

## REFERENCES general articles on air quality and odour

R.Ader and N.Cohen (1991). The influence of conditioning on immune responses. In : Ader, R., Felten, D.L. and Cohen, N., eds. Psychoneuroimmunology. 2<sup>nd</sup> ed. San Diego: Academic Press pp. 611 – 646.

Agriculture and Agri-Food Canada Research Branch (1999). The Health of Our Air. Toward sustainable agriculture in Canada. 71 – 78.

Alberta Agriculture, Food and Rural Development (1995). The code of practice for the safe and economic handling of animal manures. 38 pp.

D.J. Allison and D.A. Powis (1976). Early and late hind-limb vascular responses to stimulation of receptors in the nose of the rabbit. *Journal of Physiology (London)* 262 (2) : 301 – 317.

R.G. Ames and J.W. Stratton (1991). Acute health effects from community exposure to n-propyl mercaptan from a ethoprop (Mocap) – treated potato field in Siskiyou County, California . *Archives of Environmental Health* 46 : 213 – 217.

M. Amon, M. Dobeic, T.H. Misselbrook, B.F. Pain, V.R. Phillips and R.W. Sneath (1995). Farm scale study on the use of De-odorase for reducing odour and ammonia emissions from intensive fattening piggeries. *Bioresource Technology* 51 : 163 – 169.

T. Al – Kanani, E. Akochi, A.F. MacKenzie, I. Alli and S.Barrington (1992). Waste management. Odor control in liquid hog manure by added amendments and aeration. *Journal of Environmental Quality* 21 : 704 – 708.

T. Al-Kanani, E. Akochi, A.F. MacKenzie, I. Alli and S. Barrington (1992). Organic and inorganic amendments to reduce ammonia losses from liquid hog manure. *Journal of Environmental Quality* 21 : 709 – 715.

A.Amberger (1991). Ammonia emissions during and after landspreading. In : Nielsen, V.C.; Voorburg, J.; L’Hermite, P. (eds) : Ammonia and odour emissions from livestock production. London : Elsevier Applied Science, 1991, 126 – 131.

M. Andersson (1996). Performance of bedding materials in affecting ammonia emissions from pig manure. *Journal of Agricultural Engineering Research* 65 (3): 213-222.

D. Artis and S. Silvester (1986). Odour nuisance : Legal controls. *Journal of Planning and Environmental Law (Great Britain)* August : 565 – 577.

N.A. Ashford and C.S. Miller (1991). Chemical exposures. Low levels and high stakes. New York : Van Nostrand.

- R.A. Baron (1990). Environmentally induced positive effect : Its impact on self – efficacy, task performance, negotiation, and conflict. *Journal of Applied Social Psychology* 20 : 368 – 384.
- C.L. Barth, F.L. Elliott and S.W. Melvin (1984). Using odour control technology to support animal agriculture . *Transactions of the American Society of Agricultural Engineering* 27 : 859 – 864.
- S.A. Battersby, ( 1981). Institute of Environmental Health Officers Agricultural Odours Survey, April 1980 – March 1981. MAFF Farm Odour Group, Paper FOG / 14.
- R. Beaudet, C. Gagnon, J.G. Bisailon and M. Ishaque (1990). Microbiological aspects of aerobic thermophilic treatment of swine waste. *Applied Environmental Microbiology* 56 : 971 – 976.
- H. Besedovsky, E. Sorkin, D. Felix and H. Haas (1977). Hypothalamic changes during the immune response. *European Journal of Immunology* 7 : 323 – 325.
- J.R. Bicudo and I.F. Svoboda (1995). Effect of intermittent-cycle extended-aeration treatment on the fate of carbonaceous material in pig slurry. *Bioresource Technology* 54: 53-62.
- G. Bilkei and O. Biro (2000). Occupational hazards for veterinary surgeons responsible for intensive pig herds. II. The effect of air pollution on the health of veterinarians. *Tierärztliche- Umschau* 55(5): 268 – 270, 273.
- D.W. Black, A. Rathe and R.B. Goldstein (1990). Environmental illness. A controlled study of 26 subjects with “ 20 century disease”. *Journal of the American Medical Association* 264 : 3166 – 3170.
- P. Bongers, D. Houthuijs and B. Remijn (1987). Lung function and respiratory symptoms in pig farmers. *British Journal of Industrial Medicine* 44 : 819 – 823.
- D. Bourque, J.G. Bisailon, R. Beaudet, M. Sylvestre, M. Ishaque and A. Morin (1987). Microbiological degradation of swine waste under aerobic conditions. *Applied Environmental Microbiology* 53 : 137 – 141.
- J. Boxberger and A. Gronauer (1990). The effect of application techniques on the level of ammonia emissions during slurry application. In : Hartung, J; Paduch, M; Schirz, S.; Dohler, H.: van den Weghe, H. (eds) : *Ammoniak in der Umwelt*. Landwirtschaftsverlag GmbH, Munster, Germany, 1990, 42.1-5.
- P. Brodal (1992). *The central nervous system : Structure and function*. Oxford: ) Oxford University Press pp. 370 – 371.

- W.H. Brooks, R.J. Cross, T.L. Roszman and W.R. Markesbery (1982). Neuroimmunomodulation : Neural anatomical basis for impairment and facilitation. *Annals of Neurology* 12 : 56 – 61.
- W. Brussard and M.R. Grossman (1990). Legislation to abate pollution from manure : The Dutch approach. *North Carolina Journal of International Law Commercial and Regulations* 15(1) : 85 – 114.
- D.S. Bundy (1992). Odor issues with wastes. In: National livestock, poultry and aquaculture waste management. Proceedings of the National Workshop. 1991. ASAE Publication 03 – 92; St. Joseph, MI: American Society of Agricultural Engineers : 288 – 292.
- C.H. Burton (1992). A review of strategies in the aerobic treatment of pig slurry: purpose, theory and method. *Journal of Agricultural Engineering Research* 53: 249-272.
- W.A. Campbell, E.E. Ratcliff, A.S. Boyers and D.R. Johnston ( 1973). Air pollution controls in North Carolina : A report on their legal and administrative aspects. Institute of Government, The University of North Carolina at Chapel Hill; January : 91 –94.
- P.G. Carney and V.A. Dodd. (1989). The measurement of agricultural malodours. *Journal of Agricultural Engineering Research* 43: 197 – 209.
- M.F. Carvalheiro, Y. Peterson, E. Rubenowitz and R. Rylander (1995). Bronchial reactivity and work-related symptoms in farmers. *American Journal of Industrial Medicine* 27 : 65 – 74.
- J.A. Casey and C. Hobbs. (1994). Look what the GATT dragged in. Corporate hogs and toxic waste. *New York Times OP-ED*, March 21.
- D.C. Christiani (1999). Occupational and environmental lung problems of industrializing countries. *Seminars in Respiratory and Critical care Medicine* 20 (6) : 551 – 558.
- Y.C. Chung, C.P. Huang and C.P. Tseng (1996). Reduction of H<sub>2</sub>S/ NH<sub>3</sub> production from pig feces by controlling environmental conditions. *Journal of Environmental Science and Health. Part A. Environmental Science and Engineering and Toxic and Hazardous Substance Control* 31 (1) : 139-155.
- Y.C. Chung, C.P. Huang, C.P. Tseng and J.R. Pan (2000). Biotreatment of H<sub>2</sub>S- and NH<sub>3</sub>- containing waste gases by co-immobilized cells biofilter. *Chemosphere* 41(3): 329-336.
- J.E. Cometto – Muniz and W.S. Cain (1991). Influence of airborne contaminants on olfaction and the common chemical sense. In : Getchell, T.V., Doty, R.L. , Bartoshuk, L.M. and Snow, J.B., Jr., eds. *Smell and taste in health and disease*. New York : Raven Press pp. 765 – 785.

