

AGMED NEWS '97 - '99

CENTRE FOR AGRICULTURAL MEDICINE, UNIVERSITY OF SASKATCHEWAN



July 1999



Faculty, staff, students and volunteers at the Fourth International Symposium: "Rural Health and Safety in a Changing World", October 18-22, 1998 at the Delta Bessborough Hotel, Saskatoon, SK.

Message from the Chair

Rural Health and Safety: Our View on a Changing World

In hosting and organizing the 4th International Symposium: Rural Health and Safety in a Changing World, the Faculty of the Centre clearly signalled the winds of change in the emergence of a broader vision of the health, safety, and wellbeing of rural people, from our previous vision of health and safety in agriculture. Each step of our evolution to this thinking point has been characterized by an International Symposium, in which we invited the world to share the existing science with us, interpret that science, and point the way to the future.

Our 1977 International Symposium on Grain Dust and Health led to our first edited book "Occupational Pulmonary Disease: Focus on Grain Dust and Health," and to the Canadian Grain Dust Medical Surveillance Program. The 1985 International Symposium on Health and Safety in Agriculture led to the development of the Centre for

Agricultural Medicine at the University of Saskatchewan in 1986, and our edited proceedings "Principles of Health and Safety in Agriculture." Our 1992 International Symposium: Issues in Health, Safety and Agriculture, led to the development of the Canadian Coalition for Agricultural Safety and Rural Health, the Canadian Agriculture Safety Program and our edited proceedings, "Agricultural Health and Safety: Workplace, Environment, Sustainability."

Our 4th International Symposium: Rural Health and Safety in a Changing World" in 1998 called the world together in order to evaluate the science in the broader range of rural health and safety. The response from the scientific community, both in Canada and beyond, was overwhelming. Five hundred and fifty four participants from 20 countries, with 240 scientists, health care professionals, and others from across Canada met to evaluate the science and discuss the issues. Our Centre Faculty, Staff, and Students are now mandated to recommend to our Board a vision for rural health and safety in a changing

world. We applaud their efforts and wish them the best of luck!
Sincerely,

David Popkin
Chair, Board of Directors
Dean, College of Medicine

Fourth International Symposium: Rural Health and Safety in a Changing World, Delta Bessborough Hotel, Saskatoon, Saskatchewan, Canada October 18-22, 1998.

Between October 18 and 22, 1998, the Centre for Agricultural Medicine, University of Saskatchewan, in association with the Colleges of Medicine, Nursing, Agriculture, Arts and Science, Engineering, and Western College of Veterinary Medicine, University of Saskatchewan; the Prairie Swine Centre Inc., Saskatoon; and the Canadian Plains Research Centre, University of Regina hosted 554 participants from 20 different countries at the *Fourth International Symposium: Rural Health and Safety in a Changing World*. The conference sought, "to capture the emerging science of health, safety, and sustainability in agriculture and rural life, and to probe beyond these issues to address the thriving and survival issues of the future."

Program highlights included the Senator Norman Paterson Visiting Professor's Lecture, "In Perspective," which was delivered by Canada's first woman astronaut, Dr. Roberta Lynn Bondar; the First International Congress on Rural Nursing - Toward a Definition of Rural Nursing: Practice, Theory, Research, organized by the College of Nursing and the Centre for Agricultural Medicine, University of Saskatchewan and sponsored by the Health Utilization Research Commission, Saskatchewan Health; the 1998 Canadian Farm Safety and Health Conference, organized and sponsored by the Canadian Coalition for Agricultural Safety and Rural Health; the Ecosystem Health and Humanity

Conference of the Tri-Council Eco-Research Projects; the Conference on the Health and Safety Needs of Rural Children organized and sponsored by the National Farm Medicine Center, Marshfield Clinic, Marshfield, WI; the Preconference Workshop: Industrial Hygiene and Control Technologies in Agricultural Settings, organized and sponsored by the Great Plains Center for Agricultural Health, University of Iowa, and the National Institute for Occupational Safety and Health, Morgantown, WV; and the Round Table Workshop: International Standards in Agricultural Health and Safety, Chaired by Dr. Valentina Forastieri, International Labour Office, Switzerland.

The Social Program began on Sunday afternoon with tours of the University of Saskatchewan Campus, Wanuskewin Heritage Park, Pat Donovan's elk farm and Jim Quick's bison farm. On Sunday evening, at the Opening Reception, Symposium participants nibbled on hors d'oeuvres and sandwiches while they browsed through the display of Prairie literature, art, photography, pottery and other local talent, and were entertained with live jazz music by Volodymyr Fitsko and cowboy poetry by Jim Boswell. On Monday evening, compliments of Western Co-Operative Fertilizers Limited, Calgary, Alberta, participants were treated to a Gala Dinner and performance of Ukrainian National Dance by the Pavlychenko Dancers. On Wednesday evening participants traveled to the Western Development Museum for Western Jamboree, hosted by the Centre for Agricultural Medicine and sponsored by Levitt-Safety Limited, Oakville, Ontario. Jamboree participants feasted on Prairie cuisine, displayed their poetry skills in the Cowboy Poetry Contest, visited the 1910 Boomtown Exhibits, and kicked up their heels to the music of the Young Country Band. On Thursday, participants were treated to an old-fashioned Prairie box lunch while Dr. Peter Morton and his league of actors/scientists from Australia and Canada presented "A Down-Under Hypothetical," a play about how a farm injury affected an Australian farm family. The Closing Plenary and Reception was a final opportunity to socialize and solidify old and new friendships and to be

delighted by the operatic voice of Dr. Bjarne Lembke.

