25th Annual Meeting
of the
Plant Pathology Society of Alberta

Monday, November 8 to Wednesday, November 10, 2004

Location: Agriculture and Agri-Food Canada
6000 C & E Trail
Lacombe, Alberta

Sponsors:

BASF
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Canadian Phytopathological Society

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Monday, November 8, 2004

7:30 PM – 10:00 PM **Registration, Wine and Cheese Reception** – Meat Lab Foyer, AAFC. *Sponsored by BASF*

Tuesday, November 9, 2004
Paper session I – Chair, Denise Orr

8:30 Welcome and opening remarks – Denise Orr

8:40 **L.J. Piening**. A brief history of the Plant Pathology Society of Alberta.

9:00 **T.K. Turkington**, K. Xi, V. Baron, A. Aasen, and D.D. Orr. The impact of leaf spot diseases and their management using fungicide and cultivar choice in a barley silage production system.

9:15 **M.W. Harding**, R.J.Howard, C. Neeser, S.E. Strelkov, J.P. Tewari, S.L.I. Lisowski, D.L. Slomp, S. Xue, and R.C.J. Spencer. A survey for clubroot disease caused by *Plasmodiophora brassicae* on cruciferous vegetables in Alberta in 2004.

9:30 **V.K. Bansal,** R.J. Howard, and N.A. Savidov. Electro-chemically activated (ECA) water - A new disease management tool for greenhouse vegetable crops.

9:45 – 10:45 **Refreshment break and photograph.**
Sponsored by Bayer Crop Science

Paper session II – Chair, Prem Kharbanda

10:45 **B. Sorkhilalehloo**, J.P.Tewari, F. Capettini, T.K. Turkington, K.G. Briggs, and R.P. Singh. Genetical components of resistance in slow-scalding genotypes of barley: Implications for breeders and pathologists.

11:00 **D. Gaudet**, T. Despins, B. Puchalski, M. Frick, and A. Laroche. The nature of cold-induced resistance to snow mold in winter wheat.

11:15 **D. Nilsson**, M. Frick, C. Penniket, B. Puchalski, D.A. Gaudet, and A. Laroche. Microarray analysis of low temperature gene expression in snow mold resistant wheat (*Triticum*).

11:30 **M. Frick,** D. Nilsson, C. Penniket, D.A. Gaudet, and A. Laroche. Problems with 2 colour microarray experiments.

11:45 **C. Penniket**, M. Frick, D. Nilsson, A. Laroche, D.A. Gaudet, and R. Graf. Cloning efficiency of genes and construction of expression vectors for wheat.

12:00 – 1:30 Lunch and poster set up.
Lunch Sponsored by Syngenta Crop Protection Canada

1:30 – 3:00 Poster Session – Chair, James Calpas

1) **H.U. Ahmed**, K.F.Chang, S.F. Hwang, and R.J. Howard. Surveillance of ascochyta blight of chickpea in southern Alberta in 2004.

2) **B. Sorkhilalehloo**, J.P.Tewari, F. Capettini, T. K. Turkington, and H. W. Klein-Gebbinck. Pathogenicity of Canadian and Mexican isolates of *Rhynchosporium secalis* on a wide range of spring barley cultivars and lines.

3) **B. Sorkhilalehloo,** J.P.Tewari, G.A. Sadeghi, and T.K. Turkington. Histopathological and physiological studies on barley leaves infected with *Rhynchosporium secalis.*

4) **B. Sorkhilalehloo**, J.P.Tewari, and T.K. Turkington. Techniques for optimal development and assessment of barley scald caused by *Rhynchosporium secalis* under controlled and field environments.

5) **H. Wang,** S.F. Hwang, F. Eudes, R.J. Howard, and G.D. Turnbull. Influence of trichothecenes on strain aggresiveness of *Fusarium graminearum* causing seedling blight and root rot in wheat, barley and triticale.

6) **S.F. Hwang**, R.L. Conner, K.F. Chang, B.D. Gossen, H. Su, R.J. Howard, and G.D. Turnbull. Seeding conditions: Potential for management of mycosphaerella blight of field pea.

7) **K.F. Chang**, H.U. Ahmed, S.F. Hwang, and R.J. Howard. Manipulation of row spacing and seeding rate for the management of aschochyta blight of chickpea.

8) **J.L. Zantinge,** J.H. Helm, J.M. Nyachiro, and K. Xi. Molecular marker development for scald resistance in 'Seebe' barley.

9) C. Martinez, R.J. Tweddell, V. Gravel, **D. Orr**, and J.P. Tewari. Other societies related to plant pathology in Canada: PPSA and QSPP.

10) H. Su, **S.F. Hwang,** K.F. Chang, R.L. Conner, T. Warkentin, R.J. Howard, and G.D. Turnbull. Pathogenic and genetic variation in *Mycosphaerella pinodes* from field peas in Alberta.

3:00 – 3:30 **Refreshment break.**
Sponsored by Bayer Crop Science

3:30 – 4:30 PPSA Business Meeting

6:30 – 7:00 No Host bar at Leto's Restaurant, 4944 Hwy 2A, Lacombe
7:00 – 10:00 Banquet, Leto's Restaurant.
Sponsored in part by Fisher Scientific

Wednesday November 10, 2004
Paper session III – Chair, Bruce Gossen

8:30 **J. Yang**, A. DiCarlo, R.J. Howard, P.D. Kharbanda and M. Mirza. Internal fruit rot of greenhouse sweet pepper: A new disease in Alberta.

8:45 **K. Xi** and T.K. Turkington. Can seed infection by *Fusarium graminearum* lead to head blight in barley and wheat?

9:00 **K. Kumar**, K. Xi, J.H. Helm, and T.K. Turkington. *In vitro* selection of barley resistant/tolerant to Fusarium head blight.

9:15 **Robert Spencer.** 2004 Disease Calls at the Alberta Ag-Info Centre.

9:30 **B. J. Puchalski,** D. A. Gaudet, T.M. Despins, R. J. Graf, and A. D. Kuzyk**.** Expression of plant resistance to stripe rust in wheat.

9:45 **Closing remarks.** Denise Orr and Ron Howard

10:00 **Refreshment break.**
Sponsored by Bayer Crop Science

A brief history of the plant pathology society of Alberta. **L.J. Piening.** *5016-58 Street, Lacombe, AB T4L 1K7 Canada.*

