

producers in Saskatchewan. *Proceedings of American Association of Swine Practitioners, Minneapolis, Minnesota* 1991, 395-407.

**Chen Y, Horne SL, Dosman JA.** Weight gain related to longitudinal decline of pulmonary function. *8th International Congress of Human Genetics, Washington, DC*, 1991.

**Dosman JA, McDuffie HH, Robson D, Pahwa P, Fincham S, McLaughlin J, Theriault G.** Cross-Canada study of

pesticides and health: pilot project. *Surgeon General's Conference: Agricultural Safety and Health, Des Moines, May*, 1991.

**Dosman JA, Pahwa P, McDuffie HH, Zasada M, McNeill G.** Farm accidents in Saskatchewan. *Surgeon General's Conference: Agricultural Safety and Health, Des Moines, May* 1991.

**Hagel L, Thiessen I, Dosman JA, McDuffie HH.** A respiratory health maintenance program for farmers. *Surgeon General's Conference: Agricultural*

*Safety and Health, Des Moines, May*, 1991.

**To T, Wacker K, Dosman JA.** Prevalence and risk factors of farm accidental injuries: A pilot study in Aberdeen, Sask. *2nd Canadian Epidemiology Conference, Edmonton, May 23-34*, 1991.

**White D, McDuffie HH, Pahwa P, Gomez S, Parker R, Dosman JA.** Rural residence: A risk factor for non-Hodgkin's lymphoma in women? *American Society of Clinical Oncology Annual Meeting, Houston, May*, 1991.

## Committees

### BOARD OF DIRECTORS

Dr. I.M. McDonald (Chair); Dr. R.M. Bala (Vice-Chair); Mr. W. Kindrachuk (Vice-Chair) representing the Saskatchewan Lung Association; Mr. I. Sutherland, Vice-President, Royal University Hospital; Dr. G.F. Hamilton, Dean, College of Veterinary Medicine; Dr. J. Stewart, Dean, College of Agriculture; Dr. H.B. Schiefer, Director, Toxicology Research Centre; Dr. B. Habbick, Professor and Head, Department of Community Health and Epidemiology; Dr. G. Junk (representing the Saskatchewan Medical Association); Mr. D. Pitt, President, Massey-Ferguson Inc.; Dr. F. Scott (representing the Saskatchewan Lung Association); Mr. Bernard Kirwan, President, Saskatchewan Association of Rural Municipalities; Mrs. V. Thompson (representing the Saskatchewan Women's Agricultural Network) (nominated by the Saskatchewan Lung Association); Mr. M. Sheppard, Controller and Associate Vice-President, University of Saskatchewan; Mr. Wayne Fritz, Saskatchewan Health, Government of Saskatchewan; Mr. M. Ozeroff (representing the Saskatchewan Wheat Pool).

The Centre for Agricultural Medicine is assisted in its activities by a number of Committees. This year we are highlighting the Founding Chairs Development Council which is composed of individuals representing donors to the Founding Chairs Development Fund. This fundraising, spearheaded by Dr. Walter Podiluk and Mr. Harold Empey, has been successful in raising approximately \$2 million toward a permanent base support for the Centre. The Founding Chairs Development Council consists of the following members:

### FOUNDING CHAIRS DEVELOPMENT COUNCIL

Dr. J. W. George Ivany, President, University of Saskatchewan (Honourary Chair); Dr. I. McDonald, Dean, College of Medicine (Co-Chair); Mr. David Pitt, President, Massey-Ferguson Inc. (Co-Chair); Mr. J. Burnett, President, Saskatchewan Lung Association; Mr. V. Leland, President, Federated Co-operatives Ltd.; Mr. J. Morris, General Manager, Saskatchewan Pork Producers Marketing Board; Mr. A. B. Paterson, Vice-President and General Manager, N.M. Paterson & Sons Ltd.; Mr. R. Schmitt, President, Alberta Wheat Pool; Mr. T. Shepstone, President, Credit Union Central; Mr. G. Stevenson, President, Saskatchewan Wheat Pool; Mr. C.H. Swanson, President, Manitoba Wheat Pool; Mr. W. H. Somerville, Assistant Vice-President - Grain, CP Rail; Mr. J. Messer, President, SaskPower; Mr. M. Delage, Corporate Vice-President and General Manager, Agriculture Division, Hoechst Canada Inc.; Mr. J. King, President, Crop Protection of Canada; Mr. R.B. Boyd, District Manager, CN Rail; Mr. F. Hetland, Assistant Chief Commissioner, The Canadian Wheat Board; Mr. R. Luterbach, Director, The CUMIS Group; Mr. P. Crawford, Senior Vice-President and Chief Financial Officer, The Co-operators Group Ltd.; Mr. W. J. Lipsett, Vice-President, Administration, Corporate Secretary, Co-operative Trust Company of Canada; Rev. M. Stahl and Rev. John S. Waldner, Hutterite Colonies of Saskatchewan; Mr. and Mrs. Murray Pask, Atwater; Mr. and Mrs. Lorne Byrnes, Eston; Mr. and Mrs. Wayne Mennie, Parkside; Mr. and Mrs. D. L. Swenson, Moose Jaw; Mr. Marshall and Mr. Lynn Veikle, Cut Knife; Mr. D. Price, General Manager, Pig Improvement Canada; Mrs. Gesina Dosman, Anaheim; Dr. and Mrs. G. Junk, Humboldt; Dr. and Mrs. J. Dosman, Saskatoon.