N.J. Cromar, H.J. Fallowfield and N.J. Martin (1996). Influence of environmental parameters on biomass production and nutrient removal in a high rate algal pond operated by continuous culture. *Water Science and Technology* 34(11): 133-140.

R.J. Cross, W.R. Markesbery, W.H. Brooks and T.L. Roszman (1980). Hypothalamic – immune interactions. I. The acute effect of anterior hypothalamic lesions on the immune response. *Brain Research* 196 : 79 – 87.

R.J. Cross, W.H. Brooks, T.L. Roszman and W.R. Markesbery ( 1982). Hypothalamic – immune interactions. Effect of hypophysectomy on neuroimmunomodulation. *Journal of Neurological Science* 53 : 557 – 566.

A.L. Davidoff and L. Fogarty (1994). Psychogenic origins of Multiple Chemical Sensitivities syndrome : A critical review of the research literature. *Archives of Environmental Health* 49 (5) : 316 – 325.

D.L. Day (1966). Liquid hog manure can be deodorized by treatment with chlorine or lime. *Illinois Research* 127 ( Summer) : 16.

V. Debal, G.P.J. Janssens, M. Seynaeve, H. De Rycke, M.Hesta and R. De Wilde (2000). Possibilities to lower the nitrogen and ammonia emissions in growing pigs by adjusting the feed composition. *Vlaams Diergeneeskunde Tijdschrift* 69(4) : 258-267.

M.J.C. de Bode ( 1990). Vergleich der Ammoniakemissionen aus verschiedenen Flusssigmistlagersystemen. ( A comparison of ammonia emissions from different types of liquid slurry storage systems). In : Hartung, J.; Paduch, M.; Schirz, S.; Dohler, H.; van den Weghe, H. (eds): *Ammoniak in der Umwelt*. Landwirtschaftsverlag GmbH, Munster, Germany 34 : 1 – 13.

C.B. deLint (1998). Eco-Barn, an environmentally – and animal – friendly pork production sytem. *Agridigest* December p.5.

H. Dohler (1990). Ammonia emissions during slurry application – Measurement and methods of reduction. In: Hartung, J.; Paduch, M; Schirz, S; Dohler, H; van den Weghe,H. (eds) : *Ammoniak in der Umwelt*. Landwirtschaftsverlag GmbH, Munster, Germany, 1990, 41 : 1 – 10.

K.J. Donham (1986). Hazardous agents in agricultural dusts and methods of evaluation. *American Journal of Industrial Medicine* 10: 205-220.

K.J. Donham (1989). Relationships of air quality and productivity in intensive swine housing. *Agri-Practice* 10: 15-26.

K.J. Donham (1990). Health effects from work in swine confinement buildings. *American Journal of Industrial Medicine* 17: 17-25.

K.J. Donham (1990). Health concerns from the air environment in intensive swine housing : Where have we come from and where are we going? In : Making swine buildings a safer place to work. Des Moines, IA : National Pork Producers Council pp. 9 – 20.

K.J. Donham (1993). Respiratory disease hazards to workers in livestock and poultry confinement structures. *Seminars in Respiratory Medicine* 14: 49-59.

K.J. Donham, P. Haglind, Y. Peterson, R. Rylander and L. Belin (1989). Environmental and health studies of farm workers in Swedish swine confinement buildings. *British Journal of Industrial Medicine* 46 : 31 – 37.

K.J. Donham, S. Reynolds, P. Whitten, J. Merchant, L. Burmeister and W. Pependorf (1995). Respiratory dysfunction in swine production facility workers : dose – response relationships of environmental exposures and pulmonary function. *American Journal of Industrial Medicine* 27 : 405 – 418.

K.J. Donham, M.J. Rubino and T.D. Thedell (1977). Potential health hazards of workers in swine confinement buildings. *Journal of Occupational Medicine* 19(6): 383-387.

J.A. Dosman, A. Senthilselvan, S.P. Kirychuk, S. Lemay, E.M. Barber, P. Willson, Y. Coemier and T.S. Hurst (2000). Positive human health effects of wearing a respirator in a swine barn. *Chest* 118(3): 852-860.

J.G. Drummond, S.E. Curtis and J. Simon (1980). Effects of aerial ammonia on growth and health of young pigs. *Journal of Animal Science* 50 : 1085 – 1091.

J.G. Drummond, S.E. Curtis and J. Simon (1981). Effects of atmospheric ammonia on young pigs experimentally infected with *Ascaris suum*. *American Journal of Veterinary Research* 42 : 969 – 974.

B. Duckworth (1998). Pig manure smells need new controls. *Western Producer*. January 22.

A.J. Du Toit (1987). Quantification of odour problems associated with liquid and solid feedlot and poultry wastes. *Water Science & Technology* 19 : 31 – 41.

D.G. Dyck, L.Janz, T.A. Osachuk, J.Falk, J. Labinsky and A.H. Greenberg (1990). The Pavlovian conditioning of IL –1 – induced glucocorticoid secretion. *Brain Behaviour and Immunology* 4 : 93 – 104.

H.J. Eby and G.B. Wilson (1969). Poultry house dust, odour and their mechanical removal. In : *Agricultural Waste Management Proceedings, Cornell University Conference on Agricultural Waste Management, Syracuse, NY*, pp. 303 – 309.

H. Ehrlichman and L. Bastone (1992). The use of odour in the study of emotion. In: van Toller, S.; Dodd, G.H., eds. *Fragrance. The psychology and biology of perfume*. London: Elsevier Applied Science: 143 – 159.

