

J, Fincham S, Dosman JA, Theriault G, Pahwa P, Wang PZ. Risk factors for non-Hodgkin's lymphoma. Presented at Joint Annual Meeting of the Genetics Society of Canada and the Canadian Society for Plant Molecular Biology, Edmonton, Alberta, June 10, 1994.

Chen Y, Horne SL, Dosman JA. The influence of smoking cessation on body weight may be temporary. Nutrition Research Newsletter Vol XIII, No. 2:21, 1994.

Senthilselvan A, Pahwa P, Wang P, McDuffie HH, Dosman JA. Longitudinal changes in pulmonary function and respiratory symptoms in grain elevator workers. 1995 ATS International Conference, May 21-24, 1995, Seattle, Washington.

McDuffie HH, Punam P. Lung Cancer: Atopy and Survival. Presented American Association of Cancer Research, Toronto, Mar 19-Mar 23, 1995.

Robson D, Spinelli J, Skinnider LF, White D, McDuffie HH, McLaughlin, Fincham S, Dosman JA, Theriault G, Pahwa P, Choi NW, Wang PZ. Family History and non-Hodgkin's Lymphoma (NHL): Descriptive Results. Genetics Society of Canada/Canadian Society for Plant Molecular Biology. June 8-June 11, 1994.

Pahwa P, Choi NW, Robson D, Spinelli J, Skinnider LF, White D, McDuffie HH, McLaughlin J, Fincham S, Dosman JA, Theriault G, Wang PZ. Occupational Pesticide Exposure, Family History of Cancer and non-Hodgkin's Lymphoma (NHL). ISEE/ISEA joint Conference. Sept. 18-21, 1994.

Senthilselvan A, Habbick BF. Increased Asthma Hospitalizations in Treaty Indians in Saskatchewan, 1970-1989. 1994 American Lung Association/ American Thoracic Society Conference, Boston, May 21-25, 1994.

Anderson DW, Semchuk KM. Sustainability of the Semi-arid Prairie Ecosystem. Presented at 1st International Symposium on Ecosystem Health & Medicine: Integrating Science, Policy and Management, Ottawa, Ontario, Canada, June 19-23, 1994.

Semchuk KM. The Greenplan. Invited Speaker, Canadian Association of University Schools of Nursing (CAUSN) Western Region University of Saskatchewan Chapter Meeting, Saskatoon, SK, January 16, 1995.

Wang FL, Semchuk KM, Love EJ. Reliability of environmental and occupational exposure data provided by surrogate respondents in a case-control study of Parkinson's disease. Update on Parkinson 0013, February 1, 1995.

#### Letters to the Editor

McDuffie HH. Am J Epidem 1994; 140(2): 185-186.

#### Invited Presentations

Semchuk KM, Love EJ. A population based case-control study of Parkinson's disease and exposure to rural environmental factors in Alberta, Canada. Invited Speaker, Symposium: "Methods in Studying Health Effects of Pesticides", 1994 ISEE/ISEA (International Society for Environmental Epidemiology/ International Society for Exposure Assessment) Joint Conference, Sheraton Imperial Hotel, Research Triangle Park, North Carolina, U.S.A., September 18-21, 1994.

Semchuk KM. Environmental pesticide exposure and human health. Invited Speaker, University Colloquium Series 1994-95: Environmental Issues, University of Saskatchewan, Saskatoon, SK, February 13, 1995.

#### Founding Chairs Recognition Event

The Founding Chairs Development Program reached its goal of \$2 million through generous contributions of organizations and individuals. To recognize this achievement and to thank the contributors, a press conference was held at which time a Recognition Wall was unveiled and replica plaques were presented to each contributor. Special recognition was also given to President George Ivany and Premier Roy Romanow, Honorary Co-Chairs; Dr. Ian McDonald and Mr. Michael Frederick Mitchell, Co-Chairs; Dr. Walter Podiluk and Mr. Harold Empey, Coordinators; and Mr. Garf Stevenson and Mr. Vernon Leland. The contributors were also honored at a luncheon hosted by the President of the University of Saskatchewan and the Board of Directors of the Centre.

