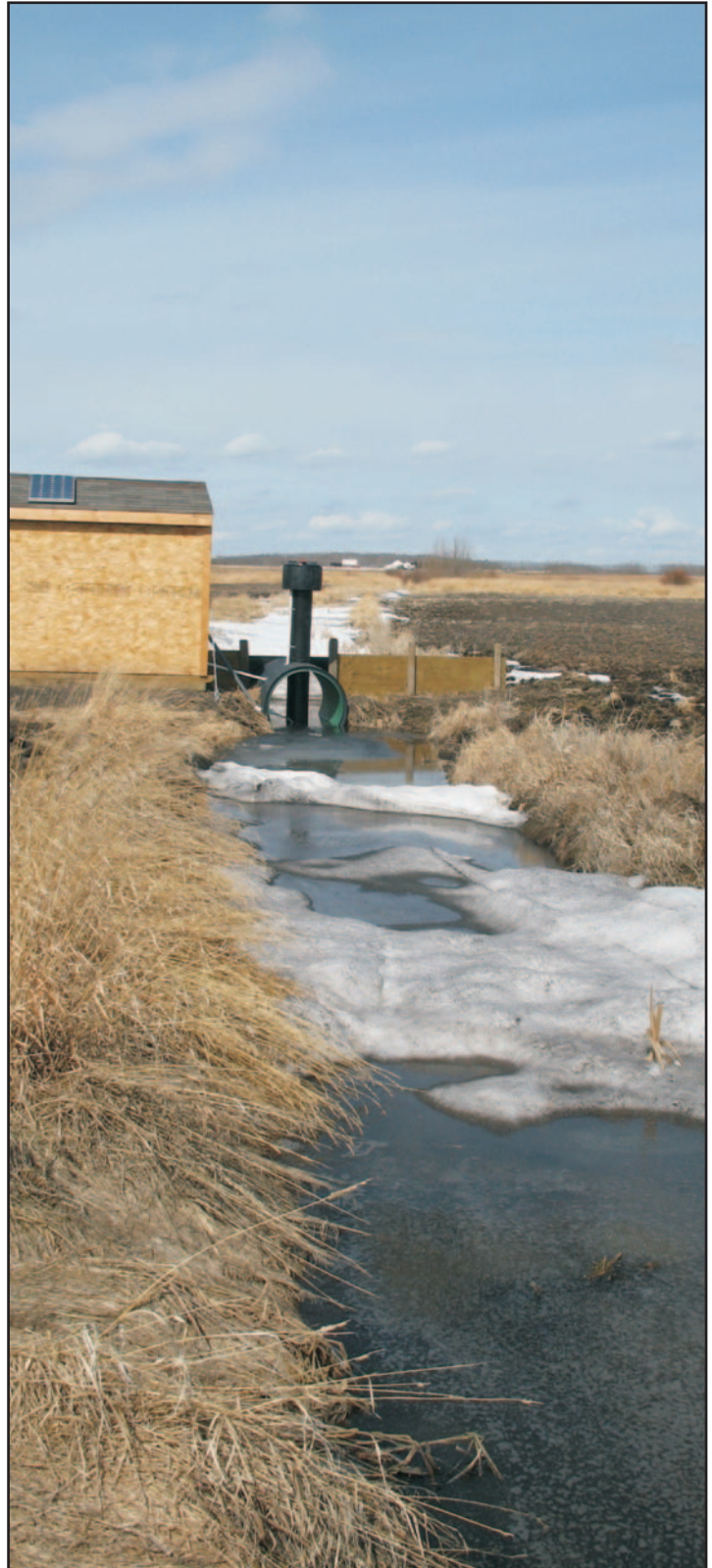


SECTION 9 REFERENCES



- Adams, B.W., Ehlert, R., Moisey, D., and McNeil, R.L. 2003.** Rangeland plant communities and range health guidelines for the Foothills Fescue Natural Subregion of Alberta. Rangeland Management Branch, Public Lands Division, Alberta Sustainable Resource Development, Lethbridge, Pub. No. T/038. 64 pp.
- Adams, B.W., Ehlert, G., Stone, C., Alexander, M., Lawrence, D., Willoughby, M., Moisey, D., Hincz, C., and Bogen, A. 2005.** Range health assessment for grassland, forest, and tame pasture. Public Lands Division, Alberta Sustainable Resource Development. Pub. T/044. 105 pp.
- Agriculture and Agri-Food Canada (AAFC). 2007.** Watershed evaluation of BMPs (WEBs). Agriculture and Agri-Food Canada. [Online] Available at <http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1185217272386&lang=e> [Accessed February 14, 2008].
- Ajmone-Marsan, F., Côté, D., and Simard, R.R. 2006.** Phosphorus transformations under reduction in long-term manured soils. *Plant Soil* **282**: 239-250.