The origins of the Plant Pathology Society of Alberta can be traced to the Quebec Society of Plant Protection founded in 1908 and the Canadian Phytopathology Society (CPS) founded in 1929. The first documented meeting of Alberta based Plant Pathologists (University of Alberta and the Federal Research Station in Lethbridge) met in Edmonton in 1942. The meeting consisted of exchanging observations of disease data on a variety of vegetable, cereals and forage crops observed by each of the 6 Plant Pathologists. The War Emergency Committee at this time was dedicated to increasing food production and Plant Pathologists felt that their role in minimizing diseases was an important part of the war effort. Extension of information was of prime importance to get the latest information to the food producers. Membership of the Alberta Group did not increase significantly until about the 1960`s. Plant Pathologists in Alberta regarded themselves as the Alberta Group of the CPS, although this was not officially documented by the CPS or any Government agency. Though they were small in numbers, the group closely monitored all crop diseases in Alberta. The early reports covered diseases in almost all field and garden crops in addition to apple fire blight, which was a major problem in local crab apples. The group was also cognisant of promoting their activities via radio, the press, posters, and elevator agents. Seed treatment was a major concern. Formaldehyde, a widely used seed treatment, was being discouraged and mercurials and other products were tested for efficacy in controlling smut, bunt and seedling blight of cereals and vegetables. The issue of the group's validity arose periodically over the next 30 years. Affiliation with other bodies, such as the APS NW division, the AIA and a microbiological group were considered from time to time but in the end members felt they were doing a good job. The Alberta Group also recognized the value in inviting extension personnel, and agriculturists in adjacent disciplines to our annual meetings to promote Plant Pathology. The group also offered assistance to teaching institutes such as NAIT, Colleges of Agriculture etc to help promote the profession of Plant Pathology. Certification of members as Plant Pathologists was also a concern. The province did however not take this issue seriously. The validity or legality of motions and recommendations was questioned in light of our being "not a duly constituted part of the CPS". The CPS did eventually formally recognize the Alberta Group of the CPS. Late in the 70`s bye-laws and a constitution were drafted for the Plant Pathology Society of Alberta which was officially recognized in May of 1980. The PPSA has now been in existence for 25 years and has made remarkable progress in promoting and fostering the profession of Plant Pathology in Alberta and indeed beyond our borders.

The impact of leaf spot diseases and their management using fungicide and cultivar choice in a barley silage production system. T.K. Turkington, K. Xi, V. Baron, A. Aasen, and D.D. Orr. *(T.K., V.B., D.D.O.) Agriculture and Agri-Food Canada, Lacombe Research Centre, Lacombe, AB, T4L 1W1 Canada; (K.X., A.A.) Alberta Agriculture, Food and Rural Development, c/o Lacombe Research Centre, Lacombe, AB, T4L 1W1 Canada.*

On-farm feed requirements can prompt producers to grow several sequential silage barley crops, leading to disease problems. Leaf spot diseases, fungicide, and cultivars were evaluated in barley silage trials at Lacombe, AB. In 2000, full rates of propiconazole applied at the stem elongation stage, or stem elongation plus flag leaf emergence stages, and an untreated check were included for barley cvs. AC Harper, AC Lacombe, and CDC Earl. In 2004, treatments also included full and half rate applications at either growth stage in a single application and split applications at both stages. Scald was the main disease and reduced silage yields by up to 25%, especially for cv. CDC Earl, while the impact was smaller for the other more scald resistant cultivars. Response to fungicide varied with cultivar and all applications reduced scald on cvs. CDC Earl and AC Lacombe, but not cv. AC Harper. Split applications tended to be the most effective. Silage yield responses, averaged over fungicide treatments, were significantly higher for cvs. AC Harper and AC Lacombe, reflecting lower disease compared to cv. CDC Earl. In 2000, only the split application increased fresh weight silage yields, while both treatments significantly increased dry weight yields. In 2004, fresh and dry weight yields tended to be highest for the single full rate flag leaf application or split applications, although fresh weight response to fungicide was limited for AC Harper. There may be some merit in the use of fungicide in silage barley to manage leaf diseases, especially under climatic conditions that result in high disease pressure, and with certain cultivars.

A survey for clubroot disease caused by *Plasmodiophora brassicae* on cruciferous vegetables in Alberta in 2004. M.W. Harding, R.J. Howard, C. Neeser, S.E. Strelkov, J.P. Tewari, S.L.I. Lisowski, D.L. Slomp, S. Xue, and R.C.J. Spencer. *Crop Diversification Centre South, Alberta Agriculture, Food and Rural Development, S.S. #4, Brooks, AB T1R 1E6, Canada; (S.E.S., J.P.T., S.X) Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta T6G 2P5, Canada; (R.C.J.S.) Alberta Agri-Info Centre, Alberta Agriculture, Food and Rural Development, Postal Bag 600, Stettler, AB T0C 2L0, Canada.*

The slime mold *Plasmodiophora brassicae* Woronin causes clubroot in vegetables and oilseed crops in the Brassicaceae. The pathogen is a soil-borne protist with a worldwide distribution and can cause significant losses in susceptible crops. The presence of the parasite within susceptible host roots leads to a swelling of the cells causing club-shaped tumors. Infrequent and isolated reports of clubroot in home and market gardens in central Alberta have been made over the past 30 years. The most recent outbreak was in Chinese cabbage at a market garden near Leduc in 2001. The first confirmed case of *P. brassicae* in canola in western Canada was in a field near St. Albert, Alberta in 2003. This discovery was a serious concern to canola and vegetable growers for a number of reasons, including the widespread cultivation of these crops. Furthermore, they are grown in regions of Alberta containing acidic soils, which may favor pathogen survival and disease development. The purpose of this study was to: 1) Assess the prevalence of clubroot in cruciferous vegetables, 2) Screen for clubroot resistance in broccoli, Brussels sprouts, cabbage, cauliflower, kohlrabi, radish, rutabaga and turnip, and 3) Test the possibility of seed transmission of *P. brassicae*. A survey of over 20 vegetable fields across Alberta in September-October, 2004 revealed no occurrences of clubroot. A comprehensive disease rating of more than 50 cole crop varieties planted in an infested field at the Crop Diversification Centre North, Edmonton showed low levels of infection (<10%). Work on vegetable seed assays is in progress.

Electro-chemically activated (ECA) water - A new disease management tool for greenhouse vegetable crops. V.K. Bansal, R.J. Howard, and N.A. Savidov. *Crop Diversification Centre South, Alberta Agriculture, Food and Rural Development, SS #4, Brooks, AB T1R 1E6, Canada*

Greenhouse vegetable production is a year-round, intensive cropping system and requires high levels of inputs, especially fertilizers and pesticides. Various infectious diseases can affect vegetable crops grown in both hydroponic and solid substrate production systems. With increased consumer awareness of food safety issues and the rising costs of chemical inputs, it has become more important to develop safe, environmentally responsible disease control methods. Recently, a new technology has been developed in which electro-chemically activated (ECA) water is generated by the electrolysis of dilute solutions (0.001 –1.0%) of potassium or sodium chloride. ECA water contains hypochlorite, peroxide, chlorine dioxide, ozone and other ions with anti-bacterial and anti-fungal activity, and has been used to treat water in various industrial and agricultural applications. In this study, we evaluated the use of ECA water to control powdery mildew caused by *Erysiphe cichoracearum* on lettuce (*Lactuca sativa* L.). Various concentrations of the ECA water, with or without the surfactant Agral 90 (nonylphenoxy polyethoxy ethanol 90%), were sprayed on naturally infected lettuce heads obtained from a commercial greenhouse. A solution of undiluted ECA water with Agral 90 (0.5 ml/L) suppressed disease development for up to 8 days after a single spray. The results of two ECA dosage studies will be presented. We are also testing the efficacy of ECA water against stem and root rot pathogens (*Pythium* and *Fusarium*) and powdery mildew of greenhouse cucumbers.