*Murray and Adelle Pask present the first cheque to Dean I. McDonald as part of the Leading Saskatchewan Families Founding Chair.*

# CENTRE REPORT '91 - '92

## ANNUAL REPORT AND SUMMARY OF ACTIVITIES

CENTRE FOR AGRICULTURAL MEDICINE, DEPARTMENT OF MEDICINE, COLLEGE OF MEDICINE, UNIVERSITY OF SASKATCHEWAN  
Wing 3E, Royal University Hospital, Saskatoon, Saskatchewan, S7N 0X0

Sixth Annual Report, May 1, 1991 to April 30, 1992



*Dr. James Dosman, left, Reeve Francis Yungwirth, and respiratory nurse Shelley Kirychuk watch test results on the computer as R.M. of Bayne farmer, Gerald Kish, participates in the Farmers' Respiratory Health program conducted by the Agricultural Health and Safety Network at Bruno. Our Respiratory Health Program for farmers has been among the most popular of our programs. (Humboldt Journal Photo).*

### Chairman's Message

#### "Founding Chairs Program Nears Completion"

In this, my sixth annual report on behalf of the Centre for Agricultural Medicine, Department of Medicine, College of Medicine, to our friends, supporters and colleagues, I scarcely know where to begin. The Centre began in 1986 as an idea, with a budget of \$25,000 from the Saskatchewan Lung Association, and a postage stamp office. Today, the Centre occupies Wing 3E of Royal University Hospital, has a Faculty of five persons, total staff and students, full and part-time, of 23 persons, and commands Canadian and world leadership in the science and prevention of health and safety problems in agriculture.

If you visit Wing 3E, you will find an air of excitement as Faculty, staff and students work on a variety of research projects from the cross-Canada study of chemicals and cancer, dusts and the lungs, chemicals and chronic diseases, safety and stress. For those of you that have been involved in building an academic research environment, you will know the fragility that marks this type of effort. In order to stabilize the Academic Faculty and to permit enhanced new Faculty growth and development, the Centre undertook the Founding Chairs fundraising program. Launched in October, 1990, the Founding Chairs Development Fund sought contributions of \$ 125,000 from 20 contributors or groups of contributors in the form of \$25,000 per year for five years. Despite tough economic times, individuals, co-operatives, groups and industries have supported this initiative. Mr. Harold Empey is now completing the program initially managed by Dr. Walter Podiluk. To date, more than \$2 million has been raised or pledged for the purpose of forming an endowment that will

provide a sustainable source of stability and innovation for the Centre. My sincere congratulations and thank you to all those who have contributed so magnificently, worked so hard, and brought this important project to near completion.

Another exciting aspect of the Centre over the last year has been the continued growth of the Agricultural Health and Safety Network. When the Centre was formed, one of our principal worries was how we would be able to get the message out, and get messages back from some 60,000 farm families in Saskatchewan. To this end, in 1988-89, the Agricultural Health and Safety Network commenced. Individual Municipalities participated in enrolling their farm families in a program of education, prevention and service. The number of Municipalities grew to 17 in 1989-90, and 30 in 1990-91 and this year, 46 R.M.'s, involving almost 12,000 farm families, enrolled in the Network. It is our belief that many Municipalities working together can work miracles. My most sincere appreciation to Mr. Ike Thiessen, Past President of SARM who is Coordinator of the Network, Mr. Bernard Kirwan, current President of SARM, SARM staff and, in particular, the R.M. Administrators for making this program work at the grassroots level.