- Alberta Agriculture and Rural Development. 2008.** AgroClimatic Information Service. [Online] Available at <http://www2.agric.gov.ab.ca/acis/quick/> [Accessed Mar 13, 2008].
- Alberta Agriculture, Food and Rural Development (AAFRD). 2000a.** Optimizing barley silage production in Alberta. Alberta Agriculture, Food and Rural Development, Edmonton, Alberta, Canada. Agdex 114/540-1.
- Alberta Agriculture, Food and Rural Development. 2000b.** 2000 Code of practice for responsible livestock development and manure management. Alberta Agriculture, Food and Rural Development, Edmonton, Alberta, Canada. Agdex 400/27-2. 80 pp.
- Alberta Agriculture, Food and Rural Development (AAFRD). 2004.** Procedures manual for the classification of land for irrigation in Alberta. Alberta Agriculture, Food and Rural Development, Irrigation Branch, Lethbridge, Alberta, Canada. 90 pp.
- Alberta Agriculture, Food and Rural Development. 2005.** Agricultural land resources atlas of Alberta, 2nd edn. Conservation and Development Branch, Alberta Agriculture, Food and Rural Development, Edmonton, Alberta, Canada. 53 pp.
- Alberta Environment. 1999.** Surface water quality guidelines for use in Alberta. Alberta Environment, Environmental Assurance Division, Science and Standards Branch, Edmonton, Alberta. 20 pp.
- Alberta Parks. 2006.** Natural Regions and Subregions of Alberta. Government of Alberta. [Online] Available at [http://tprc.alberta.ca/parks/heritageinfocentre/docs/NRSRcomplete%20May_06.pdf].
- Alberta Soil Information Centre. 2001.** AGRASID 3.0: Agricultural Region of Alberta Soil Inventory Database. Version 3.0. J.A. Brierley, T.C. Martin, and D.J. Spiess (eds.), Agriculture and Agri-Food Canada, Research Branch; Alberta Agriculture, Food and Rural Development, Conservation and Development Branch.
- American Public Health Association. 1989.** Standard Methods for the examination of water and wastewater, 17th ed. Method 4500-NH₃ (G). American Public Health Association, Washington, D.C., United States.
- American Public Health Association. 1995.** Standard Methods for the Examination of Water and Wastewater, Anions by Ion Chromatography, 19th ed. Method 4110 (B). American Public Health Association, Washington, D.C., United States.
- American Public Health Association. 1998a.** Standard Methods for the Examination of Water and Wastewater, 20th ed., Method 2510 (B). American Public Health Association, Washington, D.C., United States.

- American Public Health Association. 1998b.** Standard Methods for the Examination of Water and Wastewater, 20th ed., Method 4500-P (B.5, E). American Public Health Association, Washington, D.C., United States.
- American Public Health Association. 1998c.** Standard Methods for the Examination of Water and Wastewater, 20th ed., Method 4500-H⁺ (B). American Public Health Association, Washington, D.C., United States.
- American Public Health Association. 1998d.** Standard Methods for the Examination of Water and Wastewater, 20th ed., Method 4500-N_{ORG} (C). American Public Health Association, Washington, D.C., United States.
- American Public Health Association. 1998e.** Standard Methods for the Examination of Water and Wastewater, 20th ed. Method 2540 (D). American Public Health Association, Washington, D.C., United States.
- American Public Health Association. 1998f.** Standard Methods for the Examination of Water and Wastewater, 20th Ed., Method 9223 (B). American Public Health Association, Washington, D.C., United States.
- Arnold, J.G., Srinivasan, R., Muttiah, R.S., and Williams, J.R. 1998.** Large area hydrologic modeling and assessment Part I: Model development. *J. Am. Water Resour. Assoc.* **34**: 73-89.
- Bache, B.W. and Williams, E.G. 1971.** a phosphate sorption index for soils. *J. Soil Sci.* **22**: 289-301.
- Barberis, E., Ajmone Marsan, F., Scalenghe, R., Lammers, A., Schwermann, U., Edwards, A.C., Maguire, R., Wilson, M.J., Delgado, A., and Torrent, J. 1995.** European soils overfertilized with phosphorus: Part 1. Basic properties. *Nutrient Cycling in Agroecosyst.* **45**: 199-207.
- Bell, J.P. 1994.** Annual unit runoff on the Canadian prairies. *In* F.R.J Martin (ed.). Hydrology Report 135. Engineering and Sustainability Services, Prairie Farm Rehabilitation Administration, Agriculture and Agri-Food Canada, Regina, Saskatchewan, Canada.
- Bennett, E.M., Carpenter, S.R., and Caraco, N.F. 2001.** Human impact on erodable phosphorus and eutrophication: A global perspective. *BioScience* **51**: 227-234.
- Bittman, S., Forge, T.A., and Kowalenko, C.G. 2005.** Responses of bacterial and fungal biomass in a grassland soil to multi-year applications of dairy manure slurry and fertilizer. *Soil Biol. Biochem.* **37**: 613-623.