The success of the symposium is due to the collaboration and hard work of many individuals and organizations and the financial support of the Supporting and Co-operating Agencies.

RESEARCH

Prairie Ecosystem Study (The Eco-Research Program: Tri-Council Secretariat of Canada, Medical Research Council, Natural Science and Engineering Research Council, Social Science and Humanities Research Council) of **Pesticide Exposure and Human Health** focuses primarily on the effects of exposures to pesticides on the neurological, psychological, immunological, and respiratory systems. The research group includes A. Cessna, Agriculture Canada Research Branch; M. Crossley, Department of Psychology; J. Dosman, Centre for Agricultural Medicine; P. Hanke, Farmer, Beechy; D. Irvine, Toxicology Centre; R. Kerrich, Department of Geological Sciences; V. Laxdal, Department of Pathology; H. McDuffie, Centre for Agricultural Medicine; A. Rosenberg, Department of Pediatrics; A. Senthilselvan, Centre for Agricultural Medicine; and K. Semchuk (Chair), Centre for Agricultural Medicine and College of Nursing. Two Master's students were involved: L. Hagel and M. Masley, Department of Community Health and Epidemiology.

Prevalence of Antibodies in a Rural Population. Normally the body produces antibodies to attack and eliminate foreign invaders. However, certain diseases are associated with the production of antibodies that do not attack foreign proteins but attack the individual's own proteins. Some of these proteins are located in the centre (the nucleus) of cells. These antibodies are referred to as antinuclear antibodies. The reasons why antinuclear antibodies and the associated diseases develop are not usually known. However, in some situations certain chemicals and environmental exposures are known to be associated with the development of

antinuclear antibodies. This study was undertaken to determine if exposure to certain factors encountered in the rural environment could be associated with the development of antinuclear antibodies. The results of this study showed that individuals who were involved with the production of certain crops, animal producers and those who used certain pesticides were more likely to develop antinuclear antibodies but they did not have a higher occurrence of specific diseases. Further studies are required to investigate the specific relationships between exposures in the rural environment and the development of antinuclear antibodies and the diseases with which they can be associated.

Drinking Water Quality. As part of an integrated, multidisciplinary study of the land, the biota, the communities, and the people in a semi-arid region of the Canadian Prairie, participants provided samples of drinking water from their homes. The water sources were community based (ground and surface water) and private wells. Researchers conducted chemical elemental analyses and quantification of the concentration of 44 chemical elements in parts per billion was included in the assay. They grouped the elements into (a) those nine tested for which there are municipal drinking water objectives (boron, chromium, arsenic, selenium, cadmium, barium, mercury, lead, uranium), (b) those with known or suspected human toxicity, teratogenicity or carcinogenicity in sufficient concentration (chromium, nickel, copper, zinc, arsenic, selenium, strontium, molybdenum, cadmium, antimony, barium, mercury, lead, thorium, uranium) and (c) those present in concentrations two to six times higher in herbicides supplied by an area farmer compared to unbroken land (chromium, arsenic, copper, lead).

Each family received individual reports on its water quality. Twenty-six samples had concentrations exceeding the Saskatchewan Municipal objectives for at least one of the elements, selenium, lead and arsenic. These families were provided with additional information and an opportunity for a retest of their drinking water.

Environmental Pesticide Exposure and Human Health: Characterization of Exposure by Questionnaires.

Our aim was to characterize the short term health effects of environmental and occupational pesticide exposure using multidisciplinary, community-based methodology. Residents of three rural communities were invited to participate in neuropsychological and pulmonary function tests, to donate blood samples to permit evaluation of immune function and pesticide levels, and to complete extensive questionnaires. The baseline questionnaire obtained information in lifetime exposure to 52 listed herbicides, 38 listed insecticides and 14 listed fungicides. On the basis of questionnaire responses at baseline, individuals were defined by their occupational pesticide exposure history as **A:** pesticide applicators, **B:** family members of applicators and **C:** others. Among pesticide applicators, lifetime use of herbicides was more frequent than insecticides or fungicides. The most commonly used chemical classes of herbicides were phenoxyacetic acids, thiocarbamates, phenols, dicamba, trifluralins, glyphosate and organophosphorus compounds and among insecticides: carbamates, organochlorines and organophosphates. 2,4D was the most commonly reported individual compound. Accidental spills on skin and/or clothing (50% of applicators) and accidental inhalation into the lung (30%) were frequent. Characterization of exposure to pesticides by questionnaire was the conceptual link between baseline and repeat measurements of neuropsychological, pulmonary and immune function and of pesticide levels in blood.