We gratefully acknowledge the outstanding support of the contributors: Saskatchewan Lung Association, Dr. Peter D. Stewart Trust, Saskatchewan Wheat Pool, Federated Co-operatives Limited, The Senator Norman M. Paterson Foundation, Credit Union Central of Saskatchewan, SaskPower Corporation, Hoechst Canada Inc., The Canadian Wheat Board, Canadian National Railways, Hutterian Brethren Communities, SPI Marketing Group, Intercontinental Packers Ltd., Alberta Wheat Pool, Manitoba Pool Elevators, Co-operative Trust Company of Canada, The Co-operators Group Ltd., The Cumis Group Ltd., Canadian Pacific Ltd., Saskatchewan Knights of Columbus Charitable Foundation, Massey-Ferguson Industries Ltd., Flexi-Coil Ltd., Horned Cattle Trust Fund, SaskEnergy Ltd., Crop Protection Institute, Lorne and Vilda Byrnes, Harold and Gesina Dosman, James and Susan Dosman, Gerald and Bernice Junk, Murray and Adele Pask, David and Isabelle Price, Donald and Dorothy Swenson, and Ole E. Veikle.

#### Canadian Coalition for Agricultural Safety and Rural Health

Dr. Dosman, Coalition Chair, successfully steered the Coalition Council through a process that resulted in a commitment from Agriculture and Agri-Food Canada for \$1 million per year for four years to develop a Canada Agriculture Safety Program. This program will provide project funding in each province to address issues related to safety in agriculture.

#### Saskatchewan Alliance for Agricultural Health and Safety

The Alliance co-sponsored, together with the Centre, a "Safety and Health in Rural Saskatchewan Conference," held on June 10, 1994, at the University of Saskatchewan. For information, contact Maura Gillis-Cipywnyk at the Centre, Tel (306) 966-8286, Fax (306) 966-8799.

**Agricultural Health and Safety Network.** The Agricultural Health and Safety Network continued to thrive and grow during this year, expanding its menu of programs and activities, as well as its membership. The focus of health promotion activities was the development of "The Farm Safety Audit," a management tool for farmers, in both hardcopy and computer formats. A newsletter has been developed and will be circulated regularly throughout the year. The Respiratory Health Program for Farmers continues to be a popular and well utilized community program and was offered through the winter to five member RM's with over 300 farmers participating. This year the Network employed a full-time manager which resulted in many new initiatives such as consultation with a number of health districts regarding co-operative ventures, attendance at many more community events, i.e. health fairs, assisting in the planning of the first provincial Farm Safety Jamboree, and provision of information to the Provincial Health Council on agricultural health and safety issues. Through the Challenge '94 student employment program, the Network hired Neil Willems, a University of Saskatchewan computer science student who designed and wrote the computerized version of the "Farm Safety Audit," and Augusto Kapronczai, a Grade 12 student at Bishop James Mahoney High School, who designed artwork for various Network publications and helped to develop a smoking cessation program which will target rural youth.

For more information, please contact: Centre for Agricultural Medicine, Box 120, Royal University Hospital, 103 Hospital Drive, Saskatoon Sask. S7N 0W8. Tel: (306) 966-8286; Fax: (306) 966-8799

# CENTRE REPORT '94 - '95

CENTRE FOR AGRICULTURAL MEDICINE, UNIVERSITY OF SASKATCHEWAN



#### Message from the Chair

**Our Founding Chairs Fund is Completed, the Agricultural Health and Safety Network Comes Alive and Our Scientists Complete an Important Project**

December of 1994 saw the completion of our Founding Chairs Development Fund Trust. As a result of the generous contributions of our supporters, a \$2 million trust fund has been established, the interest of which will be used to support the scientific capability of the Centre and to initiate exciting new projects. My sincere thank you to each and every contributor.

One of the remarkable aspects of the growth of the Centre for Agricultural Medicine has been the development of the Agricultural Health and Safety Network. This unique project of the Centre brings an association with our clients, the farm families of Saskatchewan. The Network is governed co-operatively by a Steering Committee elected at the annual meeting of the Saskatchewan Association of Rural Municipalities, and the Centre for Agricultural Medicine. This year, with the co-operation and support of Sinclair Harrison, President of SARM, and Brooklyn Anderson, Chair of the Steering Committee, the Agricultural Health and Safety Network has had an exciting period of growth to 63 Rural Municipalities involving more than 15,000 farm families. Our theme this year, "The Farm Safety Audit," is available to these families both on paper and in computerized form. The program next year, an innovative approach to hearing conservation and identification of hearing loss, represents an additional development and maturation of this unique program.

