

ROBERT A. BUMAN, PH.D.
Agren, Inc.

AREAS OF EFFECTIVENESS

DEVELOP USE-CASE DIAGRAMS SOFTWARE DEVELOPMENT	Developed use-case diagrams for the pond and terrace planning software which will use LiDAR data.
DATA ANALYSIS AND REPORTING	Analyzed TGM software for consistency of data output and errors using TestComplete™ Conducts statistical data analysis, and maintains data storage for all in-house research projects. Generates technical and information transfer reports. Coordinates data collection, storage and analysis on 11 corn/soybean and 12 cotton field-research sites. Proficient in MS Excel, SigmaStat, SigmaPlot, and ARM. Programs Excel macros for data storage and analysis. Collected and reported data for a Syngenta Learning Center.
FIELD AND GREENHOUSE RESEARCH (Crops, Soil Quality, Pests, Water Quality)	Oversees all data collection. Conducts field and greenhouse research. Develops protocols and Standard Operating Procedure (SOP) for research projects. Conducts soil quality analysis including soil bulk density, water infiltration, soil temperature, soil moisture, and earthworm counts. Supervises field demonstration sites, including tillage, planting, spraying, and harvest. Proficient in plant, flower, and weed identification. Conducted GLP plant, soil and groundwater residue studies. Conducted physical, chemical, and biological assessments of stream water quality. Ability to identify benthic macroinvertebrates. Assessed root growth patterns of corn affected by corn rootworm.
LABORATORY RESEARCH	Conducted biomass study of shoots and root growth. Conducted seed germination studies. Conducted research on uptake and absorption of herbicides on the whole-plant, cellular, and sub cellular level.

EMPLOYMENT BACKGROUND:

Research Director: Agren, Inc., Carroll, IA. (May 1997 – Present)
Proprietor: Scenic Photos and More, Breda, IA. (1997 - Present)
Agronomy Specialist: AgResources, Inc., Arkansaw, WI. (1992 -1997)
Research Scientist: USDA-ARS, Northern Grain Insect Research Lab, Brookings, SD. (1990 -1991)
Graduate Research Assistant: Washington State University, Pullman, WA. (1988-1990)
Graduate Research and Teaching Assistant: Washington State University, Pullman, WA. (1986 -1987)
Lead Lab Technician: Black Butte Coal Mine, Point of Rocks, WY. (1981 -1984)

EDUCATION:

Ph.D. Agronomy, Washington State University, Pullman, Washington, 1990.
Dissertation The Effect of Temperature on the Activity of Metribuzin and its Ethlythio analog in Thylakoids, Protoplasts, and Plants of Downy Brome, Jointed Goatgrass and Winter Wheat;
Emphasis: Herbicide Physiology
M.S., University of Wyoming, Laramie, Wyoming, 1986.
Thesis: Seed germination and seedling interspecific competition of mountain rye (Secale montanum Guss), “hycrest” crested wheatgrass (Agropyron cristatum L. x A. desertorum Fisch.) and downy brome (Bromus Tectorum L.)

ROBERT A. BUMAN (CONTINUED)

Emphasis: Plant and seed physiology

Post graduate work in Biology, University of Northern Iowa, Cedar Falls, Iowa, 1979-1981

B.A., Biology major, Chemistry minor, University of Northern Iowa, Cedar Falls, Iowa. 1978

Emphasis: Botany

PUBLICATIONS AND PAPERS:

Buman, R. A., D. R. Gealy, and A.G. Ogg, Jr. 1988. Inhibition of net photosynthesis in downy brome and jointed goatgrass protoplasts by metribuzin and its ethylthio analog. Proc. West Soc. Weed Sci. 41:76.

Buman, R. A., D. R. Gealy, and A. G. Ogg, Jr. 1989. Effect of temperature on uptake of metribuzin and its ethylthio analog by wheat, jointed goatgrass, and downy brome. Proc. West Soc. Weed Sci. 42:150-151.

Gealy, D.R., and R. A. Buman. 1989. Response of photosynthesis and growth of jointed goatgrass and wheat to photosynthetic herbicides and temperature. Proc. West Soc. Weed Sci. 42:151-152.

Buman, R. A., D. R. Gealy, and A. G. Ogg, Jr. 1991. Inhibition of photosynthesis in downy brome (Bromus tectorum) and jointed goatgrass (Aegilops cylindrica) protoplasts by metribuzin and its ethylthio analog. Weed Sci. 39:13-17.

Buman, R. A., D. R. Gealy, and A. G. Ogg, Jr. 1991. Effect of temperature on root absorption of metribuzin and its ethylthio analog by winter wheat (Triticum aestivum), jointed goatgrass (Aegilops cylindrica), and downy brome (Bromus tectorum). Weed Sci. 40:517-521.

Buman, R. A., D. R. Gealy, and E. P. Fuerst. 1991. Relationship between temperature and triazinone herbicide activity; I. Herbicide binding to thylakoid membranes. Pestic. Biochem. Physiol. 43:22-28

Buman, R. A., D. R. Gealy, and E. P. Fuerst. 1991. Relationship between temperature and triazinone herbicide inhibition of photosynthetic electron transport in thylakoids. Pestic. Biochem. Physiol. 43:29-36.

Buman, R.A., T. E. Schumacher, and W. E. Riedell. 1994. A modified soil monolith technique for characterizing root systems. Crop Sci. 34:296-299.

Buman, R. A., B. A. Alesii, J. L. Hatfield, and D. L. Karlen. 2004. Profit, yield, and soil quality effects of tillage in corn - soybean rotations. Journal of Soil and Water Conservation 59:260-270.

Buman, R.A., B.A. Alesii, J.F. Bradley, J.L. Hatfield, and D.L. Karlen. 2005. Profit and yield of tillage in cotton production systems. Journal of Soil and Water Conservation 60:235-242.

PROFESSIONAL MEMBERSHIPS, TRAINING AND CERTIFICATIONS:

Member, Weed Science Society of America, North Central Weed Science Society, American Society of Agronomy, Midwest Invasive Plant Network

Certified Commercial Pesticide Applicator, Iowa Department of Agriculture and Land Stewardship

Iowa Certified Crop Adviser