Dementia Care in Rural Saskatchewan (Health Services Utilization & Research Commission - HSURC).

This community-based project was aimed at facilitating the development of a province-wide study of rural dementia care, results of which will be useful in planning effective health policy and care for this large and growing segment of the population. The objectives were to establish collaborative relationships with key stakeholders in all of the health districts; to use their input to design a full-scale study; to develop and pre-test the instruments; and to assess the

feasibility of the proposed design, methods, and instruments for the full-scale study. In the summer of 1997, D. Morgan travelled to the 30 existing health districts to discuss the project with health district boards. In November, 1997, 48 people from 27 districts attended a Study Day in Saskatoon, to discuss research priorities. This input was used to refine the study objectives and design, and in the spring of 1998, a feasibility study was conducted in one randomly selected health district.

Poultry Workers' Health Study. The Centre for Agricultural Medicine at the University of Saskatchewan in Cooperation with the Universities of Alberta and Manitoba are studying the effects of working in the poultry industry on worker's respiratory health. The study compares the lung health results of the poultry worker to a person who grain farms and a non-farming rural dweller.

Subject testing began in all three provinces in December of 1997. The testing of subjects occurs primarily in the winter months as ventilation rates in confinement operations tend to decrease at this time. Our objectives for this project is to test 500 poultry workers, 250 grain farmers and 250 non-farmers. We have also included an environmental portion to our study where we measure for air quality (dust and gas levels) and measure the poultry workers' acute changes in lung function over their work shift.

Respiratory Health in Swine Producers and Indoor Air Quality in Animal Confinement Buildings in Saskatchewan.

This study was conducted in male swine confinement workers, grain farmers, and non-farmers to determine if swine confinement workers have a greater loss in lung function in comparison to farmers and individuals who do not farm. A lung health questionnaire, lung function tests and environmental measurements were conducted in 1989-1990 on 302 swine workers, 263 grain farmers and 261 non-farmers and these same tests were conducted again in 1994-1995 on 217 swine workers, 218 grain farmers and 171 non-farmers from the original numbers tested.

The study showed a greater annual decline in lung function in both the workers in a swine confinement unit and grain farmers compared to non-farming controls. Annual decline in lung function and acute lung function changes over the work-shift have been associated with endotoxin levels. This suggests that environmental control technologies and/or personal protective devices for workers may be necessary in this work environment. As well, a health surveillance program for these workers should be a priority.

Positive Human Health Effects of Dust Suppression with Canola Oil in Swine Barns.

A crossover trial was conducted to evaluate the acute human health effects from exposure to a swine room sprinkled with canola oil. Twenty lifetime nonsmoking male subjects participated in the study. The study found that sprinkling canola oil reduces acute health effects in healthy naive subjects exposed to airborne contaminants (dust, gas, and endotoxin) in swine barns.

Positive Human Health Effects of Wearing a Respirator in a Swine Barn.

A crossover trial was conducted to evaluate the acute health effects of wearing a two-strap metal nose clip disposable respirator in a swine confinement facility. Twenty-one lifetime nonsmoking male subjects participated in the study. The results demonstrate that a two-strap metal nose clip disposable respirator can offer substantial protection and help to significantly reduce acute negative health effects in subjects not previously exposed to a swine barn.

Injury Surveillance Program.

The Saskatchewan Agricultural Injury Surveillance program has been ongoing since June 1996. This project is being conducted in conjunction with the Canadian Agricultural Injury Surveillance Program funded by the Canadian Agricultural Safety Program. To date mortality data has been collected for the years 1990 to 1995 using information from the Provincial Coroner's Office and Saskatchewan Department of Labour. As well, we have nearly completed the collection of information on farm injuries in Saskatchewan for the years 1990 to 1997 that resulted in hospitalization. We

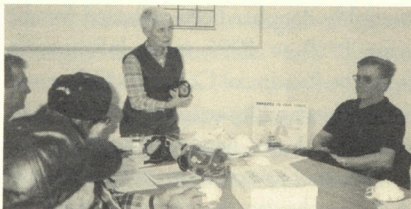
feel that the information, once analyzed, will be helpful in planning and developing suitable farm safety programs and strategies.

SERVICES

Agricultural Health and Safety Network: Membership in the Network has remained stable during the 1998-99 year. As of the end of March 1999, 93 rural municipalities have enrolled their 21,000 active farming families in the Network to receive the benefits and programs of membership. A new fee structure for RM membership in the Agricultural Health and Safety Network was implemented in 1999 with RMs now assessed at \$2.90 per active farm family. A six member steering committee representing each of the divisions of the SARM gives direction for Network programs and activities.