Genetical components of resistance in slow-scalding genotypes of barley: Implications for breeders and pathologists. B. Sorkhilalehloo, J. P. Tewari, F. Capettini, T. K. Turkington, K. G. Briggs, and R. P. Singh. *Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB T6G 2P5, Canada; (F.C.) International Center for Agricultural Research in Dry Areas (ICARDA) c/o International Maize and Wheat Improvement Center (CIMMYT), Apartado Postal 6-641, 0660 Mexico, D.F., Mexico; (T.K.T.) Agriculture and Agri-Food Canada, Lacombe Research Centre, 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada; and (R.P.S.) CIMMYT, Apartado Postal 6-641, 0660 Mexico, D.F., Mexico.*

Slow-scalding resistance (S-SR) has been gaining increasing attention in barley due to concerns regarding the instability of major-gene resistance. Little is known about the inheritance of S-SR. Standardized area under the disease progress curve (SAUDPC) was used to investigate the genetic basis of S-SR in complete F1, F2, F3, and F5 diallel trials of populations of crosses between three ICARDA/CIMMYT slow-scalding lines and a susceptible cultivar, Stander. The SAUDPC values for all F1 crosses demonstrated a severity lower than that of mid-parental values with population means shifting toward the slow-scalding parents, which was an indication of contribution towards incomplete dominance. The frequency distributions of SAUDPC of the F2, F3, and F5 lines were continuous. Transgressive segregation was observed among both susceptible x resistant (SxR) and resistant x resistant (RxR) crosses. One to three genes were estimated to condition S-SR in SxR crosses. With respect to the components of genetic variance, general combining ability effects explained a significant portion of total variance (0.77 - 0.98), whereas reciprocal effects showed low contributions (<0.09). Additive variance contributed the major portion of total genetic variance for S-SR. Estimates of narrow-sense heritability of S-SR were high (0.80-0.98). Existence of such resistance genes with additive effects and high heritabilities supports use of phenotypic selections for S-SR in early generations, and the prospect for pyramiding resistance genes to achieve stable resistance against barley scald using back-crossing methodology.

The nature of cold-induced resistance to snow mold in winter wheat. D. Gaudet, T. Despins, B. Puchalski, M. Frick, and A. Laroche. *Agriculture and Agri-Food Canada, Lethbridge Research Centre, Box 3000, Lethbridge, AB T1J 4B1 Canada.*

The Low Temperature Basidiomycete (=LTB) is the most important snow mold pathogen in western Canada, causing serious damage to winter cereals, grasses, and forages. Previous research has shown that unhardened winter wheat plants are highly susceptible to snow mold and that resistance increases with duration of hardening at 2°C prior to infection. We studied the rate of infection and the histological details of penetration and infection of Norstar (susceptible) and PI181268 (resistant) by the LTB fungus, in plants hardened for 0 (unhardened), 3, 7 (incompletely hardened), or 42 days (fully hardened) at incubation temperatures of 0.5°C or -3°C. In unhardened and incompletely hardened treatments, infection was more rapid at 0.5°C than at -3°C, whereas in the 42-day treatment, infection rates at both temperatures appeared to be similar. In incompletely hardened treatments, leaf penetration by the LTB fungus occurred randomly, often directly through the epidermis or into leaf veins and ribs. In contrast, in hardened tissues, infection occurred exclusively through the stomata. Additionally, large mycelial aggregates were formed prior to invasion of internal leaf tissues in fully hardened treatments, whereas small or no mycelial aggregates formed in unhardened tissues. These results demonstrate that hardening induces changes in the leaf that fundamentally alter the invasion patterns of this pathogen.

Microarray analysis of low temperature gene expression in snow mold resistant wheat (*Triticum*). D. Nilsson, M. Frick, C. Penniket, B. Puchalski, D. A. Gaudet, and A. Laroche. *Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, Alberta, T1J 4B1 Canada.*

Winter wheat represents approximately 5% of cultivated wheat in Canada. Winter survival is a key issue with winter wheat. The two major factors affecting survival are freezing tolerance and snow mold resistance; both are induced by low temperatures during the fall and early winter. Improved cultivars with superior freezing tolerance and snow mold resistance attributes would enable production in wider areas of the Canadian Prairies. We are reporting on the identification of transcription factors putatively regulated by exposure to cold temperatures and initial characterization of gene expression using DNA microarray technology to discover novel/rare genes associated with cold tolerance and disease resistance. Seven suppressive subtractive hybridization libraries were constructed using different cold hardened winter wheat genotypes. Transcription factor sequences were identified from nearly 22,000 good quality sequence clones using homology to known sequences available in public databases. Approximately 200 distinct putative transcription factors were identified. Inserts from these clones and 280 other clone sequences were amplified, purified and printed on microarray slides to form a small array of 480 elements. These arrays were probed with RNA from three winter wheat cultivars. Eleven genes showed strong low temperature regulation across all data sets while the regulation of 15 other genes was variable among the replicates. Regulation of these genetic elements must now be verified independently using real-time PCR or northern blot analyses. Microarray experiments can evaluate a very large number of genes, create vast amounts of data very quickly and enable efficient identification of a small subset of differentially regulated genes.

Problems with 2 colour microarray experiments. M. Frick, D. Nilsson, C. Penniket, D.A. Gaudet and A. Laroche. *Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, Alberta T1J 4B1 Canada.*

Microarrays provide a powerful, high throughput tool for analysis of gene expression. This tool has potential for discovery of new genes and their function based on differential expression profiles. However, as a new technology, the potential and limitations of this tool are still being discovered. Due to the complexity of the experiments, there are numerous opportunities for systematic errors, which can lead to a lack of reproducibility in the results. Potential pitfalls and quality control of these experiments will be discussed.

Cloning efficiency of genes and construction of expression vectors for wheat. C. Penniket, M. Frick, D. Nilsson, A. Laroche, D. A. Gaudet, F. Eudes, and R. Graf. *Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, Alberta T1J 4B1 Canada.*

Expression vectors were built for the purpose of studying the expression of genes involved in plant defense. These genes are cloned into the expression vectors which are subsequently used for transfection experiments. Blunt ended cloning of the genes into restricted expression vectors showed extremely poor efficiencies (less than 100 colony forming units per transformation). Poly-A addition to the insert and Poly-T addition to the restricted vector did not improve cloning efficiencies. When screened by PCR, both methods showed less than 0.5% of clones contained the insert. Furthermore, sequencing showed less than half of PCR positive clones contained the correct insert in the correct orientation. We employed the Gateway® Technology from Invitrogen™ which uses lambda phage recombination, to improve cloning efficiencies and direction. Recombination reactions between entry vectors and the destination vectors produced expression vectors containing the gene of interest. Gateway® destination vectors were created by ligating a Gateway® cassette into restricted expression vectors. The Gateway® cassette contains the lethal ccdB gene which allows for selection of positive recombinants. Entry vectors were created by TOPO cloning blunt ended PCR products into pENTR TOPO® vectors and through Gateway® recombination with PCR products created using primers containing recombination sites. TOPO cloning produced some clones with antisense or truncated inserts whereas creating entry clones using Gateway® recombination improved cloning efficiencies by approximately 2000%. Screening of the recombinants by PCR showed close to 100% of the clones contained the required insert and sequencing showed that the inserts were in the correct orientation.