A.R.W. Elbers, P.J. Blaauw, M. Devries, P.J.M.M. Vangulick, O.L.M.J. SmiÿÁ 7  
ical study of several professional groups of Dutch veterinarians. 2. Peak  
expiratory flow variability, dust and endotoxin measurements, use of respiratory  
protection devices, and time distribution of professional activities. *Veterinary Quarterly*  
18 (4) : 132 – 136.

J.W.Erisman and G.J. Monteny (1998). Consequences of new scientific findings for  
future abatement of ammonia emissions. *Environmental Pollution* 102 (S1): 275-282.

H. Fallding (2000a). Farmer told again to stifle hog stench. Second order follows new  
odour complaint. *Winnipeg Free Press*, August 14.

H.Fallding (2000b). Hog barn manure cover ordered. Neighbours complain stench  
affecting lives. *Winnipeg Free Press*, August 4 .

H.J. Fallowfield, N.J. Cromar and L.M.Evison (1996). Coliform die-off rate constants in  
a high rate algal pond and the effect of operational and environmental variables. *Water  
Science and Technology* 34(11): 141-147.

J.Floyer : A treatise of the asthma, 1698, as quoted by Sakula,A. Sir John Floyer's A  
treatise of the asthma (1698). *Thorax* 39 : 249 – 254 (1984).

M. Fukuda, T.Ono and K. Nakamura (1987). Functional relations among inferotemporal  
cortex, amygdala, and lateral hypothalamus in monkey operant feeding behavior. *Journal  
of Neurophysiology* 57 : 1060 – 1077.

J.A. George, C.D. Fulhage and S.W. Melvin (1985). A summary of Midwest livestock  
odour court actions. In: *Agricultural Waste Management and Utilization, Proceedings of  
the 5<sup>th</sup> International Symposium on Agricultural Wastes*, ASAE Publication 13 –85,  
ASAE, St. Joseph, MI, pp. 431 – 438.

D.C. Glass (1990). A review of the health effects of hydrogen sulphide exposure. *Annals  
of Occupational Hygiene* 34 (3) : 323 – 327.

J.R. Goldsmith (1973). Annoyance and health reactions to odor from refineries and other  
industries in Carson, California, 1972. In: J.R. Goldsmith, ed. *Health and annoyance  
impact of odor pollution*. Environmental protection technology series. EPA – 650/1 – 75  
– 001. Washington, DC: Environmental Protection Agency : 189 – 227.

C.G. Golueke (1977). *Biological Reclamation of Solid Wastes*. Rodale Press, Emmaus,  
PA.

G.A. Goodwin, C.J. Heyser, C.A. Moody, L. Rajachandran, V.A. Molina, H.M. Arnold, D.L. McKinzie, N.E. Spear and L.P.A. Spear (1992). A fostering study of the effects of prenatal cocaine exposure: II. Offspring behavioural measures. *Neurotoxicology and Teratology* 14 : 423 – 432.

R. Guevara- Guzman, D.E. Garcia- Diaz, L.P. Solano- Flores, M.J. Wayner and D.L. Armstrong (1991). Role of the paraventricular nucleus in the projection from the nucleus of the solitary tract to the olfactory bulb. *Brain Research Bulletin* 27 : 447 – 450.

G. Gustafsson (1988). *Luft-och Varmebalanser I Djurstallar (Air and heat balances in animal houses)*. Sveriges Lantbruksuniversitet. Rapport 59. Lund.

K. Haga (1998). Animal waste problems and their solution from the technological point of view in Japan. *Japan Agricultural Research Quarterly* 32 (3) : 203 – 210.

N.D. Hamilton and D. Bolte (1988). Nuisance law and livestock production in the United States : A fifty state analysis. *Journal of Agricultural Taxation Law* 10 (2) : 99 – 136

E.G. Hammond, C. Fedler and G.A. Junk (1979). Identification of dust-borne odours in swine confinement facilities. *Transactions of the American Society of Agricultural Engineers* 22 : 1186 – 1189.

M. Hangartner, J.Hartung, M.Paduch, B.F.Pain and J.H.Voorburg. (1989). Improved recommendations on olfactometric measurements. *Environmental Technology Letters* 10: 231 – 236.

S.A. Hart and M.B. Turner (1965). Lagoons for livestock manure. *Journal of the Water Pollution Control Federation* 37 : 1578 – 1596.

J. Hartung (1992). Luftgetragene Emissionen der Tierhaltung. ( Airborne emissions from livestock farming). In : Akkermann, R.; Behrends, H.B.; Ehrnsberger, R. (eds) : *Allergie und Umwelt*. Vehtaer Universitats-schriften / Verlag Gunter Runge, Cloppenburg, Germany. 85 – 104.

J. Hartung and V.R. Phillips (1994). Control of gaseous emissions from livestock buildings and manure stores. *Journal of Agricultural Engineering Research* 57 : 173 – 190.

.A.J.Heber.(1997). Setbacks for Sufficient Swine Odour Dispersion and Dilution. Purdue University Publication. [Pork@Purdue](mailto:Pork@Purdue). <http://pasture.ecn.purdue.edu/~heber/setba.html>

A.J. Heber (1998). Effect of lagoon aeration on odor emissions from a swine grow-finish facility. Final report to Ramco Sales, Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, IN, September 8.

- A.J. Heber and D.J. Jones (1999). Methods and practices to reduce odor from swine facilities. Ag Quality. 4pp. <http://www.agcom.purdue.edu/Agcom/Pubs/menu.htm>
- M.Herbert, R.Glick and H.Black (1967). Olfactory precipitants of bronchial asthma. *Journal of Psychosomatic Research* 11 : 195 – 202.
- T. Hinz and K.H. Krause ( 1987). Emission of respiratory biological-mixed aerosols from animal houses. In: Bruce, J.M.; Sommer M. (eds) : Environmental aspects of respiratory disease in intensive pig and poultry houses, including the implications for human health. Proceedings of EEC Conference, Aberdeen, 29 – 30 October, pp. 81 – 89.
- R.N. Hiramoto, V.K. Ghanta, C.F. Rogers and N.S. Hiramoto ( 1991). Conditioning the elevation of body temperature, a host defensive reflex response. *Life Science* 49 :93 – 99.
- J.G. Henry and R. Gehr (1980). Odor control: An operator's guide. *Journal of the Water Pollution Control Federation* 52 (10) : 2523 – 2537.
- P.J.Hobbs, T.H.Misselbrook and B.F.Pain (1998). Emission rates of odorous compounds from pig slurries. *J.Science Food and Agriculture* 77(3) : 341 – 348.
- P.J. Hobbs, B.F. Pain, R.M. Kay and P.A. Lee (1996). Reduction of odorous compounds in fresh pig slurry by dietary control of crude protein. *Journal of the Science of Food and Agriculture* 71 : 508 – 514.
- P.N. Hobson (1990). The treatment of agricultural wastes. In Wheatley, A. (Ed.) , *Anaerobic Digestion : A Waste Treatment Technology*. Elsevier Applied Science, New York, pp. 93-138.
- D.L. Holness, E.L. O'Blenis, A. Sass-Kortsak, C.Pilger and J.R. Nethercott (1987). Respiratory effects and dust exposures in hog confinement farming. *American Journal of Industrial Medicine* 11 : 571 – 580.
- P.S. Hunt, J.C. Molina, L. Rajachandran, L.P. Spear and N.E. Spear ( 1993). Chronic administration of alcohol in the developing rat: Expression of functional tolerance and alcohol olfactory aversions. *Behaviour and Neural Biology* 59 : 87 – 99.
- G.L. Hutchinson, A.R. Mosier and C.E. Andre (1983). Ammonia and amine emissions from a large cattle feedlot. *Journal of Environmental Quality* 11(2) : 288-293.
- Iowa State University Extension (1998). Fact Sheet Pm-1754a. Synthetic Covers. 2 pp.
- R. Jolie, L. Backstrom and C.Thomas (1998). Health problems in veterinary students after visiting a commercial swine farm. *Canadian Journal of Veterinary Research* 62 (1) : 44 – 48.

