**JAMES MABRY** **MCCRAY**

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Birthdate: November 11, 1957 - Lake City, Florida

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**SUMMARY OF QUALIFICATIONS**

Agronomist specializing in soil fertility, plant nutrition, and resource management. Extensive experience in:

• Field research relating soil and plant nutrients with crop growth and yield

• Translating field experimental data into grower recommendations

• Soil and leaf analysis including soil test laboratory management

**PROFESSIONAL EXPERIENCE**

**University of Florida 2004 - present**

**Everglades Research and Education Center,** Belle Glade, Florida

*Scientist – Agronomy*

* Examining relationships between soil nutrient levels, plant nutrient uptake, and sugarcane production.
* Evaluating fertilizer and amendment sources and rates as to sugarcane production response and cost-effectiveness.
* Working to update fertilizer recommendations and provide improved guidelines for soil test calibrations, leaf nutrient evaluation, and effective, environmentally sound use of fertilizers.
* Evaluating fertility needs required to sustain sugarcane as a viable crop as there are changes in cropping systems or in economic or environmental conditions in the area.
* Collaboration with scientists in Brazil and Costa Rica on soil fertility research with sugarcane

**United States Sugar Corporation,** Clewiston, Florida **1989 - 2002**

*Chief Soil Scientist*

• Updated and maintained fertility programs for sugarcane and citrus that are cost-effective and environmentally sound.

• Conducted field studies to examine nutritional problems and to calibrate soil tests for sugarcane and citrus.

• Performed statistical analysis of research results and compiled these into written research reports. Transferred research results and information from other pertinent sources into computerized fertility recommendations that are made using current soil and leaf data.

• Worked with farm managers to solve specific nutritional problems and conducted seminars for growers and farm managers.

• Supervised other personnel in soil and leaf sampling, laboratory analysis, and field experimental work.

• Participated in setting up water sampling program and Best Management Practice guidelines as part of phosphorus reduction plan for the Everglades.

• Examined soil characteristics and soil profiles in addition to NRCS soil survey information for use in determining potential of land for citrus production. Determined water-holding capacity of various soil types and measured soil moisture in the field to increase efficiency of citrus irrigation.

**Texas A & M University Research and Extension Center**, Corpus Christi, Texas **1988 - 1989**

*Postdoctoral Research Associate*

• Conducted greenhouse and field studies with Dr. John Matocha examining nutritional problems of calcareous soils.

• Investigated water relations and the influence of bicarbonate on Fe chlorosis, P sources and rates in the production of grain sorghum, and tillage systems with corn, sorghum, and cotton.

**University of Georgia**, Athens, Georgia **1984 - 1988**

*Graduate Research Assistant*

• Conducted a field study to determine cotton yield and growth response to lime, gypsum, and subsoiling treatments. Data collected included soil moisture potentials with gypsum blocks, root length densities, soil solution cation and anion concentrations by ICAP, ion chromatography, and ion selective electrode, soil pH and exchangeable cations, penetrometer measurements, and leaf elemental concentrations.

• Assisted with other field projects conducted by major professor, Dr. Malcolm Sumner. Lab instructor for Beginning Soils (1 quarter) and Soil Fertility (3 quarters).

**University of Florida**, Gainesville, Florida **1982 - 1984**

*Graduate Research Assistant*

• Conducted a greenhouse study to determine effects of lime and applied Mn to 3 Florida soils on plant Mn, growth, and chlorophyll concentration of bermudagrass. Data collected included soil pH and exchangeable cations, total soil Mn, Mehlich I, Mehlich II, and DTPA-TEA extractable cations, leaf elemental concentrations, and leaf chlorophyll concentrations.

• Assisted with other soil fertility studies conducted by major professor, Dr. Jerry Sartain. Teaching Assistant for Fertilizers and Soil Fertility (2 semesters).

**Lafayette High School**, Mayo, Florida **1981 - 1982**

*Vocational Agriculture Teacher*

• Taught grades 8-12 a variety of agricultural subjects including economics, forestry, soils and crops, land measurement, animal science, parliamentary procedure, and shop skills.

• Advised local FFA chapter which held monthly meetings, fielded judging teams, sponsored youth show, and participated in the state convention.

**B. C. McCray and Associates**, Mayo, Florida **1979 - 1981**

*Land Surveying Assistant*

• Assisted with general land surveying work including traversing, boundary surveys, topographic work, building locations, and proving section corners.

**EDUCATION**

Ph.D. Soil Science, University of Georgia, Athens, Georgia 1988

M.S. Soil Science, University of Florida, Gainesville, Florida 1984

B.S. Agronomy, University of Georgia, Athens, Georgia 1979

A.A. Degree, Lake City Community College, Lake City, Florida 1977

**ACTIVITIES AND HONORS**

Member American Society of Sugarcane Technologists, 1990 - 2021

Member American Society of Agronomy, 1983 - 2021

Member Hendry County Soil and Water Conservation District Board, 1990 – 2000, 2005-2021

United States Track and Field Federation All-American, 1978

**Publications**

McCray, J. M., S. Ji, and J. S. Alvarado. 2022. Sugarcane yield response to potassium fertilization as related to extractable soil potassium on Florida mineral soils. Agronomy Journal. Published online 26 Oct 2021.