Surveillance of ascochyta blight of chickpea in southern Alberta in 2004. H.U. Ahmed, K.F. Chang, S.F. Hwang and R.J. Howard. *Field Crop Development Centre, Alberta Agriculture, Food and Rural Development, Lacombe, AB T4L 1W1, Canada; (S.F.H) Alberta Research Council, Vegreville, AB T9C 1T4, Canada; (R.J.H.) Crop Diversification Centre South, Alberta Agriculture, Food and Rural Development, Brooks, AB T1R 1E6, Canada.*

Ascochyta blight caused by *Ascochyta rabiei* (Pass) Labr.), is a serious threat to chickpea (*Cicer arietinum L.*) production in Canada. Monitoring the disease situation is a prerequisite for developing effective disease management strategies. A survey was conducted to determine the occurrence of ascochyta blight of chickpea in southern Alberta in 2004. A total of 28 fields comprising 2579 acres were scouted for the disease. Average disease incidence and disease severity were 23.4% (range 0-100%) and 0.75 (range 0-3 where 0= no disease; 3= 100% plant disease severity), respectively. Kabuli type chickpeas were predominantly grown in this area. Growers reported that crop performance was satisfactory where they took early preemptive disease management precautions. The implications of cultural practices, variety selection and field location on the variability of ascochyta blight in the surveyed areas will be discussed.

Pathogenicity of Canadian and Mexican isolates of *Rhynchosporium secalis* on a wide range of spring barley cultivars and lines. B. Sorkhilalehloo, J. P. Tewari, F. Capettini, T. K. Turkington, and H. W. Klein-Gebbinck. *Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB T6G 2P5, Canada; (F.C.) International Center for Agricultural Research in Dry Areas (ICARDA) c/o International Maize and Wheat Improvement Center (CIMMYT), Apartado Postal 6-641, 0660 Mexico, D.F., Mexico; (T.K.T.) Agriculture and Agri-Food Canada, Lacombe Research Centre, 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada; and (H.W.K) Agriculture and Agri-Food Canada, Beaverlodge Research Farm, Box 29, Beaverlodge, AB T0H 0C0, Canada.*

Studies on the reactions of barley genotypes to local sets of scald pathotypes assist barley breeders and pathologists in resistance gene deployment strategies, whereas knowledge of the interactions between barley genotypes and a wide set of *Rhynchosporium secalis* isolates are considered useful for durable resistance breeding. Pursuant to these objectives, tests of pathogenicity were undertaken to examine virulence and aggressiveness of 19 single-spore isolates of *R. secalis* originating from Canada and Mexico on a set of 73 barley genotypes; and to determine the potential stability/durability of resistance in these genotypes. The plant materials included 9 differentials, 44 western Canadian, and 20 ICARDA/CIMMYT barley cultivars/lines. Neither the pathogenic variation in isolates from the "scald hot spot" of Toluca, Mexico, nor the reactions of this set of barley cultivars/lines against the Canadian and Mexican isolates have been tested before. Based on their disease indices and aggressiveness, a great amount of variability was observed among the isolates differentiating them into 19 different pathotypes. Plant materials were also classified into different clusters representing various resistance levels. As a practical key breeding strategy, it was rationalized that genotypes with resistance against a higher number of isolates in the pathogen populations could perform in a more durable way. The results showed that none of the barley genotypes were immune against all the isolates. However, the cluster of "highly resistant" genotypes contained barleys resistant to the majority of the pathotypes among which, there were some malting, hulless, slow-scalding, and differential lines that could be used as promising potential sources of stable resistance to scald.

Histopathological and physiological studies on barley leaves infected with *Rhynchosporium secalis*. B. Sorkhilalehloo, J. P. Tewari, G. A. Sadeghi, and T. K. Turkington. *Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB T6G 2P5, Canada; (G.A.S) Department of Animal Science, University of Kurdistan, Kurdistan, Iran; and (T.K.T.) Agriculture and Agri-Food Canada, Lacombe Research Centre, 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada.*

The histopathology of barley cultivars, Stander and Jackson (susceptible), UNA 80 and Zavila (slow-scalding), and Osiris (resistant) infected with *Rhynchosporium secalis* were studied with an emphasis on characterization of slow-scalding resistance. The objectives were to compare the infection processes of the scald pathogen in different resistance groups and to determine the levels of calcium, potassium, silicon, and sodium in barley leaves using scanning electron microscopy in conjunction with energy-dispersive X-ray microanalyses. Changes in the host vascular bundles and transportation of vascular sap under different disease severities were studied by light and transmission electron microscopy, and also by collection and analysis of exudates in conjunction with protein and sugar assays. The slow-scalding lines showed compatible reactions with the scald pathogen characterized by normal conidial germination and appressorium formation, however, rates of subcuticular mycelial growth and sporulation were lower compared to those in the susceptible cultivars. No sporulation was observed on the cultivar Osiris. Significant differences were observed in the studied elements between inoculated and uninoculated samples for all resistance levels. The cultivar Osiris showed a significantly different elemental composition, whereas no particular differences were evident between slow-scalding and susceptible lines. The formation of Ca/K containing crystals was found to be associated with disease at all resistance levels. Phloem cells were macerated and transportation of photosynthates was adversely affected only by infections of the leaf auricle with a disease score of 4, where leaf base tissues were partially macerated around the main vein.

Techniques for optimal development and assessment of barley scald caused by *Rhynchosporium secalis* under controlled and field environments. B. Sorkhilalehloo, J. P. Tewari, and T. K. Turkington. *Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB T6G 2P5, Canada; and (T.K.T.) Agriculture and Agri-Food Canada, Lacombe Research Centre, 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada.*

Development and assessment of diseases are two of the most crucial prerequisites in plant breeding, pathological and genetical studies. Despite the fact that there are numerous publications on a wide range of conditions optimum for the development of barley scald caused by *Rhynchosporium secalis*, none have discussed in depth the problems involved in setting-up the conditions and conducting disease assessment under controlled and field environments. In preliminary barley scald growth chamber inoculation experiments at the University of Alberta, we were unable to obtain typical scald lesions as part of routine and uniform seedling tests. Additionally, under field conditions, variations in weather parameters and competition with other barley leaf diseases, and their influence on scald progress sometimes resulted in low disease pressure at Edmonton, Alberta. This was not satisfactory for an effective differentiation of susceptible and resistant barley genotypes. Some serious problems are also associated with currently used scoring systems for scald evaluations at the seedling and adult-plant growth stages. Guidelines and techniques leading to the alleviation of these problems are outlined to help achieve some degree of standardization in disease assessment methods. A modified 0-9 scale, which integrates different aspects of disease intensity into one single score, is proposed for assessment of adult plant/slow-scalding resistance. Another 0-4 infection response rating scale is proposed for evaluation of seedling resistance. The various infection types and the percentage area scalded are illustrated. To the best of our knowledge, so far, there has been no attempt to develop such a scald scoring guide for both seedling and adult plant assessments.

Influence of trichothecenes on strain aggressiveness of *Fusarium graminearum* causing seedling blight and root rot in wheat, barley and triticale. H. Wang, S. F. Hwang, F. Eudes, R. J. Howard, and G. D. Turnbull. *Alberta Research Council, Vegreville, AB T9C 1T4, Canada; (F.E.) Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, AB T1J 4B1, Canada; (R.J.H.) Crop Diversification Centre South, Alberta Agriculture, Food and Rural Development, Brooks, AB T1R 1E6, Canada.*

Various *Fusarium* species are associated with head blight of cereals, but *Fusarium graminearum* Schwab (sexual stage: *Gibberella zeae* (Schwein.) Petch) is the major pathogen worldwide. *F. graminearum* produces deoxynivalenol (DON) and acetylated DON, hazardous trichothecenes that pose a threat to human and animal health and safety. These trichothecenes have also been found to be phytotoxic and have been associated with *F. graminearum* aggressiveness in fusarium head blight of wheat. Greenhouse trials were conducted in 2003 and 2004 to investigate the impact of trichothecenes on the severity of seedling blight and root rot in wheat (*Triticum aestivum* L.), durum wheat (*T. turgidum* L. var. *durum* (Desf.) Mk.), barley (*Hordeum vulgare* L.), and triticale (*Triticale hexaploide* Lart.) using two trichothecene-producing strains and two non-trichothecene-producing strains of *F. graminearum*. Mean seedling emergence and survival for the trichothecene-producing strains were 51% and 36%, respectively, compared to 82% and 65% for the non-trichothecene-producing strains. Inoculation with GzT106, a trichothecene-producing "add-back" strain, resulted in the greatest level of root rot and the lowest seedling emergence and survival among the four strains. Tolerance to the trichothecene-producing strains varied among the barley cultivars used in the trial. The presence of trichothecenes may play an important role in the virulence of *F. graminearum* as the cause of root rot and seedling blight in cereals.

