

Gary Felton
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Education:

- Ph.D. Agricultural Engineering, Texas A&M, 1987.
- M.S. Agricultural Engineering, University of Maryland, 1981.
- B.S. Agricultural Engineering, University of Maryland, 1976.

Current Research:

Biosolids Management/Utilization

Human waste by products, euphemistically referred to as biosolids, are generated at tremendous rates in the Baltimore-Washington Metro area. Much of this resource is currently land applied to agricultural land. Additional biosolids are trucked out of state. As the WQIA of 1998 takes effect, the land base may not be available for land application. Alternative uses for this resource are preferable to landfilling. Towards this goal, three MCE researchers have developed a project to assess the growth, survival, and long-term sustainability of hybrid poplar; water quality considerations associated with deep row biosolid application; and the profitability of this technology. Field days for agency and MCE personnel have been held and fact sheets are available. A master's thesis has been published and papers are forthcoming.

Poultry Litter Management/Utilization

Stockpiles-Eastern-shore-specific impacts from using covers. Increases flow of water, so increases nutrient loss in surfacewater.... counter intuitive. Conversely reduces infiltration, so reduces potential for transport to groundwater. Conclusion: allowing piles to absorb water probably slightly reduces total nutrient loss because a great deal of water is then evaporated and never becomes the transport mechanism for pollution. The overall system appears to be transport-limited.

Pads

This new project will examine earth pads, soil cement pads and cement pads to determine what impacts various types of elevated pads have on subsurface nutrient transport. Suction lysimeters will be placed below pads to collect water samples and subsurface flow will be estimated. Six or eight demonstration sites in the lower five counties of the shore will have pads.

Professional Society Memberships

- American Society of Agricultural and Biological Engineers (ASABE), 1987-present
- Washington DC/Maryland section, ASAE
- Association of Ground Water Scientists and Engineers

Selected Publications:

- Felix, E., D.R. Tilley, **G.K. Felton**, E. Flamino. 2008. Biomass production of hybrid poplar (*Populus* spp.) grown on municipal biosolids. *Ecological Engineering*. 33 (2008):8-14.
- **G.K. Felton**, L.E. Carr, M.J. Habersack. 2007. Nutrient fate and transport associated with poultry litter stock piles. *Trans. ASAE*. 50 (1): 183-192.
- L.S. Barker, **Gary K. Felton**, E. Russek-Cohen. 2006. Use of Maryland Biological Stream Survey data to determine effects of agricultural riparian buffers on measures of biological stream health. Submitted to *Environmental Monitoring and Assessment*. (2006) 117:1-19.
- **G.K. Felton**, Hughes, K.J., E. Russek-Cohen. 2004. Reduction of water soluble phosphorus in poultry litter with secondary gypsum and iron rich residue amendments. *Trans. ASAE*. 47(6):2069-2077, **Power Point**.

- Barfield, B.J., **G.K. Felton**, E.W. Stevens, and M. McCann. 2004. A simple model of karst spring flow using modified NRCS procedures. *J. Hydrology* 287(1-4):34-48.
- **G.K. Felton**, Carr, L.E., C.E. Prigge, J.C. Bouwkamp. 2003. Nitrogen and phosphorus dynamics in co-composted yard debris and broiler litter. *Compost Science and Utilization*. 12(4):
- Carr, L.E., **G.K. Felton**, C.E. Prigge, J.C. Bouwkamp. 2002. Testing composting strategies to control N and P. *Biocycle* June 2002: pp48-50.
- Carr, L.E., **G.K. Felton**, C.E. Prigge, J.C. Bouwkamp. 2002. Nitrogen and phosphorus dynamics in composted yard debris and broiler litter. In: *Proc: Composting 2002 International Symposium on Composting and Compost Utilization*. (Peer-reviewed proceedings, published April 2002.)
- Kays, J.S., **G. K. Felton**, E.J. Flamino, & P.D. Flamino. 2000. Use of Deep-Row Biosolids Applications to Grow Forest Trees: A Case Study. In *Proceedings of the International Symposium on the Use of Residuals as Soil Amendments in Forest Ecosystems*. (pp. 69-73). Seattle, WA: University of Washington. (Peer-reviewed proceedings published December 2000.)
- Kays, J.S., **G.K. Felton**, & E.J. Flamino. 1999. Claiming victory from spoils. *Water, Environment & Technology*, 1999(May): pp. 42-48.
- Rolf, R.A., B.J. Barfield, **G.K. Felton**. 1997. Ultimate strength matrix stress relationship. *J. Geotechnical and Geoenvironmental Engr.* 123(1):938-947.