- Bishop, P.L., Hively, W., Stedinger, J.R., Rafferty, M.R., Lojpersberger, J.L., and Bloomfield, J.A. 2005.** Multivariate analysis of paired watershed data to evaluate agricultural best management practice effects on stream water phosphorus. *J. Environ. Qual.* **34**: 1087-1101.
- Blanco-Canqui, H., Gantzer, C.J., Anderson, S.H., Alberts, E.E., and Ghidey, F. 2002.** Saturated hydraulic conductivity and its impact on simulated runoff for claypan soils. *Soil Sci. Soc. Am. J.* **66**: 1596-1602.
- Blomqvist, S., Gunnars, A., and Elmgren, R. 2004.** Why the limiting nutrient differs between temperate coastal seas and freshwater lakes: A matter of salt. *Limnol. Oceanogr.* **49**: 2236-2241.
- Boström, B., Persson, G., and Broberg, B. 1988.** Bioavailability of different phosphorus forms in freshwater systems. *Hydrobiologia* **170**: 133-155.
- Bremner, J.M. 1996.** Nitrogen – Total (Dumas Methods). Page 1088 *in* J.M. Bartels et al. (ed.). methods of soil analysis: Part 3 Chemical methods. 3rd ed. Book Series 5. ASA and SSSA, Madison, Wisconsin, United States.

- CAESA. 1998.** Agricultural impacts on water quality in Alberta – an initial assessment. Canada-Alberta Environmentally Sustainable Agriculture Agreement, Alberta Agriculture, Food and Rural Development, Lethbridge, Alberta, Canada.
- Campbell, C.A., Schinitzer, M., Stewart, J.W.B., Biederbeck, V.O., and Sells, F. 1986.** Effect of manure and P fertilizer on properties of black chernozem in southern Saskatchewan. *Can. J. Soil Sci.* **66**: 601-613.
- Canada Land Inventory. 1968.** 1968 Soil capability for agriculture, Lethbridge 82H. Queen's Printer, Ottawa, Ontario, Canada.
- Canadian Council of Ministers of the Environment (CCME). 1999.** Canadian water quality guidelines. Canadian Council of Ministers of the Environment. Environment Canada. Hull, Quebec. 8 Chapters.
- Carpenter, S.R., Caraco, N.F., Correll, D.L., Howarth, R.W., Sharpley, A.N., and Smith, V.H. 1998.** Nonpoint pollution of surface waters with phosphorus and nitrogen. *Ecol. Applic.* **8**: 559-568.
- Carter, M.R. (ed.). 1993.** Soil sampling and methods of analysis. Lewis Publishers, Boca Raton, Florida, United States. 823 pp.
- Cassell, E.A., Dorioz, J.M., Kort, R.L., Hoffman, J.P., Meals D.W., Kirschtel, D., and Braun, D.C. 1998.** Modeling phosphorus dynamics in ecosystems: Mass balance and dynamic simulation. *J. Environ. Qual.* **27**: 293-298.
- Casson, J.P., Bennett, D.R., Nolan, S.C., Olson, B., and Ontkean, G.R. 2006.** Degree of phosphorus saturation thresholds in manure-amended soils of Alberta. *J. Environ. Qual.* **35**: 2212-2221.
- Chang, C. and Entz, T. 1996.** Nitrate leaching losses under repeated cattle feedlot manure applications in Southern Alberta. *J. Environ. Qual.* **25**: 145-153.
- Correll, D.L. 1998.** The role of phosphorus in the eutrophication of receiving waters: A review. *J. Environ. Qual.* **27**: 251-317.
- Cullen, P. and Forsberg, C. 1988.** Experiences with reducing point sources of phosphorus to lakes. *Hydrobiologia* **170**: 321-336.
- Daniel, T.C., Edwards, D.R., and Sharpley, A.N. 1993.** Effect of extractable soil surface phosphorus on runoff water quality. *Trans. ASAE* **36**: 1079-1085.
- Daniel, T.C., Sharpley, A.N., Edwards, D.R., Wedepohl, R., and Lemunyon, J.L. 1994.** Minimizing surface water eutrophication from agriculture by phosphorus management. *J. Soil Water Conserv.* **49**(2) supplement: 30-38.
- Depoe, S. 2006.** Water quality monitoring of small streams in agricultural areas. Alberta Environmentally Sustainable Agriculture water quality monitoring program – 2004 annual technical report. Alberta Agriculture, Food and Rural Development, Edmonton, Alberta, Canada. 68 pp.
- Di Luzio, M., Srinivasan R., and Arnold J.G. 2004.** A GIS-coupled hydrological model system for the watershed assessment of agricultural nonpoint and point sources of pollution. *Trans. GIS* **8**: 113-136.
- Doran, J.W. and Linn D.M. 1979.** Bacteriological quality of runoff from pastureland. *Appl. Environ. Microbiol.* **37**: 985-991.