R. Jolie, L. Backstrom, L. Olson and C. Chase (1999). A 15 – week experimental exposure of pigs to airborne dust with added endotoxin in a continuous flow exposure chamber. *Canadian Journal of Veterinary Research* 63 (2) : 129 – 137.

J.B. Jones, L.R. Burgess, A.J.F. Webster and C.M. Wathes (1996). Behavioural responses of pigs to atmospheric ammonia in a chronic choice test. *Animal Science* 63( Part3) : 437 – 445.

K.B.C. Jones (1977). U.K. problems and legislation relating to odour control. *Agriculture and Environment* 3 : 245 – 257.

A.W. Jongloed (1991). Ontwikkelingen in de produktie en samenstelling van mest bij varkens en pluimvee. In: H.A.C. Verkirck (ed.) *Mest en Milieu 2000. Visie vanuit het Landbouwkundig Onderzoek*. DLO, Wageningen, pp. 25-48.

E. Jonsson, M. Deane and G. Sanders (1975). Community reactions to odors from pulp mills: A pilot study in Eureka, California. *Environmental Research* 10 : 249 – 270.

O. Kadlecova, K. Masek, J. Seifert and P. Petrovicky (1987). The involvement of some brain structures in the effects of immunomodulators. *Annals of the New York Academy of Sciences* 496 : 394 – 398.

Z. Karadi, Y. Oomura, H. Nishino and S. Aou (1989). Olfactory coding in the monkey lateral hypothalamus : Behavioral and neurochemical properties of odor – responding neurons. *Physiological Behavior* 45 : 1249 – 1257.

M. Katayama, S. Kobayashi , N. Kuramoto and M.M. Yokoyama (1987). Effects of hypothalamic lesions on lymphocyte subsets in mice. *Annals of the New York Academy of Sciences* 496 : 366 – 376.

M.S. Kiekhaefer, K.J. Donham et al. (1995). Cross seasonal studies of airborne microbial populations and environment in swine buildings: Implications for worker and animal health. *Annals of Agricultural and Environmental Medicine* 2(2) : 37-44.

K. H. Kilburn (1989). Is the human nervous system most sensitive to environmental toxins. *Archives of Environmental Health* 44 : 343 – 344.

K.H. Kilburn, R. H. Warsaw, and M. G. Shields (1989). Neurobehavioral dysfunction in firemen exposed to polychlorinated biphenyls (PCBs) : possible improvement after detoxification. *Archives of Environmental Health* 44: 345 – 350.

S.Kilman (1994). Power pork. Corporations begin to turn hog business into an assembly line. *The Wall Street Journal*; March 28, p.A10.

H. Kornberg (1979). *Seventh Report of the Royal Commission on Environmental Pollution ( Agriculture and Pollution)*. HMSO, London.

H.H. Kowalewsky (1981). Messen und Bewertung von Geruchsimmissionen. (Measuring and evaluating odour emissions). KTBL Schrift 216, Landwirtschaftsverlag GmbH, Munster, Germany.

H.H. Kowalewsky (1990). A comparison of new application techniques to reduce ammonia emission during the application of slurry on grassland. In : Hartung, J; Paduch, M; Schirz, S; Dohler, H; van den Weghe, H. (eds) : Ammoniak in der Umwelt. Landwirtschaftsverlag GmbH, Munster, Germany, 1990, 43 : 1 – 5.

H.H. Kowalewsky, R. Schev and H. Vetter (1980). Measurement of odour emissions and immissions. In : *Effluents from livestock* ( Gasser, J.K.R. (Ed.)). Applied Science Publishers, London, pp. 609 – 626.

D.G. Laing, A. Eddy and D.J. Best (1994). Perceptual characteristics of binary, trinary, and quaternary odor mixtures consisting of unpleasant constituents. *Physiological Behaviour* 56 : 81 – 93.

K.A. Larsson, A.G. Eklund, L-O. Hansson, B-M. Isaksson and P.O. Malmberg (1994). Swine dust causes intense airways inflammation in healthy subjects. *American Journal of Respiratory and Critical Care Medicine* 150 : 973 – 977.

A.K. Lau, K.V. Lo, P.H. Liao and J.C. Yu (1992). Aeration experiments for swine waste composting. *Bioresource Technology* 41 : 145 – 152.

M.Lefebvre, D.Yee, D.Fritz and M.G.Prior. (1991). Objective measures of Ocular Irritation as a Consequence of Hydrogen Sulphide Exposure. *Veterinary and Human Toxicology* 33(6) : 564 - .

T.E. Levina (1988). Hygienic significance of aliphatic amines in the air of pig houses. *Veterinariya Moskva* 8 : 26f.

T.E. Levina (1989). Diethylamine in the air of pig houses. *Veterinariya Moskva* 12 : 22f.

X.W. Li, D.S. Bundy and J. Zhu (1998). The effects of manure amendments and scum on odor concentrations above pit surfaces and downwind. *Bioresource Technology* 66 (1) : 69 – 74.

T.S. Lorig (1989). Human EEG and odor response. *Progress in Neurobiology* 33 : 387 – 398.

T.S. Lorig (1992). Cognitive and noncognitive effects of odour exposure: Electrophysiological and behavioral evidence. In : Van Toller, S. and Dodd, G.H., eds. *The psychology and biology of perfume*. London : Elsevier Applied Science : 161 – 173.

T.S. Lorig, E. Huffman, A. DeMartino and J. DeMarco (1991). The effects of low concentrations odors on EEG activity and behavior. *Journal of Psychophysiology* 5 : 69 – 77.