Of course, excellence in science is the underpinning of the Centre, and the information in this report documents these activities well. Congratulations and thank you to all concerned

Sincerely,

I.M. McDonald, Dean, College of Medicine  
Chair, Board of Directors, Centre for Agricultural Medicine

## Our Mandate

The Centre for Agricultural Medicine conducts research, provides community prevention and service activities and has an educational function within the University with our focus on farm families and workers in related industries.

## Research

**Agricultural Occupational Exposure to Pesticides: An Historical Cohort Study of Parkinson's Disease and Other Neurodegenerative Diseases in Grain Farmers, Grain Workers, and Other Selected Saskatchewan Residents.** Earlier studies suggested that agricultural occupational pesticide exposure results in an increased risk of Parkinson's disease and/or other neurodegenerative diseases. We have assembled a large cohort of Saskatchewan workers with variable levels of exposures to pesticides to further investigate this theory. (The Parkinson' Foundation of Canada).

**Canadian Study of Pesticides and Health.** The risk of cancers and other medical conditions in relation to pesticides exposure will be derived and the proportion of these conditions attributable to pesticide exposure will be estimated. (National Health Research and Development Program).

**Radon Exposure and Primary Lung Cancer in Females.** Female cases developed lung cancer younger than men although we found (a) a higher proportion of lifetime non-smokers among women; (b) female cases who have smoked cigarettes began at an older age and smoked fewer cigarettes per day for fewer years. Exposure to alpha radiation derived from radon and radon progeny is a viable alternative hypothesis. If, in Saskatchewan, airborne radiation in homes constitutes a health risk, homes can be modified to reduce these exposures and thereby reduce the risk. (Saskatchewan Health Research Board, Saskatchewan Lung Association, Clinical Teaching and Research Fund).

**Chemicals Exposure and Lymphomas in Females in Saskatchewan.** An association between chemicals exposure and these types of tumours occurs in males. This project is being conducted in Saskatchewan in order to test the hypothesis that women may also be affected (Saskatchewan Cancer Foundation, Clinical Teaching and Research Fund).

**Study of Incidence and Risk Factors Relating to Farm Accidents and Injuries in**

**Saskatchewan.** Farmers are more likely to sustain injuries and experience violent death as a result of their occupation than workers in any other major industry. Farm accident data has been collected by Saskatchewan Health and the Saskatchewan Safety Council in more than 200 hospitals in Saskatchewan. The Centre for Agricultural Medicine analyzed these data.

**Human Exposure Chamber for Health Assessment of Dusts and Chemicals.** This is the only human exposure chamber in Saskatchewan to assess health effects of dusts and chemicals as occupational exposures. The establishment of this chamber enables physicians and scientists to more accurately characterize substances to which workers are exposed, to assist in treatment and in Workers' Compensation assessments (Saskatchewan Workers' Compensation Board).

**Respiratory Health in Swine Producers and Indoor Air Quality in Animal Confinement Buildings in Saskatchewan.** The results of a health survey completed in 1991 showed that work in swine confinement buildings is a risk factor for chronic respiratory symptoms and for minor lung function decrements. In comparison with grain farmers and non-farming men, poorer respiratory health is also present in young swine producers and this finding could be attributed to intensive exposures of young workers. The health survey has provided data for evaluation of the role of indoor air quality in the causation of respiratory disorders. Environmental assessment has been completed and the assessment of the effects of indoor air quality on respiratory health is under investigation. The study results justify the development of a regular health surveillance program for swine producers. (National Health Research Development Program).

**Evaluation of the Respiratory Health Status of the Saskatchewan Population, 1970-1990.** Hospital discharge data related to respiratory disorders will be used to evaluate the respiratory health of the Saskatchewan population. The respiratory morbidity of urban and rural populations will be compared and the change in respiratory morbidity from 1970 to 1990 will be investigated. (Establishment Grant, College of Medicine, University of Saskatchewan).

**Body Weight and Weight Gain Related to Longitudinal Decline of Lung Function in Adults.** Obesity may increase the risk of cardiovascular disease, hypertension, diabetes and some cancers. The relationship between obesity and airways function has not been well studied. This

study will focus on the influences of body mass index and weight change on the longitudinal decline of lung function in Humboldt men and women. (Saskatchewan Lung Association, Health and Welfare Canada).