On the scientific front this year, our scientists published a book entitled "Agricultural Health and Safety: Workplace, Environment, Sustainability." This volume was edited by Drs. H.H. McDuffie, J.A. Dosman, K.M. Semchuk, S.A. Olenchok, and A. Senthilselvan, and published by CRC Press of Boca Raton, Florida. The book, a compilation of the 1992 International Symposium scientific presentations, and the companion, "Supplement," truly represent the world statement of the state-of-the-art in agricultural safety and rural health. An exciting aspect of this work has been the development of the concept of the relationship between human health and wellbeing, and agricultural sustainability.

Although my report can stress only highlights, the contents of this report attest to



Dean David Popkin congratulates Mr. Vern Leland, President, Federated Co-operatives Ltd., on the outstanding contribution that Mr. Leland made in achieving the Founding Chairs Development Fund Objective.

the vitality of what our scientists, staff and students in the Centre, and our many collaborators in various disciplines, Colleges, and units, have achieved in the last year. I express my sincere thank you to the Faculty, Staff and Students of the Centre, members of the Board of Directors, numerous individuals serving on various management and advisory committees, and to the Government of Saskatchewan for specific support through the Departments of Health and Agriculture.

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

#### Research

**Prevalence Study of Asthma in Saskatchewan, 1981-1990 (Health Services Utilization and Research Commission).** The prevalence of asthma was estimated by linking the outpatient physicians services and the prescription drug data bases. Asthma was more prevalent in children than in adults. In children under 4 years, asthma prevalence increased from 1.7% in 1981 to 3.7% in 1990. Similar increases were also observed in children aged 5 to 14 and 15 to 34 years. Of the ten health regions in Saskatchewan, asthma prevalence was higher in two regions. Further analyses will be conducted to investigate rural-urban differences.

**Prairie Ecosystem Study.** (The Eco-Research Program: Tri-Council Secretariat of Canada (Medical Research Council, National Science and Engineering Research Council, Social Science and Humanities Research Council). A large group of investigators at the Universities

of Saskatchewan and Regina received a grant to study the physical, economic, social, and health aspects of the land, society, and people in the Prairie Regions of Canada. The study will take place in "Region 3BN" in Southwestern Saskatchewan. The portion of the study involving human health will focus primarily on the effects of exposures to pesticides on human health, with regard to 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; N. Gerrard, Department of Community Health and Epidemiology; P. Hanke, Farmer, Beechy; D. Irvine, Toxicology Research Centre; R. Kerrich, Department of Geological Sciences; V. Laxdal, Department of Pathology; H. McDuffie, Centre for Agricultural Medicine; W. Nicholaichuk, National Hydrology Research Institute; A. Rajput, Department of Medicine (Neurology); A. Rosenberg, Department of Pediatrics; A. Senthilselvan, Centre for Agricultural Medicine; and K. Semchuk (Chair), Centre for Agricultural Medicine and College of Nursing.

**Pesticide Exposure and Lymphocyte Genetic Instability (Health Services Utilization and Research Commission).** The purpose of this study is to compare a variety of genetic effects which are detectable in small blood samples between volunteers who are exposed and unexposed to pesticides while working. We are collaborating with researchers in laboratories in Saskatoon, Bethesda, Maryland, and Southern California.

ANNUAL REPORT AND SUMMARY OF ACTIVITIES

Cross Canada Study of Pesticides and Health (Health Canada). This study is exploring potential relationships between agricultural and occupational pesticide exposure, smoking history, familial history of cancer, and four rare tumours.

**Population Based Study of the Respiratory Health of Children.** The purpose of this research is to explore the respiratory symptoms, particularly asthma and wheeze in children attending Grades 1 to 5 in the Rosetown Health Region and Saskatchewan Valley schools. Research will focus on the respiratory health of children living on and off farms. The research is supported by grants from the Saskatchewan Wheat Pool, the Saskatchewan Lung Association and the Canadian Lung Association/Canadian Nurses' Respiratory Group and by a doctoral fellowship from Health Canada. (Doctoral research by D. Rennie; Dr. J. Dosman, Thesis supervisor)

**Humboldt Study (Saskatchewan Health Services and Utilization Commission)** Three databases have been created and cleaned including adult survey, child survey and familial study. Four papers have been prepared and submitted for publication. We are trying to identify the persons who participated in 1977 and 1983 surveys but were not followed up in 1993.