T.S. Lorig and M. Roberts (1990). Odor and cognitive alteration of the contingent negative variation. *Chemical Senses* 15 : 537 – 545.

T.S. Lorig , A.C. Sapp, J.Campbell and W.S. Cain ( 1993). Event-related potentials to odor stimuli. *Bulletin of the Psychonomic Society* 31 : 131 – 134.

T.S. Lorig and G.E. Schwartz (1988). Brain and odor – I : Alteration of human EEG by odor administration. *Psychobiology* 16 : 281 – 284.

J. Lorimer, C.V. Schwab and L. Miller (1994). Manure storage poses invisible risks. Iowa State University Extension Publication # : Pm – 1518k.

W.C. Losinger, E.J. Bush, M.A. Smith and B.A. Corso ( 1998). Mortality attributed to respiratory problems among finisher pigs in the United States. *Preventive Veterinary Medicine* 37 (1-4) : 21 – 31.

H.W. Ludvigson and T.R. Rottman (1989). Effects of ambient odors of lavender and cloves on cognition, memory, affect and mood. *Chemical Senses* 14: 525- 536.

H. Mannebeck (1985). Covering manure storing tanks to control odour. In : *Proc. Odour Prevention and Control of Organic Sludge and Livestock Farming*, ed. Neilsen, V.C., Voorburg, J.H., L’Hermite, P. Elsevier, London. Pp. 234 – 237.

J.J. May (1997). Rapporteur report : Airborne exposure, lung disease, exposure assessment. In: *Agricultural Health and Safety: Recent Advances*. pp.33-36. K.J. Donham, R. Rautiainen, S.S. Schuman and J.A. Lay (editors). The Hawaorth Medical Press, New York & London.

J.B. McQuitty and J.J.R. Feddes (1978). WARNING : manure gases are dangerous. *Agriculture and Forestry Bulletin* 1, 10pp.

C.L. Meachum and I.L. Bernstein (1992). Behavioral conditioned responses to contextual and odor stimuli paired with LiCl administration. *Physiological Behaviour* 52: 895 – 899.

P. Means (1992). Eau de hog or, it smells like money to me. *Arkansas Lawyer* 26 (2) : 36 – 40.

W.J. Meggs (1993). Neurogenic inflammation and sensitivity to environmental chemicals. *Environmental Health Perspectives* 101 (3) : 234 – 238.

W.J. Meggs (1995). Neurogenic switching : A hypothesis for a mechanism for shifting the site of inflammation in allergy and chemical sensitivity. *Environmental Health Perspectives* 103 (1) : 54 – 56.

S.P. Mathur, N.K. Panti and M.P. Levesque (1990). Static pile, passive aeration composting of manure slurries using peat as a bulking agent. *Biological Wastes* 30: 323-333.

J.R. Miner (1975) . Management of odors associated with livestock production. In: *Managing livestock wastes*. St. Joseph , MI: American Society of Agricultural Engineers: 378 – 380.

J.R. Miner (1980). Controlling odors from livestock production facilities: State – of – the – art. In: *Livestock waste : A renewable resource*. St. Joseph, MI : American Society of Agricultural Engineers : 297 – 301.

J.R. Miner (1997). Nuisance concerns and odor control. *Journal of Dairy Science* 80(10): 2667 – 2672.

J.R. Miner, M.D. Kelly and A.W. Anderson (1975). Identification and measurement of volatile compounds within a swine building and measurement of ammonia evolution rates from manure-covered surfaces. In : *Managing livestock wastes*. St. Joseph, MI: American Society of Agricultural Engineers : 351 – 353.

T.H. Misselbrook, D.R. Chadwick, B.F. Pain and D.M. Headon (1998). Dietary manipulation as a means of decreasing N losses and methane emissions and improving herbage N uptake following application of pig slurry to grassland. *Journal of Agricultural Science* 130: Part 2 : 183-191.

G.R. Morris, W.J. Jewell and R.C. Loehr (1977). Anaerobic fermentation of animal wastes: design and operational criteria. In *Food, Fertilizer, and Agricultural Residues*, ed. R.C. Loehr. Ann Arbor Science Publishers, Ann Arbor, MI, pp. 395 – 413.

A.R. Mosier, C.E. Andre and F.G. Viets Jr. (1973). Identification of aliphatic amines volatilized from cattle feedyard. *Environmental Science and Technology* 7 (7) : 642-644.

V.S. Murua and V.A. Molina (1990). Desipramine and restraint stress induce odor conditioned aversion in rats: Suppression by repeated conditioning. *Psychopharmacology (Berlin)* 102 : 503 – 506.

D.M. Nance, D. Rayson and R.I. Carr (1987). The effects of lesions in the lateral septal and hippocampal areas on the humoral immune response of adult female rats. *Brain Behavior and Immunology* 1 : 292 – 305.

NIOSH .(1977). Criteria for a Recommended Standard. Occupational Exposure to Hydrogen Sulfide. National Institute for Occupational Safety and Health, Cincinnati, Ohio. USA.

G.A. Nordstrom and J.B. McQuitty (1976). Manure gases in the animal environment ... a literature review. Research Bulletin 76-1. Department of Agricultural Engineering, The University of Alberta, Edmonton, Alberta.

O. Noren (1986). Design and use of biofilters for livestock buildings. Pp. 234 – 237. In V.C. Nielsen (ed.) Odour prevention and control of organic sludge and livestock farming. Elsevier Applied Science Publication, London.

J.A. Oleskiewicz and S. Koziarski (1986). Kinetics of piggery waste treatment in anaerobic lagoons. *Agricultural Wastes* 16 : 13 – 25.

D.H. O'Neill and V.R. Phillips (1991). A review of the control of odour nuisance from livestock buildings : Part 1, Influence of the techniques for managing waste within the building. *Journal of Agricultural Engineering Research* 50 : 1 – 10.

D.H. O'Neill, I.W. Stewart and V.R. Phillips (1992). A review of the control of odour nuisance from livestock buildings : Part 2, The costs of odour abatement systems as predicted from ventilation requirements. *Journal of Agricultural Engineering Research* 51 : 157 – 165.

D.H. O'Neill and V.R. Phillips (1992). A review of the control of odour nuisance from livestock buildings : Part 3, Properties of the odorous substances which have been identified in livestock wastes or in the air around them. *Journal of Agricultural Engineering Research* 53 : 23 – 5 .

T. Ono, P.G. Luiten, H. Nishijo, M. Fukuda and H. Nishino (1985). Topographic organization of projections from the amygdala to the hypothalamus of the rat. *Neuroscience Research* 2 : 221 – 238.

Y. Oomura (1980). Input – output organization in the hypothalamus relating to food intake behavior. In : Morgane, P., Panksepp, J., eds. *Handbook of the hypothalamus*. Vol.2. New York : Marcel Dekker pp. 557 – 620.