Seeding conditions: Potential for management of mycosphaerella blight of field pea.
S.F. Hwang, R.L. Conner, K.F. Chang, B.D. Gossen, H. Su, R.J. Howard and G.D. Turnbull. *Alberta Research Council, Vegreville, AB T9C 1T4, Canada; (R.L.C.) Agriculture and Agri-Food Canada, Morden Research Centre, Morden, MB R6M 1Y5, Canada; (K.F.C) Field Crop Development Centre, Alberta Agriculture, Food and Rural Development, Lacombe, AB T4L 1W1, Canada; (B.D.G.) Agriculture and Agri-Food Canada, Saskatoon Research Centre, Saskatoon, SK S7N 0X2, Canada; (R.J.H.) Crop Diversification Centre South, Alberta Agriculture, Food and Rural Development, Brooks, AB T1R 1E6, Canada.*

Mycosphaerella blight (*Mycosphaerella pinodes* (Berk. & Blox.) Vestergr.) causes moderate to severe losses in field pea (*Pisum sativum* L.) production throughout western Canada. Field trials to quantify yield losses associated with mycosphaerella blight near Edmonton, AB showed approximately 20% greater yield in plots protected with fungicide throughout the growing season compared to unprotected controls. Field trials were conducted at Edmonton, AB and Morden, MB in 2002 and 2003 to assess the impact of seeding rate, seeding depth and seed infection on blight severity. Foliar mycosphaerella blight severity increased somewhat at higher seeding rates, so that treatments seeded at 30 plants m^{-2} had significantly ($P \leq 0.05$) lower levels of disease than those seeded at more than 100 seeds m^{-2}. However, yield potential was significantly lower at 30 than at 60 plants m^{-2} and lower at 60 plants m^{-2} than at 120 or 150 plants m^{-2}. Seed infection level (infected, mixed, or healthy seed) did not affect disease levels in the crop, but 1000-seed weight and seed yield and were 11 and 17% lower, respectively, in treatments sown with infected seed than in those sown with healthy seed. Depth of seeding did not affect seedling density, severity of disease, yield or seed weight in adult plants.

Manipulation of row spacing and seeding rate for the management of ascochyta blight of chickpea. K.F. Chang, H.U. Ahmed, S.F. Hwang and R.J. Howard. *Field Crop Development Centre, Alberta Agriculture, Food and Rural Development, Lacombe, AB T4L 1W1, Canada; (S.F.H) Alberta Research Council, Vegreville, AB T9C 1T4, Canada; (R.J.H.) Crop Diversification Centre South, Alberta Agriculture, Food and Rural Development, Brooks, AB T1R 1E6, Canada.*

The major factor that limits the production of chickpea (*Cicer arietinum* L.) in Canada is ascochyta blight caused by *Ascochyta rabiei* ((Pass) Lab.). Plant density and row spacing may have a profound effect on the epidemiology of ascochyta blight. Two chickpea cultivars, three row spacings and three seeding rates were sown and monitored for disease incidence and severity of infection by *A. rabiei* at Brooks, Alberta in 2004. Disease data were compared for each treatment throughout the growing season. Analysis of variance indicated significant differences in disease levels between cultivars, among seeding rate treatments and among row spacings later in the season. Disease progress was slower in the desi cultivar 'Myles' compared to the kabuli cultivar 'Dwelley'. Later in the season, both disease incidence and severity increased rapidly in the desi cultivar. Higher plant populations, due to reduced row spacings and higher seeding rates, significantly increased disease levels. These preliminary results suggest that wider row spacings and reduced seeding rates, in addition to the use of cultivar resistance, crop rotation and fungicides, could be used to manage ascochyta blight of chickpea. The trial will be repeated in the coming year to confirm the results.

Molecular marker development for scald resistance in 'Seebe' barley. J.L. Zantinge, J.H. Helm, J.M. Nyachiro, and K. Xi. *Field Crop Development Centre, Alberta Agriculture, Food and Rural Development, 5030 – 50th Street, Lacombe, AB T4L 1W8, Canada.*

Scald (*Rhynchosporium secalis*) of barley is prevalent in central Alberta, Canada and causes considerable yield and quality losses. Scald can rapidly change in pathotype composition and frequency, thereby making it difficult to develop durable scald resistance in barley. Previous studies have shown that the cultivar 'Seebe' carries durable genetic resistance, however, barley breeders have found this trait difficult to transfer into new barley lines. Therefore, we are trying to develop molecular markers for scald resistance from 'Seebe'. Recombinant inbred lines were developed from the cross of 'Harrington' (scald susceptible) and 'Seebe' (scald resistant). Progeny of about 175 individual F_2 seedlings were advanced by single-seed descent to the F_8 generation. Disease resistance to a major scald race was phenotyped at the seedling stage in a green house. By utilizing bulked segregant analysis (BSA), resistant and susceptible pooled populations were compared by AFLP analysis. A total of 255 AFLP primer combinations were used to analyze the genetic population and several *Eco*RI-*Mse*I and *Pst*I-*Mse*I fragments were found linked to scald disease resistance. These AFLP fragments identified are currently being verified, sequenced and transformed into a site-specific marker. Our goal is to map and identify molecular markers flanking the major gene for scald resistance in 'Seebe'.

Other Societies related to plant pathology in Canada: PPSA and QSPP. C. Martinez, R.J. Tweddell, V. Gravel, D. Orr, and J.P. Tewari. *(C.M., R.J.T. and V.G.) Centre de Recherche en Horticulture, Université Laval, Québec, QC G1K 7P4, Canada; (D.O.) Agriculture and Agri-Food Canada, Lacombe Research Centre, 6000 C&E Trail, Lacombe, Alberta T4L 1W1, Canada*; *and (J.P.T.) Department of Agricultural, Food, and Nutritional Science, University of Alberta, Edmonton, Alberta T6G 2P5, Canada.*

The Plant Pathology Society of Alberta (PPSA) is a regional Society devoted to education, advancement and dissemination of the knowledge of plant pathology, and its practices. Incorporated on May 28, 1980, the Society has about 65 members and was preceded by the Alberta Regional Group of the Canadian Phytopathological Society. Research Papers, Plant Disease Overviews, Reports on Other Meetings, and Symposium Presentations by reputed scientists are given during the Annual Meetings. Awards are given to graduate students and technical staff for presentations at the Annual Meetings. Each year the graduate students are awarded the PPSA Scholarship and the Dr. Terry Swanson Memorial Scholarship. Founded at Macdonald College (McGill University) in 1908, the Quebec Society for the Protection of Plants (QSPP) brings together scientists, agronomists, biologists, technicians, students as well as any person interested in plant protection. The QSPP holds Annual Meetings to encourage exchanges among individuals interested in plant protection and to promote an interdisciplinary approach to plant protection issues. The Society awards yearly the QSPP Scholarship and the W.E. Sackston Award for the best student communication presented during the Annual Meeting. The Society encourages the diffusion of scientific knowledge in plant protection by publishing the international scientific journal *Phytoprotection* and the book *Names of Plant Diseases in Canada.*