- Doran, J.W. Scheppers, J.S., and Sawnsen, N.P. 1981.** Chemical and bacteriological quality of pasture runoff. *J. Soil Water Conserv.* **36**: 166-171.
- Dormaar, J.F. and Willms, W.D. 1998.** Effect of forty-four years of grazing on fescue grassland soils. *J. Range Manage.* **51**:122-126.

- Dou, Z., Toth, J.D., Galligan, D.T., Ramberg, C.F. Jr., and Ferguson, J.D. 2000.** Laboratory procedures for characterizing manure phosphorus. *J. Environ. Qual.* **29**: 508-514.
- Dunne, T. 1970.** Runoff production in humid areas. United States Department of Agriculture publication ARS-41-160. 108 pp.
- Environment Canada. 2008.** National climate data and information archive. [Online] Available at http://www.climate.weatheroffice.ec.gc.ca/Welcome_e.html [Accessed March 17, 2008].
- Gassman, P.W., Reyes, M. R., Green, C.H., and Arnold, J.G. 2007.** The soil and water assessment tool: Historical development, applications, and future research directions. *Trans. ASABE* **50**: 1211-1250.
- Gburek, W.J., Barberis, E., Haygarth, P.M., Kronvang, B., and Stamm, C. 2005.** Phosphorus mobility in the landscape. Pages 941-979 in J.T. Sims and A.N. Sharpley (ed.), *Phosphorus: Agriculture and the environment*. Agronomy Monograph 46. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, Wisconsin, United States.
- Gburek, W.J., Drungil, C.C., Srinivasan, M.S., Needelman, B.A., and Woodward, D.E. 2002.** Variable source area controls on phosphorus transport: Bridging the gap between research and design. *J. Soil Water Conserv.* **57**: 534-543.
- Gburek, W.J., Needelman, B.A., and Srinivasan, M.S. 2006.** Fragipan controls on runoff generation: Hydrogeological implications and landscape and watershed scales. *Geoderma* **131**: 330-344.
- George Morris Centre. 2007.** An economic evaluation of beneficial management practices for crop nutrients in Canadian agriculture – final report prepared for Crop Nutrients Council. Guelph, Ontario, Canada. 8 pp.
- Gessel, P.D., Hansen, N.C., Goyal, S.M., Johnston, L.J., and Webb, J. 2004.** Persistence of zoonotic pathogens in surface soil treated with different rates of liquid pig manure. *Appl. Soil Ecol.* **25**: 237-243.
- Gill, S.I., Naeth, M.A., Chanasyk, D.S., and Baron, V.S. 1998.** Runoff and sediment yield from snowmelt and rainfall as influenced by forage type and grazing intensity. *Can. J. Soil Sci.* **78**: 699-706.
- Gordon, S., Jones, J.P., Jacksteit, R., and Diwu, J. 2005.** Review of ground and surface water interaction-knowledge and modeling approaches for stream flow prediction in Alberta. Report prepared for Alberta Environment.
- Guy, H.P. 1970.** Techniques of water-resources investigations of the United States Geological Survey, Chapter CI, pp. 1-55. Department of the Interior, United States Government Printing Office, Washington, D.C., United States.
- Haase, T., Schuler, C., and Heb, J. 2006.** The effect of different N and K sources on tuber nutrient uptake, total and graded yield of potatoes (*Solanum tuberosum* L.) for processing. *European J. Agron.* **16**: 187-197.
- Hairston, J.E., Stribling, L., and Beck, J.M. 2001.** Controlling agricultural nonpoint pollution through best management practices. Alabama Cooperative Extension System, Alabama A&M University and Auburn University, United States.
- Hansen, N.C., Daniel T.C., Sharpley, A.N., and Lemunyon, J.L. 2002.** The fate and transport of phosphorus in agricultural systems. *J. Soil Water Conserv.* **57**: 408-416.
- Hayashi, M., van der Kamp, G., and Schmidt, R. 2003.** Focused infiltration of snowmelt water in partially frozen soil under small depressions. *J. Hydrol.* **270**: 214-229.
- Haygarth, P. and Jarvis, S. 1996.** Transfer of phosphorus from agricultural soils. Pages 41-42 in *Agriculture, Hydrology and Water Quality*, Samara Publishing Ltd., Tresaith, Cardigan, United Kingdom.

- Heathwaite, A.L., Griffiths, P., and Parkison, R.J. 1998.** Nitrogen and phosphorus in runoff from grassland with buffer strips following application of fertilizers and manures. *Soil Use Manage.* **14:** 142-148.
- Heathwaite, A.L. and Johnes, P.J. 1998.** Contribution of nitrogen species and phosphorus fractions to stream water quality in agricultural catchments. *Hydrological Processes* **10:** 971-983.