Y. Oomura (1987). Modulation of prefrontal and hypothalamic activity by chemical senses in the chronic monkey. In : Kawamura, Y. and Kare, M.R. eds. *Umami : A basic taste*. New York : Marcel Dekker pp. 481 – 509.

Y. Oomura, T. Ono and H. Ooyama (1970). Inhibitory action of the amygdala on the lateral hypothalamic area in rats. *Nature* 228 : 1108 – 1110.

B.F. Pain, C.R. Clarkson, V.R. Phillips, J.V. Klarenbeek, T.H. Misselbrook and M. Bruins (1991). Odour emissions arising from application of livestock slurries on land:

Measurements following spreading using a micrometeorological technique and olfactometry. *Journal Agricultural Engineering Research* 48 : 101 – 110.

B.F.Pain and D.G.Bonazzi. (1993). Odours from livestock production. Environment, agriculture and stock farming in Europe. European Conference, 1990 – 1993. Mantua, Italy.

R.B. Palmquist, F.M. Roka and T. Vukina (1997). Hog operations, environmental effects, and residential property values. *Land Economics* 73 (1) : 114 – 124.

D. Phillips and N.R. Bulley (1980). Odour reduction of swine manure by aeration stripping. *Canadian Agricultural Engineering* 22 : 113 – 116.

J.A. Pickrell, A.J. Heber, J.P. Murphy, S.C. Henry, M.M. May, D. Nolan, F.W. Oehme, J.R. Gillespie and D. Schoneweis (1993). Characterization of particles, ammonia and endotoxin in swine confinement operations. *Veterinary and Human Toxicology* 35 (5) : 421 – 428.

PORK'97 (1997). Crop residue compost : another manure management option.  
<http://www.porkmag.com/busi01.htm>

K. Radon, S. Garz, A. Schottky, F. Koops, J. Hartung, D. Szadkowski and D. Nowak (2000). Lung function and work-related exposure in pig farmers with respiratory symptoms. *Journal of Occupational and Environmental Medicine* 42(8): 814-820.

G. Ranalli, R. Chiumenti, L. Donantoni and C. Sorlini (1996). Electrolytic treatment of swine liquid manure in a full scale experiment. *Journal of Environmental Science and Health. Part A. Environmental Science and Engineering and Toxic and Hazardous Substance Control.* 31 (7) : 1705-1721.

S.M. Rao Bhamidimarri and S.P. Pandey ( 1996). Aerobic thermophilic composting of piggery solid wastes. *Water and Science Technology* 33 (8): 89-94.

J.H. Raymer, E.D. Pellizzari, K.W. Thomas and S.D. Cooper (1991). Elimination of volatile organic compounds in breath after exposure to occupational and environmental microenvironments. *Journal Expo Anal Care Environment Epidemiology* 1 : 439 – 451.

S.J. Reynolds, K. Donham, P. Whitten, J.A. Merchant, L.F. Burmeister and W.J. Pependorf (1996). Longitudinal evaluation of dose-response relationships for environmental exposures and pulmonary function in swine production workers. *American Journal of Industrial Medicine* 29 : 33 – 40.

S.J. Reynolds, K.J. Donham, J. Stookesberry, P.S. Thorne, P. Subramanian, K.Thu and P. Whitten (1997). Air quality assessments in the vicinity of swine production facilities. In: *Agricultural Health and Safety: Recent Advances* ( Donham, K.J. ed) : The Haworth Press, Inc., 37 – 45.

- W.F. Ritter (1981). Chemical and biochemical odor control of livestock wastes: A review. *Canadian Agricultural Engineering* 23 (1) : 1-4.
- W.F. Ritter (1989). Odour control of livestock wastes : State – of- the- art in North America. *Journal of Agricultural Engineering Research* 42 : 51 – 62.
- E. Roberts (1986). Alzheimer’s disease may begin in the nose and may caused by aluminosilicates. *Neurobiology of Aging* 7 : 561 – 567.
- T.L. Roszman, R.J. Cross, W.H. Brooks and W.R. Markesbery (1982). Hypothalamic – immune interactions. II. The effect of hypothalamic lesions on the ability of adherent spleen cells to limit lymphocyte blastogenesis. *Immunology* 45 : 737 – 742.
- J. Rotton. (1983). Affective and cognitive consequences of malodorous pollution. *Basic Applied Social Psychology* 4: 171 – 191.
- L.M. Safley,Jr. and P.W. Westerman (1988). Biogas production from anaerobic lagoons. *Biological Wastes* 23 : 181 – 193.
- L.M. Safley,Jr. and P.W. Westerman (1989). Anaerobic lagoon biogas recovery systems. *Biological Wastes* 27: 43-62.
- D. Saphier, O. Abramsky, G. Mor and H. Ovadia (1987). Multiunit electrical activity in conscious rats during an immune response. *Brain Behavior and Immunology* 1 : 40 – 51.
- K.P. Satin, S. Huie and L. Croen (1986). Operating Industries Inc. health effects study. Berkeley, CA : California Department of Health Services, Epidemiological Studies Section.
- K.P.Satin, G. Windham, J. Stratton and R. Neutra (1987). Del Amo – Montrose Health effects study, Berkeley, CA: California Department of health Services, Epidemiological Studies Section.
- M.E. Scarborough, R.G. Ames, R.G. Lipsett and R.J. Jackson (1989). Acute health effects of community exposure to cotton defoliant. *Archives of Environmental Health* 44 : 355 – 360.
- J. Schaefer (1977). Sampling, characterization and analysis of malodours. *Agriculture and Environment* 3 (2,3) : 121 – 128.
- J. Schaefer (1980). Development of instrumental methods for measuring odour levels in intensive livestock buildings. In : *Effluents from livestock* (Gasser, J.K.R. (Ed.)). Applied Science Publishers, London, pp. 513 – 535.

