heads open to attack by wound pathogens like soft rot. Hot dry conditions resulted in mildew affecting many crops this year ... but it appears that yields were relatively



unaffected. Cool and wet conditions in September are causing concerns regarding the health and storage potential of late harvested crops like watermelon, pumpkin, carrots and potato.

### **Manitoba**

2006 was a year with very little precipitation and temperatures in the high 20's and mid 30's. In general this appeared to be more of an insect year; what disease that was observed was largely insignificant. (See: <http://web2.gov.mb.ca/agriculture/mwvr/index.php> for an illustrated vegetable crop report)

### **Onions:**

- The first onion disease encountered this year was onion smut, caused by the fungus *Urocystis cepulae*. This disease is soilborne, and the fungus can persist in soil for a number of years.
- Fusarium basal plate rot (*Fusarium oxysporum* f.sp *cepae*) generally shows up every year in Manitoba onion fields, and 2006 was no different. The fungus is soilborne and can survive for years in soil. Generally this problem is considered a higher temperature disease, with optimum conditions for the outbreak of disease ranging from 25-28°C. Rots can progress in storage.
- Of all the threats to onion production, the disease arising from Botrytis fungi are the most common, the most widespread, and potentially the most damaging to the industry. Relative to the 2004 and 2005 seasons, it will be cautiously stated that the 2006 season was much more of a relief. *Botrytis cinerea* (soil line rot, brown/coffee stain) and *Botrytis allii* (neck rot) were detected in 2006. Both of these fungi can continue to cause rots in storage.
- In 2006, a fungus that made its first appearance in quite a while, was (*Phoma terrestris/Pyrenochaeta terrestris*) the cause of Pink rot. In 2006 this disease was found in 3 fields and 7 different onion varieties. A disease that generally occurs at higher temperatures, this disease has been reported in southern states in the U.S. where it can be a severe problem. The damage to the roots can be quite extensive, and observations from the scouted fields suggested that the disease severity increased throughout the season. Symptoms above the ground appear very much like the plants are being impacted by drought, with leaf tip dieback, and a reduction in leaf number.

### **Cole crops:**

- While there was a high level of damage from insects, diseases of cole crops were not common, Sclerotinia White Mold was observed in one cabbage field, in which infected bean chaff was blown into the field, but in cauliflower, broccoli, and cabbage overall there were virtually no disease problems.

### **Corn:**



- In 2006, there were no major outbreaks of any sweet corn diseases reported. One oddity was the genetic stripe symptom observed early in the season. Common smut (*Ustilago maydis*), and corn rust (*Puccinia sorghi*) were also observed this summer, but levels were not of great concern. Late in the season, infection of plant tissues by species of *Fusarium*, were observed. In 2006 *Fusarium* levels were very low, and of no concern.

#### **Cucurbits:**

- While powdery mildew (*Erysiphe cichoracearum* or *Sphaerotheca fuliginea*) was the most obvious disease, primarily on pumpkins, the damage was relatively minor. The damage to vine growth appeared minimal, and yield reduction did not appear to be of concern in our scouted fields. On pumpkins the chief damage is generally on the handles (the remains of the vine) and somewhat discoloured rinds.
- Angular leaf spot (*Pseudomonas syringae* pvr. *lachrymans*) developed quite rapidly on cucumbers, almost going unnoticed by our scouting program. This was probably the most damaging disease on cucumbers this year, and likely impacted yield, through development of secondary rots, and sunscald due to leaf loss, in addition to any direct effects of the bacterium. The disease was also observed on pumpkins in late July, but no further damage appeared to result in the scouted field.

#### **Carrots:**

- In 2005, the leaf blight diseases ran rampant across carrot fields in August. In 2006, they were not even on the radar, and were not observed once; we can thank the dry, hot weather for that.
- Forked carrots/tap roots were found as always (12-16% in scouted fields). Anything that damages the growing root tip can cause forking; *Pythium* has been implicated in other areas, along with soil compaction. In the majority of carrots collected this year, the forking began near the crown of the tap root, suggesting the damage occurred early in the season.
- Cracked taproots, were also collected in 2006. With the high temperatures throughout much of the summer, and the ongoing need for irrigation, this wasn't a surprise. Cracked taproots can occur when periods of slow growth are followed by rapid expansion.
- Aster Yellow symptoms were observed in 2006 on carrots, parsnips, and celery plants in Manitoba. Apart from the changes in foliage colour and the hairy root symptom, the carrots become quite bitter, and unmarketable. Towards the end of the season, the number of symptomatic Aster Yellows in carrots appeared to increase in number, but not to the levels we usually get (of anywhere from 5-20% of the crop).