- Henninger, D.L., Petersen, G.W., and Engman, E.T. 1976.** Surface soil moisture within a watershed – variations, factors influencing, and relationship to surface runoff. *Soil Sci. Soc. Am. J.* **40:** 773-776.
- Hirsch, R.M., Alexander, R.B., and Smith, R.A. 1991.** Selection of methods for the detection and estimation of trends in water quality. *Water Resour. Res.* **27:** 803-813.
- Hooda, P.S., Edwards, A.C., Anderson, H.A., and Miller, A. 2000.** A review of water quality concerns in livestock farming areas. *Sci. Total Environ.* **250:** 143-167.
- Hooda, P.S., Moyhagh, M., Svoboda, I.F., Thurlow, M., Stewart, M., Thomson, M., and Anderson, H.A. 1997.** Soil and land use effects on phosphorus in six streams draining small agricultural catchments in Scotland. *Soil Use Manage.* **13:** 196-204.
- Hooda, P.S., Truesdale, V.W., Edwards, A.C., Withers, P.J.A., Aitken, M.N., Miller, A., and Rendell, A.R. 2001.** Manuring and fertilization effects on phosphorus accumulation in soils and potential environmental implications. *Adv. Environ. Res.* **5:** 13-21.
- Horton, R.E. 1933.** The role of infiltration in the hydrologic cycle. *Trans. Amer. Geophys. Union* **14:** 446-460.
- Horton, R.E. 1940.** An approach toward a physical interpretation of infiltration capacity. *Soil Sci. Soc. Am. Proc.* **4:** 399-417.
- Howard, A.E. 2006.** Agronomic thresholds for soil phosphorus in Alberta: A review. 42 pp. *In* Alberta Soil Phosphorus Limits Project. Volume 5: Background information and reviews. Alberta Agriculture, Food and Rural Development, Lethbridge, Alberta, Canada.
- Howell, J., M., Coyne, M.S., and Cornelius, P. 1995.** Faecal bacteria in agricultural waters of the bluegrass region of Kentucky. *J. Environ. Qual.* **24:** 411-419.
- Huang, C.L. and Schulte, E.E. 1985.** Digestion of plant tissue for analysis by ICP emission spectroscopy. *Comm. Soil Sci. and Plant Anal.* **16:** 943-958.
- Hursh, C.R. 1944.** Report of the subcommittee on subsurface flow. *Trans. Am. Geophys. Union* **25:** 743-746.
- Ice, G. 2003.** History of innovative best management practice development and its role in addressing water quality limited waterbodies. *J. Environ. Eng.* **130:** 684-689.
- Isermann, K. 1990.** Share of agriculture in nitrogen and phosphorus emissions into the surface waters of Western Europe against the background of their eutrophication. *Nutr. Cycl Agroecosys.* **26:** 253-259.
- Jandel Scientific Software. 1994.** TableCurve 2D v. 3. AISN Software Inc.
- Jawson, M.D., Elliott, L.F., Saxton, K.E., and Fortier, D.H. 1982.** The effect of cattle grazing on indicator bacteria in runoff from Pacific northwest watershed. *J. Environ. Qual.* **11:** 621-627.
- Joern, B.C. and Vitosh, M.L. 1995.** Influence of applied nitrogen on potato. Part I: Yield, quality, and nitrogen uptake. *Am. Potato J.* **72:** 51-63.
- Kalra, Y.P. and Maynard, D.G. 1991.** Methods manual for forest soil and plant analysis, northwest region, Forestry Canada. P57-59.
- Kane, D.L. and Stein., J. 1983.** Water movement into seasonally frozen soils. *Water Resour. Res.* **19:** 1547-1557.

- Kim, L-H., Choi, E., and Stenstrom, M.K. 2003.** Sediment characteristics, phosphorus types and phosphorus release rates between river and lakes sediments. *Chemosphere* **50**: 53-61.
- Kleinman, P.J.A., Sharpley, A.N., Moyer, B.G., and Elwinger, G.F. 2002.** Effect of mineral and manure phosphorus sources on runoff phosphorus. *J. Environ. Qual.* **31**: 2026-2033.
- Kleinman, P.J.A., Srinivasan, M., Dell, C.J., Schmidt, J.P., Sharpley, A.N., and Bryant R.G. 2006.** Role of rainfall intensity and hydrology in nutrient transport via surface runoff. *J. Environ. Qual.* **35**: 1248-1259.
- Kuo, S. 1996.** Total phosphorus digestion with perchloric acid. Pages 807-872 in J.M. Bartels et al. (ed.), *Methods of soil analysis: Part 3 Chemical methods*. 3rd ed. Book Series 5. ASA and SSSA, Madison, Wisconsin, United States.