Rural Health Extension Program (RHEP). RHEP was established as an extension of the Agricultural Health and Safety Network, a 1988 cooperative venture in which the Centre and SARM joined forces to provide agricultural health and safety services to Saskatchewan farm families. Network activities and programs continue to be an important part of the Rural Health Extension Program.

Overview: The Rural Health Extension Program collaborates on a provincial and a national basis with individuals and agencies interested in agricultural health and safety to: develop and distribute agricultural health and safety resource materials, develop and implement agricultural health and safety programs, publish newsletters, a monthly column and scholarly articles on agricultural health and safety issues provide a telephone/e-mail information service to farm operators and agricultural health and safety professionals across the country.



Occupational Health Nurse, Julie Bidwell demonstrates a respirator to a group of farmers.

Program Delivery: A major initiative offered was the **Respiratory Health Program** for farmers. Fifty one member RMs were offered the program. As a result, 400 farmers in 23 communities received the program. **Farm Response,** an accident preparedness course for farm families, was delivered in eight communities to approximately 80 farmers and family members. In addition, interested community groups in non-member RMs delivered the course to their farming families. **Hearing testing** was provided in 17 rural municipalities to approximately 300 participants.

Respiratory Video "Breathe Easy": A 20-minute video highlighting agricultural respiratory hazards and control measures to reduce risk was produced in conjunction with the University of Saskatchewan's Department of Audiovisual Services. The video will be used in the seminar component of the Respiratory Health Maintenance Program. Copies of the video are available at a cost of \$5 to Network members and \$10 to non-members. Funding from the Canadian Agricultural Safety Program (CASP) supported the development of the video.



"Breathe Easy" video filming.

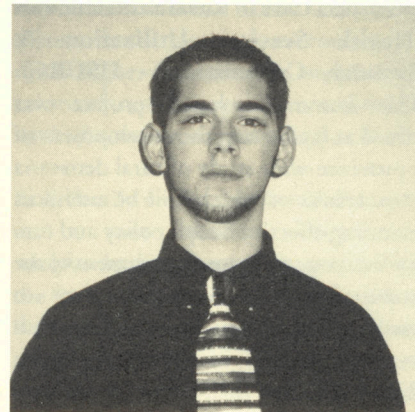
Respiratory Fact Sheet Series: Six new respiratory fact sheets were developed. The 1998-99 education package distributed to Network farm families consisted of the three respiratory fact sheets applicable to all farm operations. Copies are available from the Network.

Publications: A Network pamphlet and inserts describing the programs that are

offered to members were developed. *Network News* which is published twice a year updates members on the activities and programs of the Agricultural Health and Safety Network and on current agricultural health and safety issues. *CANFARMSAFE*, a national newsletter, is developed and distributed through the efforts of staff at the Rural Health Extension Program with the goal of communicating agricultural health and safety information, and information about projects funded by CASP to farm operators and agricultural health and safety professionals. Broad distribution, past year averaged 175,000, was made possible through insertion of the newsletter in five agricultural newspapers, the *Western Producer* (B.C., Alberta and Saskatchewan), the *Manitoba Cooperator*, the *Ontario Farmer*, *La Terre de Chez Nous* (Quebec) and *Farm Focus* (Maritimes). Funded by CASP and the Centre for Agricultural Medicine.

Promotion: Network staff have attended events throughout Saskatchewan promoting membership in the Agricultural Health and Safety Network. Events include the Western Canada Farm Progress Show, SARM convention in Saskatoon, SARM division meetings, the Crop Production Show (Saskatoon), and regional farm fairs and meetings.

SARM 90th Anniversary Student Scholarship: More than 40 grade 12 students from rural municipalities applied for the third annual \$ 1,000 scholarship by writing an essay on agricultural health and safety. This year's winner, Darrel Monette from Neville (RM of Lac Pelletier #107), has applied to enter the College of Agriculture at the University of Saskatchewan.



Darrel Monette, winner of the 1999 SARM 90th Anniversary Scholarship.

Partnerships: The Network continues to enjoy a cooperative relationship with many agencies in promoting agricultural health and safety. The Saskatchewan Association of Rural Municipalities continues to provide support through an opportunity for reporting at its annual meeting. Connie Lupescu writes a monthly column entitled *Healthworks* for the *Rural Councillor*. Sharon Clark, North Valley Health District, provides local support for the programs and services of the Network through a partnership agreement. Based on the success of that venture, the Agricultural Health and Safety Steering Committee has recommended pursuing cooperative program delivery with other health districts. Sask Ag and Food continues to provide support for the programs and resources of the Agricultural Health and Safety Network. Staff of the Rural Health Extension Program have made contact with extension agrologists across the province to share information about programs and services.

Website: The Rural Health Extension Program has developed a website to promote its activities and programs, and on which it will post selected publications and learning programs. The website can be accessed through the Centre for Agricultural Medicine's home page (www.usask.ca/medicine/agmedicine/).