- S.S.Schiffman ( 1998). Livestock odors : Implications for human health and well-being. *Journal of Animal Science* 76 : 1343 – 1355.
- S.S. Schiffman, E.A. Sattely Miller, M.S. Suggs and B.G. Graham (1995). The Effect of Environmental Odors Emanating from Commercial Swine Operations on the Mood of Nearby Residents. *Brain Research Bulletin* 37 (4) : 369 – 375.
- S.S. Schiffman, E.A. Sattely Miller, M.S. Suggs and B.G. Graham (1994 a). The effect of pleasant odors and hormone status on mood of women at midlife. *Brain Research Bulletin* 36 : 19 – 29.
- S.S. Schiffman, M.S. Suggs and A.E. Sattely Miller (1994 b). Effects of pleasant odors on mood of males at midlife: Comparison of African – American and European-American men. *Brain Research Bulletin* 36 : 31 – 37.
- S. Schirz (1985). Design and experience obtained with bioscrubbers. In : *Proc. Odour Prevention and Control of Organic Sludge and Livestock Farming*, ed. Neilsen, V.C., Voorburg, J.H. and L’Hermite,P., Elsevier, London. pp. 241 – 250.
- J.W. Scott and C. Pfaffmann (1967). Olfactory input to the hypothalamus: Electrophysiological evidence. *Science* 158 : 1592 – 1594.
- J. Seedorf and J. Hartung (1999). Reduction efficiencies of a biofilter and a bioscrubber for bioaerosols from two different piggeries. *Berliner Und Munchener Tierarztliche Wochenschrift* 112 (12) : 444-447.
- C. Shim and M.H. Williams,Jr. (1986). Effect of odors in asthma. *The American Journal of Medicine* 80 : 18 – 22.
- G.E. Simon, W.J. Katon and P.J. Sparks (1990). Allergic to life : psychological factors in environmental illness. *American Journal of Psychiatry* 147 : 901 – 906.
- J. Simpson, R. Niven, C. Pickering, A. Fletcher, L. Oldham and H.Francis (1998). Prevalence and predictors of work related respiratory symptoms in workers exposed to organic dusts. *Occupational and Environmental Medicine* 55 : 668 – 672.
- R.W. Sneath (1988). The effects of removing solids from aerobically treated piggery slurry on the VFA levels during storage. *Biological Wastes* 26 : 175 – 188.
- R.W. Sneath, C.H. Burton and A.G. Williams (1992). Continuous aerobic treatment of piggery slurry for odour control scaled up to a farm-size unit. *Journal of Agricultural Engineering Research* 53 : 81 – 92.
- R.W. Sneath and A.G. Williams (1990). The possible importance of wind aeration in controlling odours from pig slurry stored after aerobic treatment. *Biological Wastes* 33: 151 – 159.

- S.G. Sommer, B.T. Christensen, N.E. Nielsen and J.K. Schjorring (1993). Ammonia volatilization during storage of cattle and pig slurry: effect of surface cover. *Journal of Agricultural Science* 121 : 63-71.
- G.F. Solomon (1987). Psychoneuroimmunology : Interactions between central nervous system and immune system. *Journal of Neuroscience Research* 18 : 1 – 9.
- H.B. Solvason, V.K. Ghanta, J.F. Lorden , S.J. Soong and R.N. Hiramoto (1991). A behavioral augmentation of natural immunity: Odor specificity supports a Pavlovian conditioning model. *International Journal of Neuroscience* 61 : 277 - 288.
- H.B. Solvason, V.K. Ghanta, S.J. Soong, C.F. Rogers, C.M. Hsueh, N.S. Hiramoto and R.N. Hiramoto (1992). A simple, single, trial-learning paradigm for conditioned increase in natural killer cell activity. *Proceedings of the Society for Experimental Biology and Medicine* 199 : 199 – 203.
- S.F. Spoelstra ( 1977). Simple pheols and indoles in anaerobically stored piggery wastes. *Journal of the Science of Food and Agriculture* 28 : 415 – 423.
- P. Subramanian, S. Reynolds, P.S. Thorne, K. Donham, J. Stookesberry and K. Thu (1996). Assessment of airborne ammonia in a swine farming environment by the fluorometric enzyme method. *International Journal of Environmental and Analytical Chemistry* 64 : 301 – 312.
- S.S. Schiffman, E.A. Sattely Miller, M.S. Suggs and B.G. Graham. (1995). The effect of environmental odors emanating from commercial swine operations on the mood of nearby residents. *Brain Research Bulletin* 37:369 –375.
- T.J. Schulz and A.P. Vanharreveld. (1996). International moves towards standardization of odour measurement using olfactometry. *Water Science and Technology* 34(3-4) : 541 – 547.
- D. Shusterman. (1992). Critical review : The Health Significance of Environmental Odor Pollution. *Archives of Environmental Health* 47(1): 76 – 87.
- G. Steffens, A. Klasing and F. Lorenz (1990). Ammoniak-freisetzung aus Flüssigmistlagerbehältern und nach Gülleausbringung bei unterschiedlichen Güllezusatzen. ( Ammonia emissions from liquid slurry storage containers and after slurry application using different slurry additives). In : Hertung, J; Paduch, M.; Schirz, S.; Dohler, H.; van den Weghe, H. (eds): *Ammoniak in der Umwelt*, Landwirtschaftsverlag GmbH, Munster, Germany, 36 : 1 – 7.
- M. Stein and P. Ottenberg (1958). Role of odors in asthma. *Psychosomatic Medicine* 20: 60-65.

B. Steinheider (1999). Environmental odours and somatic complaints. *Zentralblatt fur Hygiene und Umweltmedizin* 202 ( 2-4 ) : 101 – 119.

S.D. St.George and J.J.R. Feddes (1995a). Electrical properties of organic and respirable swine dusts. *Canadian Agricultural Engineering* 37(2): 97 – 102.

S.D. St.George and J.J.R. Feddes (1995b). Removal of airborne swine dust by electrostatic precipitation. *Canadian Agricultural Engineering* 37(2): 103 – 108.

D.P. Stombaugh, H.S. Teague and W.L. Roller ( 1969). Effects of atmospheric ammonia on the pig. *Journal of Animal Science* 28 : 844 – 847.

J. Sutin, R.L. McBride, R.H. Thalmann and E.L. Van Atta (1975). Organization of some brainstem and limbic connections of the hypothalamus. *Pharmacology and Biochemistry of Behavior* 3 (Suppl. 1 ) : 49 – 59.

J.M. Sweeten (1980). Waste treatment: state-of-the-art. In *Livestock Waste: A Renewable Resource. Proc. 4<sup>th</sup> International Symposium on Livestock Wastes*. ASAE, St Joseph, MI, pp. 334 – 338.

J.R. Sweeten and J.R. Miner. (1993). Odor intensities at cattle feedlots in nuisance litigation. *Bioresource Technology* 45:177-188.

S.F. Takagi (1986). Studies of the olfactory system in the old world monkey. *Progress in Neurobiology* 27 : 195 – 250.

T. Tanabe, M. Iino and S.F. Takagi (1975). Discrimination of odors in olfactory bulb, pyriform – amygdaloid areas, and orbito frontal cortex of the monkey. *Journal of Neurophysiology* 38 : 1284 – 1296.

Y. Tazawa, N. Onoda and S.F. Takagi (1987). Olfactory input of the lateral hypothalamus of the old world monkey. *Neuroscience Research* 4 : 357 – 375.

K. Thu, K. Donham, R. Ziegenhorn, S. Reynolds, P.S. Thorne, P. Subramanian, P. Whitten and J. Stookesberry (1997). A control study of the physical and mental health of residents living near a large-scale swine operation. *Journal of Agricultural Safety and Health* 3(1) : 13-26.