- Lacombe County. 2007.** Agriculture department. [Online] Available at http://www.lacombecounty.com/dept_agriculture/index.php
- Little, J.L., Nolan, S.C., and Casson, J.P. 2006.** Relationships between soil-test phosphorus and runoff phosphorus in small Alberta watersheds. 150 pp. *In Alberta Soil Phosphorus Limits Project. Volume 2: Field-scale losses and soil limits.* Alberta Agriculture, Food and Rural Development, Lethbridge, Alberta, Canada.
- Little, J.L., Nolan, S.C., Casson, J.P., and Olson, B.M. 2007.** Relationships between soil and runoff phosphorus in small Alberta watersheds. *J. Environ. Qual.* **36**: 1289-1300.
- MacMillan, R.A. and Pettapiece, W.W. 2000.** Alberta landforms: Quantitative morphometric descriptions and classification of typical Alberta landforms. Technical Bulletin No. 2000-2E. Research Branch, Agriculture and Agri-Food Canada, Semiarid Prairie Agricultural Research Centre, Swift Current, Saskatchewan, Canada. 118 pp. [Online] Available at [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/sag6903?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag6903?opendocument)
- MacMillan, R.A., Pettapiece, W.W., Nolan, S.C., and Goddard, T.W. 2000.** A generic procedure for automatically segmenting landforms into landform elements using DEMs, heuristic rules and fuzzy logic. *Fuzzy Sets Sys.* **113**: 81-109.
- Manunta, P., Kryzanowski, L., and Keyes, D. 2000.** Preliminary assessment of available soil P in Alberta: Status and trends. Conservation and Development Branch, Alberta Agriculture, Food and Rural Development, Edmonton, Alberta, Canada. 64 pp.
- Marston, R.A. 1989.** Particulate and dissolved losses of nitrogen and phosphorus from forest and agricultural soils. *Prog. Phys. Geogr.* **13**: 234-259.
- Mawdsley, J.L., Bardgett, R.D., Merry, R.J., Pain, B.F., and Theodorou, M.K. 1995.** Pathogens in livestock waste, their potential for movement through soil and environmental pollution. *Appl. Soil Ecol.* **2**: 1-15.
- McDowell, R.W., Sharpley, A.N., and Kleinman, P.J.A. 2002.** Integrating phosphorus and nitrogen decision management at watershed scales. *J. Am. Water Res. Assoc.* **38**: 479-491.
- McKeague, J.A. 1978.** Soil sampling and methods of analysis. *Can. Soc. Soil Sci. method* 4.23.
- Murphy, J. and Riley, J.P. 1962.** A modified single solution method for the determination of phosphates in natural waters. *Anal. Chem. Acta* **27**: 31-36.
- National Academy of Sciences (NAS). 1993.** Phosphorus in the soil-crop system. *In Soil and Water Quality: An Agenda for Agriculture.* United States National Academy of Sciences. Accessed 18 December 2007. <http://www.nap.edu/openbook.php?isbn=0309049334&page=283>
- Niemi, R.M. and Niemi, J.S. 1991.** Bacterial pollution of waters in pristine and agricultural land. *J. Environ. Qual.* **20**: 620-627.
- Oenema, O. and Pietrzak, S. 2002.** Nutrient management in food production: Achieving agronomic and environmental targets. *Ambio* **31**: 159-168.

- Official Methods of Analysis. 1990.** Moisture in animal feed. Association of Official Analytical Chemists. 15th edition.
- Oliver, D.M., Heathwaite, L., Haygarth, P.M., and Clegg, C.D. 2005.** Transfer of *E. coli* to water from drained and undrained grassland after grazing. *J. Environ. Qual.* **34**: 918-925.
- Olson, B.M and Papworth, L.W. 2006.** Soil chemical changes following manure application on irrigated alfalfa and rainfed timothy in southern Alberta. *Can. J. Soil Sci.* **86**: 119-132.
- Ontkcan, G.R., Chanasyk, D.S., and Bennett, D.R. 2005.** Snowmelt and growing season phosphorus flux in an agricultural watershed in south-central Alberta, Canada. *Water Qual. Res. J. Can.* **40**: 402-417.
- Osei, E., Gassman, P.W., Hauck, L.M., Jones, R., Beran, L., Dyke, P.T., Goss, D.W., Flowers, J.D., McFarland, A.M.S., and Saleh, A. 2003.** Environmental benefits and economic costs of manure incorporation on dairy waste application fields. *J. Environ. Manage.* **68**: 1- 11.
- Osei, E., Gassman, P., and Saleh, A. 2000.** Livestock and the environment: A national pilot project: Economic and environmental modeling using CEEOT. Report No. PR0002. Texas Institute for Applied Environmental Research, Tarleton State University, Stephenville, Texas, United States.
- Paterson, B.A., Olson, B.M., and Bennett, D.R. 2006.** Summary and recommendations. *In* Alberta soil phosphorus limits project, Vol. 1, Alberta Agriculture, Food and Rural Development, Lethbridge, Alberta, Canada. 82 pp.