**Relationship Between Smoking Cessation and Weight Gain.** There is a significant relationship between cessation of smoking and weight gain. However, the length of the effect of cessation has not been previously clarified. The data from the Humboldt Study shows that this effect is temporary and weight gain decreases significantly with increasing years of smoking cessation. (Saskatchewan Lung Association, Health and Welfare Canada).

**ABO Blood Group Phenotypes and Body Weight.** Body weight related to ABO blood group phenotypes has been a controversial issue. This analysis will examine the differences in body weight and mass body index among ABO blood groups. (Saskatchewan Lung Association, Health and Welfare Canada).

## Conferences

**Environmental Epidemiology Week, June 3-7, 1991.** This year we expanded our horizons by inviting 10 external speakers, partners and potential partners in our research effort. Dr. Ed Love of Calgary continued his role of constructive critic. Dr. Susan Gerberich, University of Minnesota, discussed the principles of excellent health surveillance studies and the Minnesota Rural Injury Study. Dr. Denis Brown described an innovative study of women exposed to numerous chest x-rays in the distant past. Dr. Nikki Gerrard, community psychologist, discussed her ideas which focus on helping people to help themselves through collaborative and committed efforts. Mr. Barry Armstrong provided a profile of fatal farm accidents in Saskatchewan (1983-1990). Mr. Ray Sieben described the measurements of temporal and spatial distribution of indoor pollutants in an ordinary home. Dr. Li Yan described a cross-sectional case-control study of the health status of grain workers in Harbin, China. Dr. Linda Strand described the complexities of data base linkage, emphasizing SaskHealth records. Ms. Joanne Hader provided a lesson on the possibilities inherent in new computer mapping techniques. Dr. Ernie Barber described air quality monitoring in livestock buildings.

**Workshop on Health Risks in Swine Confinement Production.** Dr. J. Zejda was Chairman of the Workshop on health risks in swine confine-

ment production which reviewed the state of knowledge and findings obtained through the Swine Producers Study.

**Health and Safety Issues in Agriculture: an information seminar for health professionals.** This successful one-day seminar, organized by Mrs. Louise Hagel, was a first for the Centre. Topics covered included respiratory hazards and practical measures to reduce exposure, a description of obstructive and restrictive lung diseases, current knowledge of stress and a review of community resources, pesticide safety and educational resources, incidence of cancer among farmers and practical ways to reduce noise exposure and thereby the incidence of noise-induced hearing loss.

**Relationship of Electromagnetic Field Exposure and Human Health.** This one-day workshop, sponsored by the Centre and SaskPower, was privileged to have Dr. Richard Gallagher, British Columbia Cancer Control Agency, as guest speaker.

## Selected Invited Presentations

**McDuffie HH.** Cancer Symposium for Family Physicians, Saskatoon, June 14, 1991.

**Zejda JE.** Respiratory health of swine producers in Saskatchewan. *Saskatchewan Pork Exposition Saskatoon, Canada, March 10-11, 1992.*

## SERVICE

*Occupational Health and Safety Services Division: Health Maintenance Program in the Grain Industry.*

*Agricultural Health and Safety Network.*

*Labour Canada Grain Dust Medical Surveillance Program Statistical Contract.*

*Seminar on Lung Function Decline in Grain Workers Commencing Employment - Demonstration of the Survivor Effect - Fall 1991.*

*Seminar on Respiratory Health of Swine Producers in Saskatchewan - Winter 1992.*

## Publications

### Papers

**McDuffie HH, Klaassen DJ, Dosman JA,** Men, women and primary lung cancer: A Saskatchewan personal interview study. *J Clinical Epidemiology*, 1991;44:537-544.

**Dosman JA, McDuffie HH, Pahwa P.** Atopic status as a factor in job decision making in grain workers. *J Occup Med*, 1991;33(9):1007-1010.

**McDuffie HH, Pahwa, Dosman JA.** Respiratory health status of 3098 Canadian grain workers studied longitudinally. *Am J Ind Med*, 1991;20:753-762.

**Zejda J, Semchuk K, McDuffie HH, Dosman JA.** Editorial: Perspectives in population-based studies of health and safety risks in agriculture. *Can Med Assoc J*, 1991; 145(7): 773-775.

**Chen Y, Horne SL, McDuffie HH, Dosman JA.** Combined effect of grain farming and smoking on lung function and the prevalence of chronic bronchitis. *Int J Epidemiol* 1991;20:416-423.