Pathogenic and genetic variation in *Mycosphaerella pinodes* from field peas in Alberta. H. Su, S.F. Hwang, K.F. Chang, R.L. Conner, T. Warkentin, R.J. Howard, and G.D. Turnbull. *Alberta Research Council, Bag 4000, Vegreville, AB T9C 1T4, Canada; (K.F.C.) Field Crop Develop Centre, Alberta Agriculture, Food and Rural Development, Lacombe, AB T4L 1W1, Canada; (R.L.C.) Agriculture and Agri-Food Canada, Morden Research Station, Morden, MB R6M 1Y5, Canada; (T.W.) Crop Development Centre, University of Saskatchewan, Saskatoon, SK, S7N 5A8 Canada; (R.J.H.) Crop Diversification Centre South, Alberta Agriculture, Food and Rural Development, Brooks, AB T1R 1E6, Canada.*

Eighty-three isolates of *Mycosphaerella pinodes* (Berk. et Blox.) Vestergr. collected from Alberta in 2001 were analyzed for their pathogenicity on ten field pea (*Pisum sativum* L.) differentials, including 'JI96', 'JI181', 'JI190', 'Eclipse', 'Carrera', 'Danto', 'Radley', 'Miko', 'Espace', and 'Majoret' under greenhouse conditions in 2003. Genetic variation was detected by DNA polymorphism using the RAPD technique. Six pathotypes of *M. pinodes* were classified according to the average lesion size caused by the pathogen on the differentials. Three pathotypes comprised 72% of the isolates and were avirulent or only virulent on the most susceptible lines 'JI181'and 'JI190', and on the less susceptible differentials 'Eclipse', 'Carrera' and 'Danto'. 'JI96' and 'Radley' were only susceptible to the most virulent pathotype (7% of the population), which caused large lesions on all differentials. The distribution of isolates causing various levels of disease on susceptible cultivars was nearly normal. The more virulent isolates identified were sampled from the northwest area of central Alberta, where moisture levels are usually higher than in the southeast region. Most of the isolates (74%) from central Alberta were very similar in genotype, while the others could be divided into three additional genotypic groups. No correspondence was found between the groupings in terms of genetic variation and pathotype.

Internal fruit rot of greenhouse sweet pepper: A new disease in Alberta. J. Yang, A. DiCarlo, R.J. Howard, P.D. Kharbanda, and M. Mirza. *Alberta Research Council, Vegreville, AB T9C 1T4, Canada; (R.J.H.) Alberta Agriculture Food and Rural Development, Crop Diversification Centre South, Brooks, AB T1R 1E6, Canada; (M.M.) Alberta Agriculture Food and Rural Development, Crop Diversification Centre North, Edmonton, AB T5B 4K3, Canada.*

Internal fruit rot was noticed on sweet peppers (*Capsicum annuum* L.) in commercial greenhouses in central and southern Alberta in 2003. The internal surfaces of infected fruits were covered with white mycelium; a few fruits also developed external lesions. Because affected fruit could not be culled based on visual inspection, many suspicious fruits had to be destroyed, thus reducing marketable yield from 24 to ca. 20 kg m^{-2}. A research initiative was undertaken to study the etiology and epidemiology of this new disease and to develop a disease prevention program. A greenhouse near Lacombe was surveyed in 2004, fungi from symptomatic fruits were isolated, identified and their pathogenicity confirmed following Koch's Postulates. More than 30 isolates were collected, which mainly belonged to three *Fusarium* species: *F. solani* (47%), *F. proliferatum* (36%) and *F. oxysporum* (17%). *Fusarium solani* was the main cause of fruit and stem rot on red and yellow peppers, while *F. proliferatum* was mainly associated with orange peppers (cv. Sympathy) showing internal fruit rot symptoms. Only *F. proliferatum* caused internal fruit infection on red pepper (cv. Early California Wonder) when flowers were artificially inoculated. *Fusarium oxysporum* was not as pathogenic as the other two species. This is the first report of internal fruit rot of pepper caused by *F. proliferatum*. A similar disease caused by *F. subglutinans* was reported in B.C. in 2002. An intensive disease survey of Alberta pepper greenhouses is being conducted to determine the extent of the problem.

Can seed infection by *Fusarium graminearum* lead to head blight in barley and wheat? K. Xi and T.K. Turkington. *Alberta Agriculture, Field Crop Development Centre, 6000 C & E Trail, Lacombe, AB, T4L 1W1, (T.K.T) Agriculture and Agri-Food Canada, Lacombe Research Centre, 6000 C & E Trail, Lacombe, AB, T4L 1W1 Canada.*

A high level of systemic fungal growth by *Fusarium culmorum* in winter wheat was demonstrated by isolation in a study from the Netherlands. The current study was undertaken to evaluate the potential for systemic infection in barley by artificially inoculating the growth medium in pots containing seedlings of AC Lacombe barley. Furthermore, naturally infected wheat kernels were grown out to assess the potential for systemic infection of *F. graminearum* into the stem. Approximately 50% of naturally infected wheat seeds either failed to emerge or seedlings died shortly after emergence. Crown and stem discoloration was found from the inoculated barley and naturally infected wheat seed. Mycelial infection and sporulation were observed in the crown area using light and electron microscopy. Systemic infection evidenced by the presence of fungal hyphae was frequently observed in the 1st to 2nd internode. Infection was occasionally found in the stem tissues above the crown up to 20 cm at the 4th internode. No head blight resulting from seed infection was observed. *F. graminearum* was identified through isolation. Fungal hyphae were mostly located in the parenchyma tissue and culm, with few in the vascular tissue. In conclusion, no evidence was found for systemic infection leading to head blight of barley or wheat. Under growth chamber conditions seed and seedling infection by *F. graminearum* and subsequent systemic fungal growth can lead to infection of the lower stem. Research is needed to determine if similar results occur under field conditions.