PAPERS

Habbick BF, Blakley PM, Houston CS, Synder RE, Senthilselvan A, Nanson JL. Bone age and growth in foetal alcohol syndrome. *Alcoholism: Clinical and Experimental Research*, 1998, 22:1312-1316.

Kiryuchuk SP, Senthilselvan A, Dosman JA, Zhou C, Barber EM, Rhodes C, Hurst T. Predictors of longitudinal changes in pulmonary function among swine confinement workers. *Canadian Respiratory Journal*, 1998;5:472-478.

Zhang Y, Tanaka A, Dosman JA, Senthilselvan A, Barber E, Kiryuchuk SP, Holfeld LE, Hurst TS. Acute respiratory responses of human subjects to air quality in a swine building. *Journal of Agricultural Engineering Research*, 1998; 70:367-373

Pahwa P, Senthilselvan A, McDuffie HH, Dosman JA. Predictors of wheezing in grain elevator workers. *Canadian Respiratory Journal*, 1998; 3:200-205

Kolbinson DA, Epstein JB, Senthilselvan A, Burgess JA. Effects of vehicular impact and injury characteristics on temporomandibular disorders. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics*, 1998; 85:665-673.

Senthilselvan, A. Prevalence of physician-diagnosed asthma in Saskatchewan, 1981-1990. *Chest*, 1998; 114:338-392

Pahwa P, Senthilselvan A, McDuffie HH, Dosman JA. Predictors of onset of wheezing in grain elevator workers. *Canadian Respiratory Journal*, 1998, 5(3): 1-6.

Morgan D, & Stewart N. High vs. low density special care units: Impact on the behavior of elderly residents with dementia. *Canadian Journal on Aging*, 1998; 17(2): 143-165.

Morgan, D., & Stewart, N. Multiple-occupancy vs. private rooms on dementia units. *Environment and Behavior*, 1998;30(4): 487-503.

Chen Y, Rennie DC, Lockinger LA, Dosman JA. Association between obesity and high blood pressure: Reporting bias related to gender and age. *Int J Obes* 1998;22:771-777.

Chen Y, Rennie DC, Lockinger LA, Dosman JA. Effects of environmental tobacco smoke (ETS) on cough in children with a history of tonsillectomy or adenoidectomy. *Eur Resp J* 1998;11:1319-1323.

Chen Y, Rennie DC, Lockinger L, Dosman JA. Evidence for major genetic control of wheeze in relation to history of respiratory allergy: Humboldt family study. *Am J Med Genet* 1998;75:485-491.

Bowen RC, D'Arcy C, Keegan D, Senthilselvan, A. A controlled trial of cognitive behavioral treatment of panic in alcoholic inpatients with comorbid panic disorder. *Addictive Behaviours*, 1999 (Accepted).

Rosenberg AM, Semchuk KM, McDuffie HH, Ledingham DL, Cordeiro DM, Cessna AJ, Irvine DG, Senthilselvan A, Dosman JA. Prevalence of anti-nuclear antibodies in a rural population. *Journal of Toxicology and Environmental Health*, March 1999. (Accepted).

Morgan D, & Stewart N. The physical environment of special care units: Needs of residents with dementia from the perspective of staff and family caregivers. *Qualitative Health Research*, 1999; 1: 105-118.

Chen Y, Dosman JA, Rennie DC, Lockinger LA. Major genetic effects on airway-parenchymal dysanapsis of the lung: The Humboldt Family Study. *Genetic Epidemiology*, 1999, 16:95-110.

CONTRIBUTED PAPERS IN PUBLISHED CONFERENCE PROCEEDINGS AND ABSTRACTS

Senthilselvan A, Dosman J.A., Semchuk K.M., McDuffie H.H., Cessna A., Irvine D.G. et al. Changes in pulmonary function measurement between winter and summer seasons in a rural population in Saskatchewan: Prairie Eco-System Study. Presented: American Thoracic Society International Conference, Chicago, April, 24-29, 1998.

Crossley M, Arbuthnott K, Semchuk KM, McDuffie H, Senthilselvan A, Cessna A, Dosman J, Irvine D, Rosenberg A, Ledingham D, Snodgrass P (1998). Rural norms for a neuropsychological battery designed to assess pesticide exposure effects. Presented: 1998 Convention of the Canadian Psychological Association, Edmonton, Alberta, June 4-6, 1998, *Canadian Psychology*, 39(2a), Suppl., 80.

Lupescu C, Angelstad B, Lockinger L, Dosman JA, McDuffie HH, Hagel LM. Hearing conservation for farm families: A model for intra-sectoral cooperation. National Institute for Farm Safety: 1998 International Summer Conference, Winnipeg, MB.

Hagel L, McDuffie HH, Dosman JA, Lupescu C, Lockinger L, Thiessen I. The Agricultural Health and Safety Network: The ten year history of a unique extension program. National Institute for Farm Safety: 1998. International Summer Conference. Winnipeg, MB. and presented at the Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), P135.