10.12. INTERIORSCAPES

SIMA MPOFU / RON HOWARD

No diseases in interiorscape plants were reported from any province. Guideline changes were submitted.

10.13. U.S. PLANT DISEASE UPDATES (TERRY GREGOIRE, AREA SPECIALIST, NDSU EXTENSION SERVICE)

Terry gave a report on some of the issues that they had seen for the past year in North Dakota. Generally, weather conditions were not favourable for disease development in the Northern plains, resulting in low infection frequency and severity. Of note was a shift in varieties grown in eastern and western regions, resulting in a change in prevalence in wheat leaf rust in different areas. Wheat streak mosaic virus was a problem in some areas of the state. Barley Yellow Dwarf virus was observed at about double the incidence observed last year.

Following the presentation of all disease chapter reports, Ron Howard moved that they be accepted as presented, 2<sup>nd</sup> Andy Tekauz – Carried

**13:00 - 18:00 Afternoon session (coffee break at 15:00)**

**11.0 OTHER COMMITTEE REPORTS**

11.1. NOMINATION COMMITTEE  
COREEN FRANKE

KHALID RASHID / PHILIP NORTHOVER /

Nominations listed below for the year 2006-2007:

Executive Committee:

Chair	Khalid Rashid
Vice-Chair	Penny Pearse
Secretary/Treasurer	Robert Spencer
Guidelines Editor	Mardi Desjardins & Tracy Shinnars-Carnelley
Slide Set Editor	Philip Northover
Website Editor	Ralph Lange

Chapter Chairs/Alternates

<u>Chapter</u>	<u>Chair</u>	<u>Alternate</u>
Cereals	Andy Tekauz	Kelly Turkington
Forage legumes	Sheau-Fang Hwang	David Kaminski
Grasses	Bruce Gossen	Dee Ann Benard
Greenhouse	Robert Spencer	Jian Yang
Oilseeds	Winnie McNabb	Khalid Rashid
Ornamentals	Vippen Joshi	Siva Sabaratnam
Trees & Shelterbelts	Ron Howard	Karen Bedford
Potatoes	Jill Thomson	Fouad Daayf
Special crops	Penny Pearse	Debbie McLaren
Fruits	Phillip Northover	Peter Sholberg



Vegetables                                      Gayle Jespersen                                      Janice Elmhirst  
Interiorscapes                                      Sima Mpofo                                      Ron Howard  
Italics indicate new nominees.

(Rashid/Kaminski – Carried)

*11.2. RESOLUTION COMMITTEE                                      R. SPENCER/D. KAMINSKI/P.  
SHOLBERG*

- 1) Resolution of thanks to the organizing committee
- 2) Charge for image collection – Resolved to charge \$CDN 50.00 per CD (slide set), which will include taxes and shipping within Canada. Extra shipping charges will be added for shipping outside of Canada (international). That charge will be left to the slide set editor. Other decisions will be left to the editor.

In discussion relating to the resolution, it was suggested that there be some sort of marketing or notification of the availability of this tool. It was decided that email, posting to the website and placing a note in the CPS news would be sufficient. Further discussion regarding the money remaining in the Slide Set account. In the past there was discussion about combining the WCPD account with the Slide Set account. It was recommended to do this when all final costs are paid.

Kaminski/Franke – Carried

*11.3. GUIDELINES-WEB COMMITTEE  
D. KAMINSKI, T. SHINNERS-CARNELLEY, P. PEARSE, I. EVANS, G.  
JESPERSON, K. RASHID, J. MENZIES*

This committee is dormant. Will be kept in place if needed.

**12.0 2007 ANNUAL MEETING**

The next meeting of the WCPD will be determined by the WFPM. According to the normal rotation between provinces, British Columbia should be the next host province. There is the possibility that it might be held in Saskatoon, SK, due to an entomology meeting, which is being held at the end of September or Early October

**13.0 OTHER BUSINESS**

Bruce Gossen followed up on a request from the PMRA last year, where they wanted to look at old chapter reports. In response to his request, Bruce did receive some reports, however, he would like people to go back over and into their files and see what they can dredge up.



#### **14.0 SPECIAL TOPICS**

14.1. *CANADIAN SCLEROTINIA WORKING GROUP*  
*M. GOODWIN, D. HAMMOND, K. RASHID*

14.2. *STRIPE RUST IN CANADA*  
*T. FETCH, B. MCCALLUM, K. TURKINGTON, D. GAUDET, K. XI, P. PEARSE*

14.3. *FUSARIUM GRAMINEARUM IN CANADA: A POPULATION IN TRANSITION*  
*RANDY CLEAR*

#### **15.0 ADJOURNMENT**

17:12 (Rashid/Spencer)