**Chen Y.** Adult respiratory disease mediates the effect of smoking on the cumulative incidence of bronchitis/pneumonia in infants. *Int J Epidemiol* 1991;20:822-823.

**Chen Y.** Factors associated with artificial feeding. *Am J Public Health* 1992;82:264-266.

**Zejda J, Ernst P.** Fissural thickening and exposure to asbestos: occurrence, determinants and functional impact. *Am J Ind Med* 1991;20:785-794.

**Zejda J, Dosman JA.** Respiratory disorders in agriculture from an epidemiologic perspective. *Polish Journal of Industrial Medicine and Environmental Health* 1991; 4:11-19.

### Chapters in Books

**Ernst P, Zejda J.** Pleural and airway disease associated with mineral fibers. In: *Liddel FDK, Miller F (eds). Mineral Fibers and Health, CRC Press, Boca Raton, Florida, 1991, 121-124.*

### Technical Reports

**Zejda JE, Hurst T, Dosman JA, Rhodes C, Barber E, McDuffie HH.** Cross-sectional study of respiratory health in swine producers and indoor air quality in animal confinement building in Saskatchewan. *Final Report to Health and Welfare Canada. (Project No. 6608-1228-58), March, 1992.*

**McDuffie HH, Spinelli J.** Workshop on cancer in rural areas. *Final Report to Health and Welfare Canada, January, 1992.*

### Abstracts and Scientific Presentations:

**Semchuk KM, Love EJ, Lee RG.** A population-based case-control study of Parkinson's disease and exposure to rural occupational and environmental factors. *Canadian Journal of Neurological Sciences* 1991; 18(2), 214. **Platform Presentations**

**tation at the XXVth Meeting of the Canadian Congress of Neurological Sciences, Halifax, Canada, June 20, 1991.**

**Semchuk KM.** An epidemiologic study of Parkinson's disease and rural environmental and occupational factors. *Neurology-Neurosurgery Rounds, Department of Clinical Neurosciences, Faculty of Medicine, The University of Calgary, Calgary, Alberta, June 28, 1991.*

**Semchuk KM, Love EJ, Lee RG.** A case-control study of Parkinson's disease and exposure to agricultural work and pesticides. *Plenary Paper: 2nd Canadian Epidemiology Research Conference, Edmonton, Canada, May 23, 1991.*

**Chen Y, Pederson LL, Lefcoe NM.** Passive smoking and serum thiocyanate level in infants. *Pediatrics Digest* 1991;3:24-25.

**Chen Y, Horne SL, McDuffie HH, Dosman JA.** Combined effect of grain farming and smoking on the prevalence of chronic bronchitis. *American Thoracic Society Annual Meeting, Los Angeles, May, 1991. Am Rev Respir Dis* 1991;143(4) suppl: 99A.

**Chen Y.** Relationship between prematurity and rickets in early childhood in Shanghai. *2nd Canadian Epidemiology Conference, Edmonton, May 23-24, 1991.*

**Pahwa P, McDuffie HH, Dosman JA.** Symptoms and pulmonary function of grain workers. *2nd Canadian Epidemiology Conference, Edmonton, May 1991.*

**Rhodes C, Barber E, Dosman JA, McDuffie HH, Zejda J, Zhou C.** Effects of environment on swine and human health. *Upjohn Swine Conference, October, 1991.*

**McDuffie HH.** Familial tumour clusters: comparison of first degree relatives of cases with soft tissue sarcomas, glioma, multiple myeloma and non-Hodgkin's lymphoma. *Canadian Epidemiology Conference, May 1991.*

**McDuffie HH, White DF.** Women at work: farming, pesticide exposure and non-Hodgkin's lymphoma. *Surgeon General's Conference: Agricultural Safety and Health, May 1991.*

**McDuffie HH.** Are cancer clusters among first degree relatives of index cases an indicator of genetic susceptibility? *Int Congress of Genetics, Washington, DC, American J Human Genetics* 1991;49(4):475. Abstract.

**Horne S, Chen Y, Dosman JA, Cockcroft D.** Association of spirometric measurements with GC phenotype in adult males. *Eighth International Congress of Human Genetics. Am J Hum Genetics*, 49:471 (suppl.), 1991. **Zejda J, Dosman JA, Gomez S, Rhodes C, Barber E, McDuffie HH.** Respiratory symptoms and lung function in swine