Pahwa P, Senthilselvan A, Dosman J.A. Analysis of correlated survival data to determine predictors of bronchial hyperresponsiveness. Presented: International Society for Environmental Epidemiology and the International Society of Exposure Analysis, Boston, August 15-19, 1998.

Pahwa P, Senthilselvan A, McDuffie HH, Dosman JA. Use of goodness of fit statistics in analysis of longitudinal data. Joint Statistical Meeting. Presented: American Statistical Association, Dallas, August 9-13, 1998.

McDuffie HH, Pahwa P. Exposure to home fumigation, indoor insecticide use and insect repellants as reported by Saskatchewan men and women. Presented: International Society for Environmental Epidemiology/International Society for Exposure Assessment Joint Meeting, Boston, August 1998, *Epidemiology*, 2(4), Suppl., 21P.

McDuffie HH, Pahwa P, Robson D. A test of Cohen's hypothesis. Presented: International Society for Environmental Epidemiology/International Society for Exposure Assessment Joint Meeting, Boston, August 1998, *Epidemiology*, 2(4), Suppl., 79O.

Harker DB, Hill B, McDuffie HH. The risk agriculture poses to water quality - facts and factors affecting interpretation. Presented: 1st International Conference on Children's Health and Environment, Amsterdam, The Netherlands, August 11-13, 1998.

Ledingham DL, Semchuk KM, McDuffie HH, Cessna AJ, Hanke P, Senthilselvan A, Crossley M, Irvine DG, Rosenberg AM, Hagel LM, Masley ML, Dosman JA, Laxdal VA. PECOS: Integration and analysis of data from an interdisciplinary health study. Presented: Joint Conference of the

International Society for Environmental Epidemiology (ISEE) and the International Society for Exposure Analysis (ISEA), Boston, Massachusetts, August 15-19, 1998, *Epidemiology*, 2(4), Suppl., 19P.

Masley ML, Semchuk KM, Senthilselvan A, McDuffie HH, Hanke P, Dosman JA, Gillis-Cipywnyk M, Cessna AJ, Snodgrass P, Crossley M, Irvine DG, Rosenberg AM, Laxdal VA. Rural family health and the household environment: Community canvass survey results. Presented: Joint Conference of the International Society for Environmental Epidemiology (ISEE) and the International Society for Exposure Analysis (ISEA), Boston, Massachusetts, August 15-19, 1998, *Epidemiology*, 2(4), Suppl., 212O.

McDuffie HH, Semchuk KM, Kerrich R, Cessna AJ, Irvine DG, Senthilselvan A, Ledingham DL, Juorio V, Hanke P, Hagel LM, Masley ML, Dosman JA, Crossley M. The prairie ecosystem study (PECOS): Drinking water quality. Presented: Joint Conference of the International Society for Environmental Epidemiology (ISEE) and the International Society for Exposure Analysis (ISEA), Boston, Massachusetts, August 15-19, 1998, *Epidemiology*, 2(4), Suppl., 40P.

Semchuk KM, Rosenberg AM, McDuffie HH, Ledingham DL, Senthilselvan A, Cessna AJ, Irvine DG, Hanke P, Dosman JA, Crossley M, Hagel LM, Masley ML, Laxdal VA. Antinuclear antibodies: Associations with farming and occupational use of pesticides. Presented: Joint Conference of the International Society for Environmental Epidemiology (ISEE) and the International Society for Exposure Analysis (ISEA), Boston, Massachusetts, August 15-19, 1998, *Epidemiology*, 2(4), Suppl., 6O.

Semchuk KM, McDuffie HH, Hanke P, Dosman JA, Senthilselvan A, Cessna AJ, Crossley M, Irvine DG, Rosenberg AM, Hagel LM, Masley ML, Ledingham DL, Laxdal VA. Partnering with the community - The prairie ecosystem study: Environmental pesticide exposure and human health. Presented: Joint Conference of the International Society for Environmental Epidemiology (ISEE) and the International Society for Exposure

Analysis (ISEA), Boston, Massachusetts, August 15-19, 1998, *Epidemiology*, 2(4), Suppl., 428O.

AM Rosenberg, KM Semchuk, HH McDuffie, DL Ledingham, DM Cordeiro, AJ Cessna, DG Irvine, A Senthilselvan, JA Dosman. Antinuclear antibodies (ANA) in farmers. Presented: Fourth International Symposium: "Rural Health and Safety in a Changing World", Saskatoon, SK, October 18-22, 1998, O22. and American College of Rheumatology 62nd National Meeting, San Diego.

McDuffie HH, Nordal R, Kirsch I, Cortopassi G, Nakahara K, Nakagawa K, Ueda A, Gibson A, Shia G, Sotkowsky W. Occupational pesticide exposure and genetic instability. Presented: Fourth International Symposium: "Rural Health and Safety in a Changing World", Saskatoon, SK, October (1998) O70.