- Patni, N.K., Toxopeus, H.R., and Jui, P.Y. 1985.** Bacterial quality of runoff from manure and non-manured cropland. *Trans. ASAE* **28**: 1871-1877.
- Patrick, W.H. Jr. and Khalid, R.A. 1974.** Phosphate release and sorption by soils and sediments: effect of aerobic and anaerobic conditions. *Science* **186**(4158): 53-55.
- Province of Alberta. 2007.** Agricultural Operations Practices Act, revised statues of Alberta 2000. Alberta Queen's Printer, Edmonton, Alberta, Canada. 32 pp.
- Qian, P., Liang, J. and Karamnos, R. 1991.** Comparison of several extractants for available phosphorus and potassium. Page 91-100 *in* Soil and Crops Workshop. Economics of prairie agriculture in the 1990's. February 1991. Univerity of Saskatchewan, Saskatoon, Saskatchewan, Canada.
- Reddy, K.R., Kadlec, R.H., Flaig, E., and Gale, P. M. 1999.** Phosphorus retention in streams and wetlands: a review. *Critical Rev. Environ. Sci. Tech.* **29**: 83-146.
- Renard, K.G. and Laursen, E.M. 1975.** Dynamic behavior model of ephemeral stream. *J. Hydraulics Div.* **101**: 511-528.
- Renaud, Q., Rousseau, A.N., Lafrance, P., Leclerc, J., and Amrani, M. 2006.** Selecting a pesticide fate model at the watershed scale using a multi-criteria analysis. *Water Qual. Res. J. Can.* **41**: 283-295.
- Riemersma S., Rodvang J., Little J., and Olson B. 2004.** Evaluation of buffer zones for surface water and groundwater quality protection and improvement in the Battersea Drain watershed, Alberta. Pages 162-168 *in* 41st Annual Alberta Soil Science Workshop Proceedings. Lethbridge, Alberta, Canada. February 17-19, 2004.
- Rodvang, S.J. 2002.** Groundwater Quality in the Battersea Drainage Basin. 1B002-2002. Factsheet, Irrigation Branch, Alberta Agriculture, Food and Rural Development, Lethbridge, Alberta, Canada.
- Ryden, J.C., Syers, J.K., and Harris, R.F. 1973.** Phosphorus in runoff and streams. *Adv. Agron.* **25**: 1-45.
- Saleh A., Arnold, J.G., Gassman, P., Hauck, L., Rosenthal, W.D., Williams, J.R., and McFarland, A. 2000.** Application of SWAT model for Upper North Bosque River Watershed. *Trans. ASAE* **43**: 1077-1087.

- Samani, Z., Jorat, S., and Yousaf, M. 1991.** Hydraulic characteristics of circular flume. *J. Irrig. and Drain. Eng.* **117**: 558-566.
- SAS Institute Inc. 2003.** The SAS[®] System for Windows[™], release 9.1. SAS Institute Inc., Cary, North Carolina, United States.
- Schindler, D.W. 1974.** Eutrophication and recovery in Experimental lakes: implications for lake management. *Science* **184**(4139): 897-899.
- Schindler, D.W. 1977.** Evolution of phosphorus limitation in lakes. *Science* **195**: 260-262.
- Schroeder, J.W. 2004.** Corn silage management. AS-1253. June 2004. North Dakota State University. [Online] Available at <http://www.ag.ndsu.edu/pubs/ansci/dairy/as1253w/htm> [Accessed March 6, 2008].
- Sharpley, A.N. 1993.** An innovative approach to estimate bioavailable phosphorus in agricultural runoff using iron oxide-impregnated paper strips. *J. Environ. Qual.* **22**: 597-601.
- Sharpley, A.N. 1995.** Dependence of runoff phosphorus on extractable phosphorus. *J. Environ. Qual.* **24**: 920-926.
- Sharpley, A.N., Daniel, T.C., Sims, J.T., Lemunyon, J., Stevens, R.A., and Parry, R. 1999.** Agricultural phosphorus and eutrophication. USDA-ARS Rep. 149. United States Government Printing Office, Washington, D.C., United States.
- Sharpley, A.N., Daniel, T.C., Sims, J.T., and Pote, D.H. 1996.** Determining environmentally sound phosphorus. *J. Soil Water Conserv.* **51**: 160-166.
- Sharpley, A.N., Kleinman, P., and McDowell, R. 2001.** Innovative management of agricultural phosphorus to protect soil and water resources. *Commun. Soil Sci. Plant Anal.* **32**: 1071-1100.
- Sharpley, A.N. and Menzel, R.G. 1987.** The impact of soil and fertilizer phosphorus on the environment. *Adv. Agron.* **41**: 297-324.
- Sharpley, A., Smith, S.J., and Naney, J.W. 1987.** Environmental impact of agricultural nitrogen and phosphorus use. *J. Agric. Food Chem.* **35**: 812-817.