***In vitro* selection of barley resistant/tolerant to Fusarium head blight.** K. Kumar, K. Xi, J. H. Helm and T. K. Turkington. *Alberta Agriculture, Food and Rural Development, Field Crop Development Centre, c/o 6000 C & E Trail, Lacombe, AB T4L 1W1 Canada; (J.H.H.) Alberta Agriculture, Food and Rural Development, Field Crop Development Center, 5030-50 St., Lacombe, AB T4L 1W8 Canada; (T.K.T) Agriculture, and Agri-Food Canada, Lacombe Research Centre, 6000 C & E Trail, Lacombe, AB T4L 1W1 Canada.*

In vitro techniques were used to evaluate barley cultivars or germplasm resistant or tolerant to Fusarium head blight (FHB) incited by *Fusarium graminearum.* Susceptible cultivar AC Lacombe showed significantly larger lesions and higher sporulation on detached leaf segments compared with resistant cv. Chevron, while I92130 had significantly less sporulation. Other cultivars/germplasm, including Seebe, AC Metcalfe, Penco, I92130, H93120 and Stetson, had intermediate lesion size. The same trend among susceptible and resistant cultivars was consistently observed in a repeated experiment with a different set of eight cultivars. Cultivars varying in FHB reactions were also evaluated using PDA/agar amended with ground leaf tissue or grain. Twenty grams of surface sterilized leaf tissue or grain were ground in 100 ml sterilized water and mixed with either sterilized PDA or agar then solidified in Petri dishes. *F. graminearum* had significantly larger colony diameter on susceptible AC Lacombe and Stetson compared with resistant cv. Chevron and I92130 with leaf tissue amended PDA (2.5 PDA: 7.5 leaf) and agar (1 agar: 9 leaf). Spore production was significantly higher in the susceptible AC Lacombe as compared to resistant I92130 using the leaf tissue amended agar (1 agar: 9 leaf). Fungal colony diameter was larger on the ground grain agar mixture (1 agar: 9 grain) for susceptible cv. AC Lacombe as compared to resistant Penco/Chevron, I93120 and Seebe, while other cultivars showed intermediate reactions. The resistant cultivars/germplasm including Penco/Chevron, I92130, H93120 and H94051001 resulted in lower sporulation by *F. graminearum* than susceptible AC Lacombe and Stander on grain amended agar (1 agar: 9 grain). Results suggest that colony diameter and sporulation of *F. graminearum* on detached leaf segments and on PDA or agar amended with ground leaf tissue or grain may be alternate selections methodologies for FHB resistance.

Expression of plant resistance to stripe rust in wheat. B.J. Puchalski, D.A. Gaudet, T.M. Despins, R.J. Graf, and A.D. Kuzyk. *Agriculture and Agri-Food Canada, Research Centre, Box 3000, Lethbridge, AB Canada.*

Susceptible lines Fielder and Thatcher and resistant lines Nanda and Yr-18 were evaluated for stripe rust resistance. Plants at six growth stages for all lines were inoculated with rust race LR4-84 in a series of growth cabinet trials. Both juvenile and adult resistance to stripe rust occurs in wheat. Juvenile infections are characterized by localized pustules whereas adult infections develop systemic inter-venial stripes of multiple pustules. Adult resistance to stripe rust begins to occur by Feekes stage 5 and is fully developed within the population at stage 7. Hypersensitivity responses occur in both the adult and juvenile phases. When resistance genes are expressed in the adult phase, hypersensitivity responses increase.

PPSA Business Meeting Minutes- Tuesday, November 9th 2004
Lacombe, Alberta

Chair – Denise Orr
Meeting Began 3:20 PM

1. Adoption of Agenda – No changes or amendments.
   Denise Orr moved that the agenda be adopted as read. Seconded by Julia Bernier. Carried

2. Minutes of 2003 PPSA Annual Meeting, Lloydminster - Discussion: regarding the proceedings from 2003. Julie Bernier did the minutes of the business meeting, but the proceedings are not yet done. Prem Kharbanda offered to look into making sure everyone gets their copy. Bruce Gossen gave a financial summary from the meeting.

3. Interim Financial Report – Noryne Rauhala – see attached report. Discussion: Comments regarding how much appreciation there is for the reduction in registration cost for students and the help for their accommodations. Prem Kharbanda questioned the correct totals of the income statement and it was mentioned to him that this was an interim report and that there were still outstanding expenses to be paid.
   Noryne Rauhala moved that her report be adopted as read. Seconded by Julie Bernier. Carried

4. Reports of the Standing Committees
   a. Dr. Terry Swanson Memorial Scholarship – Ron Howard
      Discussion: $500 to University of California, Riverside nominated student Congli Wang. Ron Howard will include a list of all past recipients of this award.
      The banking accounts for these awards are slowly being transferred from Brooks to Lacombe, as the GIC's and other investments mature.

      Discussion: Prem Kharbanda is concerned about the low interest rates. It was decided that the funds should remain in GIC's and other low risk investments rather than a high risk category.

      Ron Howard moved that his report be adopted as read. Seconded by Denis Gaudet. Carried

      Meeting in Lloydminster was very successful because of great sponsorships and that maybe we should transfer more of the income funds from the 2003 meeting to the Memorial funds account. Bruce Gossen moved that because of the low interest rates in the daily savings account that $1000.00 be transferred into the Terry Swanson Memorial Fund. Seconded by Ron Howard. Carried

b. Awards – Denis Gaudet – so far no applicant from U of A has been submitted
Ron Howard will remind U of A of the dates for the PPSA meetings and encourage them to have submitted a name for this award prior to the next meeting.

Denis Gaudet moved that his report be adopted as read. Seconded by Ron Howard. Carried

c. Disease Survey Committee- No chair present to report

Denise Orr nominated Kelly Turkington to be the new chair for this committee. Seconded by Noryne Rauhala. Carried

d. Historical Committee – Discussion on replacing J.P. Tewari as chair. Kelly Turkington nominated Stephen Strelkov to be the new chair. Seconded by Prem Kharbanda. Carried

5. CPS Update – Bruce Gossen
Discussion: great 2003 meeting in Ottawa, lots learned and lots of fun. There will be a special edition of these proceedings available and Bayer has sponsored the cost of the printing.

Diseases of field crops in Canada reprint is starting to make money and looks like we will need to do another reprint the same time the French Translation version finished which should be late December or early January 2005.

Big Project for 2005 will be the revision of the Vegetable disease book. It's been 10 years since the last reprint. The major reason for reprinting is that the French edition is sold out, so it's cheaper to redo both versions than only one.

Plant Canada will be having a big meeting at U of A, June 15-19, 2005. Attendance is expected to be 600 – 700. Lots of different regional societies will be there; Botanical society, CPS, Weed Science, Soil Science, Molecular Biology etc. David Suzuki will be a guest speaker. It will be a great meeting

6. Conference Reports – No Report

7. Reports on Exceptional Disease Situations – No Report

8. Honorary Life Members – During the discussion about J.P. Tewari, it was noted that J.P. was already named at the 2003 meeting last year. Bruce Gossen mentioned about the passing away of Drew Smith in the fall of 2004

9. Resolutions

Denise Orr moved that it be resolved that BASF, Bayer Crop Science, Canadian Phytopathological Society, Fisher Scientific, and Syngenta Crop Protection Canada be thanked for their generous sponsorship of this year's 25th annual meeting. Seconded by Noryne Rauhala. Carried

10. Future PPSA meetings

Discussion: Tentative dates Nov 7-9, 2005. It seems that with more posters and less presentations it is leaving more time for other ideas, so it was thought that they will possibly include some type of technical workshop with the meetings.

11. Election of 2004 PPSA Officers

Discussion: Ron Howard is the 2003 VP so he is the 2004 President. Kelly Turkington nominated Stephen Strelkov to be the 2004 Vice President. Stephen Strelkov has also volunteered to take JP Tewari's place on the awards committee. Prem Kharbanda mentioned that it would be a good idea for the secretary/treasurer to be in the same place as the meeting. Ron Howard nominated Sherry Lisowski for secretary/Treasurer for 2004. Carried. In a discussion regarding new directors, Prem Kharbanda nominated Julia Bernier, who agreed to let her name stand for 2004 director. Carried

12. Other Business

a. Calgary Science Fair – Byron Puchalski spoke about the annual $100.00 award for the Calgary Science Fair for 5 years. The award is given to a student who shows a natural interest in plant pathology. At the Calgary Science Fair there would have been approximately 14 topics that fit into this category. At the national there would have been approximately 8 topics. The PPSA has committed to another 3 years of awards at the Calgary Science Fair.
b. Ron Howard invited everyone to the next annual meeting in Brooks.