Lupescu C, Angelstad B, Lockinger L, McDuffie HH, Dosman JA, Hagel LM. Hearing conservation for farm families. Presented: Fourth International Symposium: "Rural Health and Safety in a Changing World", Saskatoon, SK, October (1998) O142.

Day R, de Freitas SB, Jacek L, Hagel L, McDuffie HH. They did almost everything: A portrait of Canadian prairie women. Presented: Fourth International Symposium: "Rural Health and Safety in a Changing World", Saskatoon, SK, October (1998) P232.

Morgan D, Semchuk K, Stewart N, & D'Arcy C. Dementia care in rural Saskatchewan: A community-based study. Presented: Fourth International Symposium, Rural Health and Safety in a Changing World, Saskatoon, Saskatchewan, October 18-22, (1998) O67.

Crossley M, Semchuk KM, McDuffie HH, Ledingham DL, Hagel LM, Cessna AJ, Irvine DG, Senthilselvan A, Dosman JA. Neuropsychological functioning and health-related symptoms in a commercial pesticide applicator during low and high exposure and follow-up testing. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), O23.

Hagel LM, McDuffie HH, Semchuk KM, Ledingham DL, Cessna AJ, Irvine DG, Senthilselvan A, Crossley M, Dosman JA. PECOS: An exploration of associations between exposure to pesticides and non-fatal, unintentional injury in a rural population. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), O271.

Ledingham DL, Semchuk KM, McDuffie HH, Cessna AJ, Dosman JA, Hanke P, Senthilselvan A, Crossley M, Irvine DG, Rosenberg AM, Hagel LM, Masley ML. PECOS: Practical aspects of integration and analysis of data from an interdisciplinary health study. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), P239.

Masley LM, Semchuk KM, Senthilselvan A, McDuffie HH, Hanke P, Dosman JA, Gillis-Cipywnyk M, Cessna AJ, Snodgrass P, Crossley M, Irvine DG, Rosenberg AM. Family health and the rural household environment: PECOS community canvass. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), P237.

McDuffie HH, Semchuk KM, Cessna AJ, Irvine DG, Senthilselvan A, Rosenberg AM, Crossley M, Dosman JA, Hanke P, Laxdal VA, Ledingham, Holfeld L, Hagel L, Masley M. The prairie ecosystem study (PECOS): Environmental pesticide exposure and human health: Characterization of exposure by questionnaires. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), P126.

McDuffie HH, Semchuk KM, Kerrich R, Cessna AJ, Irvine DG, Senthilselvan A, Ledingham DL, Juorio V, Hanke P, Hagel LM, Masley ML, Dosman JA, Crossley M. The prairie ecosystem study (PECOS): Drinking water quality. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), P235.

Morgan D, Semchuk KM, Stewart N, D'Arcy C. Dementia care in rural Saskatchewan: A community-based study. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), O67.

Semchuk KM, McDuffie HH, Cessna AJ, Irvine DG, Ledingham DL, Laxdal VA, Dosman JA, Senthilselvan A, Rosenberg AM, Hanke P, Crossley M, Hagel LM, Masley ML. Detection of selected herbicides in human blood plasma specimens from Saskatchewan farm families and other rural prairie residents. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), O16.

Senthilselvan A, Dosman JA, Semchuk KM, McDuffie HH, Cessna AJ, Irvine DG, Rosenberg AM, Crossley M, Laxdal VA, Colquhoun J, Holfeld L, Masley ML, Hagel LM, Ledingham DL, Hanke P. Changes in pulmonary function measurements between winter and summer seasons in a rural population in Saskatchewan: Prairie eco-system study. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), O301.

Lockinger LA, Hagel LM, Chen Y, Hillier T. Demographics and pre-test survey of participants enrolling in an accident preparedness course for farmers. Presented: Fourth International Symposium "Rural Health and Safety in a Changing World", Saskatoon, SK, (1998) O306.

McDuffie HH, Pahwa P, Spinelli J, Fincham S, Dosman JA, McLaughlin JR, Robson D, Skinnider LF, Choi NW. Non-Hodgkin's lymphoma (NHL) and the pesticide hypothesis: individual compounds. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), P129.

McDuffie HH, Pahwa P, Spinelli J, McLaughlin JR, Robson D, Fincham S, Skinnider LF, Dosman JA, Choi NW. Non-Hodgkin's lymphoma: Occupations and occupational exposures. Presented: Fourth International Symposium: Rural Health and Safety in a

Changing World, Saskatoon, Canada, October 18-22, (1998), P130.

McDuffie HH, Witmans M, Pahwa P. Challenges, difficulties and limitations of studying chemical contaminants in drinking water in relation to chronic health conditions. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), O293.

Hagel L, Rennie DC, Brison RJ, Pickett W, Hartling L. An assessment of farm fatalities in Saskatchewan for the years 1990 to 1997. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), P189.

Rennie DC, Dosman JA. Distance to health care and the prevalence of asthma in school age children. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), O288.