- Sharpley, A., Smith, S.J., Jones, O.R., Berg, W.A., and Coleman, G.A. 1992.** The transport of bioavailable phosphorus in agricultural runoff. *J. Environ. Qual.* **21**: 30-35.
- Sharpley, A.N. and Withers, P.J.A. 1994.** The environmentally-sound management of agricultural phosphorus. *Nutr. Cycl. Agroecosys.* **39**: 133-146.
- Simard, R.R., Cluis, D., Gangbazo, G., and Beauchemin, S. 1995.** Phosphorus status of forest and agricultural soils from a watershed of high animal density. *J. Environ. Qual.* **24**: 1010-1017.
- Sims, J.T., Edwards, A.C., Schoumans, O.F., and Simard, R.R. 2000.** Integrating soil phosphorus testing into environmentally based agricultural management practices. *J. Environ. Qual.* **29**: 60-71.
- Smil, V. 2000.** Phosphorus in the environment: Natural flows and human interferences. *Annu. Rev. Energy Environ.* **25**: 53-58.
- Smith, K.A., Jackson, D.R., and Withers, P.J.A. 2001a.** Nutrient losses by surface run-off following the application of organic manures to arable land. 2. Nitrogen. *Environ. Pollut.* **112**: 41-51.
- Smith, K.A., Jackson, D.R., and Withers, P.J.A. 2001b.** Nutrient losses by surface run-off following the application of organic manures to arable land. 2. Phosphorus. *Environ. Pollut.* **112**: 53-60.
- Smith, V.H. 1982.** The nitrogen and phosphorus dependence of algal biomass in lakes: An empirical and theoretical analysis. *Limnol. Oceanogr.* **27**: 1101-1112.
- Soil Classification Working Group. 1998.** The Canadian System of Soil Classification. Agriculture and Agri-Food Canada. Publication 1646 (revised). 187 pp.

- Soil Test Technical Advisory Group. 1988.** Soil test recommendations for Alberta – Technical manual. 49 pp + appendix.
- Spooner, J., Maas, R.P., Dressing, S.A., Smolen, M.D., and Humenik, F.J. 1985.** Appropriate designs for documenting water quality improvements from agricultural NPS control programs. Pages 30-34 *in* Perspectives on nonpoint source pollution: Proceedings of a national conference. Kansas City, Missouri, United States. May 19-22, 1985.
- Thornley, S. and Bos, A.W. 1985.** Effects of livestock wastes and agricultural drainage on water quality: An Ontario case study. *J. Soil Water Conserv.* **40**: 172-175.
- Tisdale, S.L., Nelson, W.L., Beaton, J.D., and Havlin, J.L. 1993.** Soil fertility and fertilizers. MacMillan Publ. Co., New York., United States.
- Tyrrel, S.F. and Quinton, J.N. 2003.** Overland flow transport of pathogens from agricultural land receiving faecal wastes. *J. Appl. Microbiol.* **94**: 87S-93S.
- United States Department of Agriculture (USDA). 2008.** Conservation Effects Assessment Project (CEAP). United States Department of Agriculture, Natural Resources Conservation Service. [Online] Available at <http://www.nrcs.usda.gov/TECHNICAL/NRI/ceap/> [Accessed February 13, 2008].
- Walker, J.F. 1994.** Statistical techniques for assessing water-quality effects on BMPs. *J. Irrig. Drain Eng.* **120**: 334-347.
- Walter, M.F., Steenhuis, T.S., and Haith, D.A. 1979.** Nonpoint source pollution control by soil and water conservation practices. *Trans. ASAE* **22**: 834-840.
- Weld, J.L., Sharpley, A.N., Beegle, D.B., and Gburek, W.J. 2001.** Identifying critical sources of phosphorus export from agricultural watersheds. *Nutr. Cycl. Agroecosys.* **59**: 29-38.
- Williams, J.R. 1990.** The erosion productivity impact calculator (EPIC) model: A case history. *Phil. Trans. R. Soc. Lond. B* **329**: 421-428.
- Williams, J.R. 1995.** The EPIC Model. Pages 909-1000 *in* V.P. Singh (ed.), Computer models of watershed hydrology. Water Resources Publications, Littleton, Colorado, United States.
- Williams, J.R., Arnold, J.G., and Srinivasan, R. 2000.** The APEX model. BRC Report No. 00-06. Blackland Research Center, Temple, Texas, United States.
- Wuite, J.J. and Chanasyk, D.S. 2003.** Evaluation of two beneficial management practices to improve water quality. Alberta Agricultural Research Institute Project No. 990054. 199 pp.
- Young, E.O. and Ross, D.S. 2001.** Phosphate release from seasonally flooded soils: A laboratory microcosm study. *J. Environ. Qual.* **30**: 91-101.
- Young, R.A., Huntrods, T., and Anderson W. 1980.** Effectiveness of vegetated buffer strips in controlling pollution from feedlot runoff. *J. Environ. Qual.* **9**: 483-487.