**Swine Producers and Indoor Air Contamination (Health Canada).** This three year project includes scientists from the Centre for Agricultural Medicine, Western College of Veterinary Medicine, Department of Agricultural and Bioresource Engineering, Prairie Swine Centre and Division of Respiratory Medicine. To date, of the 921 subjects who participated in the cross-sectional study in 1991-1992, 73% have lung testing complete, 17% are lost or moved, and 10% are left to test. Of the 50 original barns that had environmental testing in 1991, 43 barns have had summer testing and 40 barns have had winter testing. This study will enable us to determine if the observed symptoms and reductions in lung function tests are reflected in increased yearly decline in lung function; to determine if across-shift changes in lung function are predictive of longitudinal decline; to determine if exposure-effect relationships are related to longitudinal decline; and to establish exposure standards in the industry.

## Service

**Grainworkers' Program.** The Centre continues to provide a Health Surveillance Program for Grainworkers across Saskatchewan. The program is managed jointly by Shelley Kirychuk, RN and Lori Lockinger, RN. Volunteer attendance at the programs continues to be very high for all companies and participants appear to be adopting healthier occupational habits.

## Visiting Professors



Dr. Xiaohua Han has been participating in our Centre activities as a visiting scholar from Norman Bethune University of Medical Science, Changchun, China. Dr. Han is an epidemiologist with an interest in reproduction.



Dr. Jinfu Hu is a visiting scholar from the Department of Epidemiology, Harbin Medical University, Harbin, China. Dr. Hu is interested in environmental and host risk factors which may be related to several common cancers.



Dr. Jian Hai Lin was visiting professor in the Centre for Agricultural Medicine during the year. Dr. Lin's excitement at learning his new computer skills and analysis capability was infectious. Dr. Lin plans to continue his research on lung dysfunction in smokers in tobacco factories in Shanghai.

Dr. Helen McDuffie was a Visiting Scientist at the Center for Nuclear Energy in Agriculture, Escola Superior de Agricultura "Luiz de Queiroz" (ESALQ), University of

Sao Paulo, Piracicaba, Brazil. She is a collaborator in a multidisciplinary study "The Ceveiro Ecosystem and Heptachlor Contamination." Heptachlor is used to manage termite infestations in sugar cane fields.

## Publications

### Books

HH McDuffie, JA Dosman, KM Semchuk, SA Olenchock, A Senthilselvan (Eds) *Agricultural Health and Safety: Workplace, Environment, Sustainability.* CRC Press, Inc., Boca Raton, Florida, 1995.

HH McDuffie, JA Dosman, KM Semchuk, SA Olenchock, A Senthilselvan (eds) *Agricultural Health and Safety: Workplace, Environment, Sustainability, (supplement)* University of Saskatchewan, Saskatoon, Saskatchewan, 1994.

Dosman JA, McDuffie HH. (eds) *Toward Human Sustainability in Agriculture: Policy Strategies for Agricultural Safety and Rural Health in Canada,* University of Saskatchewan, 1994.

### Papers

Punam Pahwa, A. Senthilselvan, Helen McDuffie, and James A. Dosman. Longitudinal estimates of pulmonary function decline in grain workers. *Am J Resp and Crit Care Med*, 150(3), September 1994, 656-662.

Chen Y. Prematurity as a predictor of rickets in Shanghai infants. *Public Health* 108:333-339, 1994.

Chen Y. Relationship between type of infant feeding and hospitalization for gastroenteritis in Shanghai infants. *J Hum Lact* 10:177-179, 1994.

Chen Y. Environmental tobacco smoke, low birth weight and hospitalization for respiratory disease. *Am J Respir Crit Care Med* 150:54-58, 1994.

Brunt H, Reeder BA, Stephenson P, Love E, Chen Y. The Hutterite and Rural Saskatchewan Heart Health Surveys: A comparison of physical and laboratory measures. *Can J Public Health* 85:299-302, 1994.

Chen Y. Re: Exclusive vs. partial vs. any breastfeeding (letter). *J Hum Lact* 10:229-230, 1994.

Semchuk KM, Love EJ. Effects of agricultural and other proxy-derived case-control data on the Parkinson's disease risk estimates. *American Journal of Epidemiology* 141(8):747-754, 1995.