Rennie DC, Chen Y, Dosman J, Gillis-Cipywnyk M, Lockinger L. The Humboldt study respiratory study: Continued Community Involvement. *Epidemiology* (1998) 9:S117.

Dosman JA, Bharadwaj L, Senthilselvan A, Gusikoski C. Acute changes in lung function in farmers exposed to grain dust. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), O298.

Kiryuchuk SP, Lockinger L, Dwernychuk L. A health surveillance program in the swine production industry. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), O29.

Kiryuchuk SP, Senthilselvan A, Dosman JA, Zhou C, Barber EM, Olenchock S, Rhodes CS, Hurst TS. Predictors of longitudinal changes in pulmonary function among swine confinement workers. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), P56.

Kiryuchuk SP, Dwernychuk L, Lockinger L. A respiratory health surveillance program in the grain industry. Presented: Fourth International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Canada, October 18-22, (1998), O299.

Rennie DC, Dosman JA. Association between acute respiratory symptoms and environmental exposures in a general population of school children. *Am J Resp Crit Care Med* (1999); 159(supp):A430.

Stewart N, & Morgan D. Toward a definition of noise in dementia care units. Presented: Pan-American Congress '99: Aging in the Americas, San Antonio, Texas, February 21-24, (1999).

Morgan D, Semchuk K, Stewart N, D'Arcy C. Challenges and opportunities of rural dementia care: Perspectives of formal and informal caregivers. Presented: Advances in Qualitative Methods Conference Sponsored by the International Institute for Qualitative Methodology and the University of Alberta, Edmonton, Canada, February 18-20, (1999), A.12.

Crossley M, McDuffie H, Semchuk KM, Arbuthnott K, Cessna A, Ledingham D, Irvine D, Hanke P, Senthilselvan A, Rosenberg A, Dosman J, Hagel L, Masley M. Neuropsychological effects of occupational and environmental exposure to herbicides in a prairie ecosystem study (PECOS). Presented: International Neuropsychological Society Meeting, Boston, Massachusetts, February 10-13, (1999). O84.

McDuffie HH, Pahwa P, Robson D. Brilliant hypothesis, conflicting evidence. *Cancer Epidemiology, Biomarkers and Prevention*. Presented: AACR, Philadelphia, April 1999.

Symposium:

Souris Basin Air Quality and Health Symposium

In conjunction with the Saskatchewan Lung Association and the Saskatchewan Research Council we successfully held a symposium in Saskatoon on January 28 and 29, 1999. The purpose of the symposium was to provide a forum where scientists could discuss and evaluate the need for study of the air quality and respiratory health of residents living in the Souris Basin region of southeast Saskatchewan and northwest North Dakota. The Symposium was attended by researchers from the United States and Canada and provided a forum that was of interest to both atmospheric and human health scientists. The Symposium Committee would like to thank Sask Power and Estevan Coal for their financial support of this very worthwhile meeting.

CONGRATULATIONS:

Dr. Karen M. Semchuk, chair, and Dr. A. Senthilselvan, Dr. Donna C. Rennie, Dr. J.A. Dosman and Dr. S. Olenchock, co-chairs of the Fourth International Symposium: Rural Health and Safety in a Changing World, October 18-22, 1998, Saskatoon, SK, for their vision, excellence and leadership.

AWARDS:

Punam Pahwa, BSc, Msc. Received an Outstanding Award from the International Society for Environmental Epidemiology (ISEE) and the International Society of Exposure Analysis (ISEA) for her abstract entitled "Analysis of Correlated Survival Data to Determine Predictors of Bronchial Hyperresponsiveness" presented in Boston, Massachusetts in 1998.

The Medical Research Council (MRC) through the Regional Partnership Program awarded:

Lalita Bharadwaj, PhD.

A 2 year Post-doctoral Fellowship to support her research at the Centre for Agricultural Medicine on the "Respiratory Health of Swine Confinement Workers".

Norma Stewart, PhD.

A five year MRC Scientistship Award to work on "Health Services for Elderly Persons with Dementia" at the Centre for Agricultural Medicine.

J.A. Dosman, M.D., F.R.C.P. (C).

A 4 year Senior Scientistship to continue his work on "Risk Assessment and Intervention Programs in Agricultural Ecosystems" at the Centre for Agricultural Medicine.

Donna C. Rennie, PhD.

A 2 year Post-doctoral Fellowship to continue her work at the Centre for Agricultural Medicine on the "Effectiveness of Asthma Therapy in School Age Children: A Drug Linkage Study".

WORK EXCHANGE:

In April, 1998, Lori Lockinger returned to the Rural Health Extension Program (RHEP) after completing a twenty week work exchange at the Australian Agricultural Health Unit (AAHU) in Moree, New South Wales. Along with being a centre for research and development, the AAHU is the operations Centre for Farmsafe Australia Inc. This experience provided her with a truly unique learning opportunity that cultivated a rapport with our not-so-far-away neighbour's Down Under, (mate).