B. Tobin (1997). Right – to – farm revamped.  
<http://www.agpub.on.ca/text/july97/news.htm>

L. Tyrey and A.V. Nalbandov (1972). Influence of anterior hypothalamic lesions on circulating antibody titers in the rat. *American Journal of Physiology* 222 : 179 – 185.

- B. Urbain, P. Gustin, J-F. Prouvost and M. Ansay (1994). Quantitative assessment of aerial ammonia toxicity to the nasal mucosa by the use of nasal lavage method in pigs. *American Journal of Veterinary Research* 55 (9) : 1335 – 1340.
- O. Van-den- Bergh, K. Stegen, I. Van-Diest, C.Raes, P. Stulens, P.Eelen, H.Veulemans, K.P. Van de Woestijne and B. Nemery (1999). Acquisition and extinction of somatic symptoms in response to odours : a pavlovian paradigm relevant to multiple chemical sensitivity. *Occupational and Environmental Medicine* 56 (5) : 295 – 301.
- L.J.M van der Eerden, H. Harssema and J.V. Klarenbeek (1981). Stallucht en planten. De relatie tussen bedrijfsomvang en de kans op beschadiging van gewassen rondom intensieve veehouderij bedrijven. (air from livestock buildings and plants. The relationship between the herd size and the risk of damage to plants growing around intensive cattle units). IPO – Rapport 254, Wageningen, Netherlands.
- L.J.M van der Eerden, P.H.B. de Visser and C.J. van Dijk ( 1998). Risk of damage to crops in the direct neighbourhood of ammonia sources. *Environmental Pollution* 102, S1: 49-53.
- P. Vogelzang, J. van der Gulden, H. Folgering, J. Kolk, D. Heederik, L. Preller , M. Tielen and C. van Schayck (1998). Endotoxin exposure as a major determinant of lung function decline in pig farmers. *American Journal of Respiratory Critical Care Medicine* 157 : 15 – 18.
- S. von Kluge and F.R. Brush (1992). Conditioned taste and taste-potentiated odor aversions in the Syracuse high- and low- avoidance (SHA/Bru and SLA/Bru) strains of rats. *Journal of Comparative Psychology* 106 : 248 – 253.
- M. Waggoner. (1994). Tobacco farmers going wild for pigs. *The Herald-Sun*, Durham, NC; August 8.
- L. Wallace, W. Nelson, R. Ziegenfus, E. Pellizzari, L.Michael, R. whitmore, H. Zelon, T. Hartwell, R. Perritt and D. Westerdahl (1991). The Los Angeles TEAM study : Personal exposures, indoor – outdoor air concentrations, and breath concentrations of 25 volatile organic compounds. *Journal Expo Anal Care Environment Epidemiology* 1 : 157 – 192.
- E.Walsh. (1994). Corporate pork worries Iowa farmers. *The Washington Post*; October 19. pp. A1, A14.
- B.Z.Wang, W.Y. Dong, J.L. Zhang and X.D. Cao (1966). Experimental study of high rate pond system treating piggery wastewater. *Water Science and Technology* 34(11): 125-132.
- D.J. Warburton, J.N. Scarborough, D.L. Day, A.J. Muehling, S.E. Curtis and A.H. Jensen (1980). Evaluation of commercial products for odor control and solids reduction of liquid

swine manure. In: Livestock waste : A renewable resource. St. Joseph, MI: American Society of Agricultural Engineers; 309 – 313.

P.O. Warner, K.S. Sidhu and L. Chadzynski. (1990). Measurement and impact of agricultural odors from a large scale swine production farm. *Veterinary and Human Toxicology* 32(4) : 319 – 323.

A.G. Williams (1984). Indicators of Piggery Slurry Odour Offensiveness. *Agricultural Wastes* 10 : 15 – 36.

A.G. Williams and M.R. Evans (1981). Storage of piggery slurry. *Agricultural Wastes* 3 (4) : 311 – 322.

A.G. Williams, M. Shaw, C.M. Selviah and R.J. Cumby (1989). The oxygen requirements for deodorizing and stabilizing pig slurry by aerobic treatment. *Journal of Agricultural Engineering Research* 43 : 291 – 311.

D.W. Williams, T.R. Cumby, R. Phillips and C. Burton (1991). Anaerobic vs aerobic treatment of pig slurry for odor control. *American Society of Agricultural Engineering*, St. Joseph, USA. Publication No. 91 – 6005. pp. 1 – 6.

D. Williamson (1984). Management of above-ground slurries stores. Paper 3. Slurry and the Environment. National Agricultural Conference 27 November, National Agricultural Centre, Stoneleigh, near Kenilworth, Warwickshire, U.K.

S. Wing and S. Wolf (1999). Intensive livestock operations, health and quality of life among eastern North Carolina residents. Report for North Carolina Department of Health and Human Services, Division of Public Health. May 6. 20pp.

G. Winneke and J.Kastka. (1977). Odor pollution and odor annoyance reactions in industrial areas of the Rhine-Ruhr region. *Olfaction and taste VI*, Paris. Oxford; IRL Press: 471 – 479.

Winnipeg Free Press (2000). Hog barn owners may appeal order. August 5.

J.E. Zejda, T.S. Hurst, C.S. Rhodes, E.M. Barber, H.H. McDuffie and J.A. Dosman (1993). Respiratory health of swine producers: Focus on young workers. *Chest* 103: 702 – 709.

J.E. Zejda, E. Barber, J.A. Dosman, S.A. Olenchock, H.H. McDuffie, C. Rhodes and T. Hurst ( 1994). Respiratory health in swine producers relates to endotoxin exposure in the presence of low dust levels. *JOM* 36 : 49 – 56.

R. Zhang, P.N. Dugba, N.Rashid and D.S. Bundy (1996). Surface aeration of anaerobic lagoons for odor control of swine manure. *International Conference on Air Pollution*

from Agricultural Operations, Midwest Plan Service, Kansas City, Missouri, February 7 – 9, pp. 387 – 394.

W. Zhiping, P. Malmberg, B. Larsson, K. Larsson, L. Larsson and A. Saraf (1996). Exposure to bacteria in swine-house dust and acute inflammatory reactions in humans. *American Journal of Respiratory Critical Care Medicine* 154: 1261 – 1266.

J. Zhu, D.S. Bundy, X.W. Li and N.Rashid (1997). Controlling odor and volatile substances in liquid hog manure by amendment. *Journal of Environmental Quality* 26 (3) : 740 – 743.

S. Zimnal (1979). Study of animal odor air pollution under henhouse and pigpen conditions. *Acta Agrar. Silv. Ser. Zootech.* 18 ( 1-2) : 161-187.