Deb Clark moved that the meeting be adjourned. Carried

Officers of the Plant Pathology Society of Alberta

	2004-2005	**2003-2004**
President	Ron Howard	Denise Orr
Vice President	Stephen Strelkov	Ron Howard
Secretary Treasurer	Sherry Lisowski	Noryne Rauhala
Past President	Denise Orr	Ralph Lange
Director	Julie Bernier	Dee Ann Benard
Director	George Turnbull	George Turnbull
Director	Rod McLeod	Rod McLeod

Standing Committees

	Chair	**Members**
Historical	Stephen Strelkov	B. Puchalski
Awards	D.A. Gaudet	Stephen Strelkov R. Howard
Disease Survey	Kelly Turkington	

Report on the
DR. TERRY SWANSON MEMORIAL SCHOLARSHIP
November 9, 2004

This year's Dr. Terry Swanson Memorial Scholarship will be awarded to a student from the University of California - Riverside. The Department of Nematology has nominated Ms Congli Wang, a Ph.D. student, to receive the award. Ms Wang is from the People's Republic of China and has been a student at UCR since 2001. Her thesis topic is "Genetic and Molecular Characterization of Host-Plant Resistance to the Root-Knot Nematode and Fusarium Wilt in Cotton". The PPSA Awards Committee has reviewed a nomination letter written by Dr. James Baldwin, Chair of the Department of Nematology, as well as Ms. Wang's *curriculum vitae*, and concurs that she meets the eligibility criteria for the scholarship. A cheque for $500 and a diploma will be mailed to Dr. Baldwin, who will arrange a special presentation for Ms Wang.

A financial statement for the Scholarship Fund for 2003-04 is given below.

Guaranteed Investment Certificates (Scotia Securities Inc.)

Two Cash Equivalent GICs were redeemed at maturity on October 28 and December 5, 2003, respectively, and the collective proceeds, in the amount of $1647.86, were forwarded by cheque to the PPSA President for deposit in the Society's account at Community Savings in Lacombe.

Fixed Income GIC (Scotia Securities Inc.)*

Opening Balance (Jan. 22 '03)	$7584.08
Balance at maturity (Jan. 22 '04)	$7735.76
Interest earned	$ 151.68

* GIC is invested for a 1-year term at 2%

Daily Interest Savings Account

Balance (Oct. 30 '04)	$ 77.33

Donations Received (2002-03)

PPSA 2002 annual meeting	$ 48.27
PPSA 2003 annual meeting	$ 10.00

Disbursement of Funds (2003)

2003 Scholarship to UBC	$ 500.00

Respectfully submitted by R. Howard, D. Gaudet, I. Evans and J.P. Tewari

Plant Pathology Society of Alberta

Financial Summary, December 2004

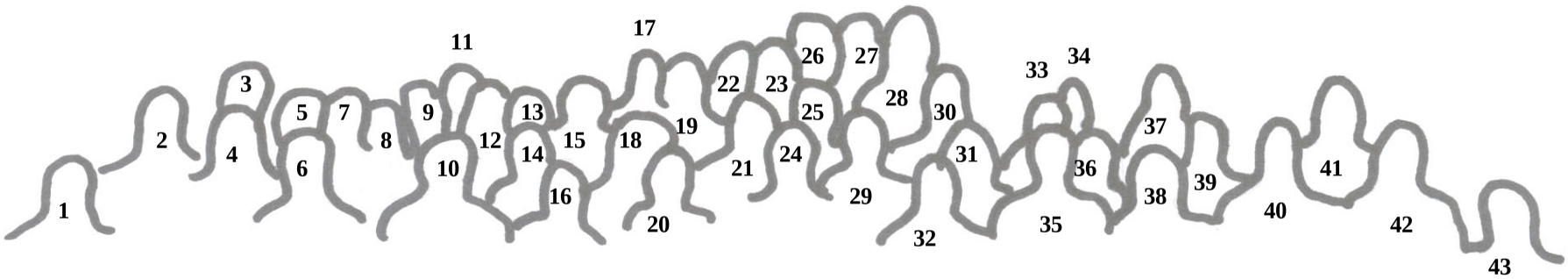
Opening Balance		$ 5,497.65
Revenues		
Interest	$15.52	
Return of Float for Joint meeting in Lloydminster	$1,000.00	
Memberships from the Joint meeting in Lloydminster ($10 x 29)	$290.00	
Profit from the Joint meeting in Lloydminster	$1,100.00	
CPS(Grant for 2004 meeting)	$150.00	
Sponsorship	$1,250.00	
Registrations for 2004 meeting - members(32@ $75)	$2,400.00	
Registrations for 2004 meeting - non-members(7@ $85)	$595.00	
One day registrations (3 x $50)	$150.00	
Late fees ($20 x 1)	$20.00	
Dr.Terry Swanson Memorial Fund Donations	$110.00	
Publication ($30 x 19)	$570.00	
PPSA membership-Regular ($10 x 35) and 1 student	$360.00	
Extra meals	$90.00	
Total Revenue	$8,100.52	$ 8,100.52
Expenses		
Cheques	$20.00	
Re-registration of Society	$50.00	
2003 Scholarship	$500.00	
PPSA Science Fair Award	$125.00	
Student Lodging ($50 x 3)	$150.00	
Student and Technician Awards ($50 x 2)	$100.00	
Dr. Terry Swanson Memorial Fund	$1,120.00	
Abstract Publication ($30 x 19)	$570.00	
Meeting Expenses	$3,379.16	
Total Expenses	$6,014.16	$6,014.16
Balance		$ 7,584.01

Prepared by: Noryne Rauhala

Audited by : Deb Clark

25th Plant Pathology Society of Alberta

November 8-10, 2004, Lacombe



1 – Kalyan Basu
2 – Michael Harding
3 – Dustin Burke
4 – Sasha Chisholm
5 – Jodi Sadleir?
6 – Robyne Bowness
7 – Heping Wang
8 – Paul Laflamme
9 – Piara Bains
10 – Ron Howard
11 – George Turnbull
12 – Bruce Gossen
13 – Allen Terry?
14 – Prem Kharbanda
15- Byron Puchalski
16 – Michelle Frick
17 – Deb Clark
18 – Caroline Penniket
19 – David Slomp
20 - Denise Nilsson
21 – Julie Bernier
22 – Sherry Lisowski
23 – Noryne Rauhala
24 – Vipan Bansal
25 – Lu Piening
26 – Denis Gaudet
27 – Rob Spencer
28 – Denise Orr
29 –Wendi Dymtriw
30 – Bill Chapman
31 – Melissa Orr?
32 – Hafiz Ahmed
33 – Kelly Turkington
34 – Jackie Busaan
35 – Krishan Kumar
36 – Winnie McNabb
37 – Jennifer Zantinge
38 – Kan-Fa Chang
39 – Sanaz Ramezanpour
40 – James Calpas
41 – Hassan Soltanloo
42 – Behzad Sorkhilalehloo
43 – Jiang Yang
Missing - Anna DiCarlo, Kequan Xi