McDuffie HH, Dosman JA, Olenchock SA. Meeting Highlights: Third International Symposium: Issues in Health, Safety and Agriculture. *J Agromedicine* 1(2):83-85, 1994.

Wang F, Semchuk KM, Love EJ. Reliability of environmental and occupational exposure data provided by surrogate respondents in a case-control study of Parkinson's disease. *Journal of Clinical Epidemiology* 47:797-807, 1994

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HH McDuffie. Women at work: Agriculture and pesticides. *J Occup Med* 36(11): 1240-1246, November, 1994.

The following are published in: HH McDuffie, JA Dosman, KM Semchuk, SA Olenchock, A Senthilselvan (eds) *Agricultural Health and Safety: Workplace, Environment, Sustainability,* CRC Press, Boca Raton, Florida, 1995:

Hagel L, Thiessen I, Dosman JA, McDuffie HH. The Agricultural Health and Safety Network: A Municipality-based awareness and prevention program. pp. 421-429.

Chen Y, Reeder BA, Joffres M, Young TK, MacDonald S, Gelskey D. Cardiovascular risk factors in rural and urban residents of the Canadian prairies, pp. 521-524.

Brunt H, Reeder BA, Stephenson P, Chen Y. The Hutterite and Rural Saskatchewan Heart Health Surveys: A comparison of physical and laboratory measures, pp. 513-520.

Zeida JE, Pahwa P, Dosman JA. Lung function decline in grain workers commencing employment - Demonstration of the "survivor" effect," pp. 23-26.

Zeida JE, Hurst TS, Barber EM, Rhodes C, Dosman JA. Effects of respiratory protection on respiratory health status in swine producers, pp. 271-276.

Pahwa P, Zasada M, McDuffie HH, McNeil G, Dosman JA. Results of a survey on Saskatchewan farm accidents, pp. 275-282.

Dosman JA, Pahwa P, McDuffie HH. Longitudinal decline of pulmonary function in grain workers, pp. 27-30.

Genest M, Dosman JA, McDuffie HH, Pahwa P. Stress and its consequences among rural Saskatchewan residents: A pilot investigation, pp. 451-454.

McDuffie HH, Pahwa P, White DE. Saskatchewan women and agricultural exposures: any relationship to tumour incidence, pp. 135-142.

Senthilselvan A, Dosman JA. Risk factors for allergic rhinitis in farmers, pp. 75-78.

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Zeida JE, Gomez S, Hurst TS, Barber EM, Rhodes C, McDuffie HH, Dosman JA.

Respiratory health of swine producers working in livestock confinement buildings, pp. 7-15.

Chen Y, Horne SL, McDuffie HH, Dosman JA. Synergistic effect of grain farming and smoking on lung function and the prevalence of chronic bronchitis, pp. 35-40.

Senthilselvan A, McDuffie HH, Dosman JA. Asthma in farmers: Association with cholinesterase inhibiting insecticides, pp. 17-22.

Reesal M, Hagel L, Pahwa P, Domoney D, Dosman JA, McDuffie H. Hearing loss in farmers in rural Saskatchewan, pp. 201-206.

McDuffie HH, Chen Y. Atopy among farmers who have lung cancer, pp. 93-100.

McDuffie HH, Pahwa P, Robson D, To T. A test of Cohen's hypothesis using grainworkers' pulmonary function data, pp. 22-33.

McDuffie HH, Towstego L, Pahwa P. Similarities and differences among men and women with non-Hodgkin's Lymphoma (NHL) or Multiple Myeloma (MM), pp. 83-91.

Day R. Interaction patterns on the Canadian family farm: Old McDonald Revisited - 1993, pp. 217-222.

### Technical Reports

Pahwa P, Wang P, Senthilselvan A, Dosman JA, McDuffie HH. Statistical analyses of the environmental and surveillance program in the grain industry. Cycle IV (1987-1990). Labour Canada Report, Sept, 1994

### Abstracts and Proceedings

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Macdonald SM, Reeder B, Chen Y, Deprés JP. Canadian Heart Health Surveys Research Group. Obesity in Canada - A descriptive analysis of the Canadian Health Heart Survey. The 7th International Congress on Obesity, Toronto, August 20-25, 1994. *Int J Obes* 18(Supp 2):99, 1994

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