Crusciol, C. A. C., J. M. McCray, M. de Campos, C. A. C. do Nascimento, O. B. Rossato, J. C. Adorna, and E. V. Mellis. 2021. Filter cake as a long-standing source of micronutrients for sugarcane. Journal of Soil Science and Plant Nutrition 21:813-823.

Xu, N., J. H. Bhadha, A. Rabbany, S. Swanson, J. M. McCray, Y. C. Li, S. L. Strauss, and R. Mylavarapu. 2021. Crop nutrition and yield response of bagasse application on sugarcane grown on a mineral soil. Agronomy 11(8):1526.

Santos, A. de Camargo, J. M. McCray, S. H. Daroub, D. L. Rowland, S. Ji, and H. Sandhu. 2020. Nitrogen assessment of shallow Florida Histosols. Communications in Soil Science and Plant Analysis 51:1916-1929.

Garcia, A., C. A. C. Crusciol, J. M. McCray, C. A. C. Nascimento, J. Martello, G. F. de Siqueira, and M. B. Tarumoto. 2020. Magnesium as a promoter of technological quality in sugarcane. Journal of Soil Science and Plant Nutrition 20:19-30.

Jennewein, S. P., J. H. Bhadha, T. A. Lang, J. M. McCray, M. P. Singh, J. Cooper, and S. H. Daroub. 2020. Impacts of flooding, nitrogen fertilization, and soil depth on sugarcane nutrients grown on Histosols. Journal of Plant Nutrition 43:429-443.

Karounos, M., R. Cherry, M. McCray, and S. Ji. 2020. Survival and behavior of *Melanotus communis* (Coleoptera: Elateridae) in Florida sugarcane soils. Journal of Entomological Science 55:499-506.

Vuyyuru, M., H. S. Sandhu, J. M. McCray, R. N. Raid, J. E. Erickson, and A. V. Ogram. 2019. Amending sugarcane monoculture through rotation breaks and fungicides: Effects on soil chemical and microbial properties, and sucrose yields. Crop and Pasture Science 70:990-1003.

Vuyyuru, M., H. S. Sandhu, J. M. McCray, R. N. Raid, and J. E. Erickson. 2019. Effects of nitrogen fertilization and seed piece applied fungicides on establishment, tiller dynamics, and sucrose yields in successively planted sugarcane. Agronomy 9, 387.

Alvarado, J. S., J. M. McCray, J. E. Erickson, H. S. Sandhu, and J. H. Bhadha. 2019. Sugarcane biomass yield response to phosphorus fertilizer on four mineral soils as related to extractable soil phosphorus. Communications in Soil Science and Plant Analysis 50:2960-2970.

McCray, J. M., and S. Ji. 2018. Sugarcane yield response to calcium silicate on Florida mineral soils. J. Plant Nutrition 41:2413-2424.

Vuyyuru, M., H. S. Sandhu, J. M. McCray, and R. N. Raid. 2018. Effects of soil-applied fungicides on sugarcane root and shoot growth, rhizosphere microbial communities, and nutrient uptake. Agronomy. doi:10.3390/agronomy8100223.

Alvarez-Campos, O., T. A Lang, J. H. Bhadha, J. M. McCray, B. Glaz, and S. H. Daroub. 2018. Biochar and mill ash improve yields of sugarcane on a sand soil in Florida. Agriculture, Ecosystems and Environment 253:122-130.

Orndorff, S. G., T. A. Lang, J. H. Bhadha, J. M. McCray, and S. H. Daroub. 2018. Sugarcane by-products used as soil amendments on a sandy soil: Effects on sugarcane crop nutrition and yield. J. Plant Nutrition 41(7):928-942.

Tootoonchi, M., J. H. Bhadha, T. A. Lang, J. M. McCray, M. W. Clark, and S. H. Daroub. 2018. Reducing drainage water phosphorus concentration with rice cultivation under different water management regimes. Agricultural Water Management 205:30-37.

Crusciol, C. A. C., D. P. de Arruda, A. M. Fernandes, J. A. Antonangelo, L. R. F. Alleoni, D. M. Fernandes, and J. M. McCray. 2018. Evaluation of soil extractants for silicon availability for sugarcane. J. Plant Nutrition 41(17):2241-2255.

McCray, J. M., S. Ji, and C. Crusciol. 2018. Influence of elemental sulfur on sugarcane yield on Histosols with near-neutral pH. Commun. Soil Sci. Plant Anal. 49(1):109-123

Alvarez-Campos, O., T. A. Lang, J. H. Bhadha, J. M. McCray, B. Glaz, and S. H. Daroub. 2018. Biochar and mill ash improve yields of sugarcane on a sand soil in Florida. Agriculture, Ecosystems and Environment 253:122-130.

Rossato, O. B., R. Foltran, C. A. C. Crusciol, J. M. Martello, R. Rossetto, and J. M. McCray. 2017. Soil fertility, ratoon sugarcane yield, and post-harvest residues as affected by surface application of lime and gypsum in southeastern Brazil. Biosci. J., Uberlandia 33(2):276-287.

Cherry, R., M. McCray, and H. Sandhu. 2017. Changes in the relative abundance of soil-dwelling insect pests in sugarcane grown in Florida. J. Entomological Sci. 52:169-176.

McCray, J. M., S. Ji, and G. Powell. 2017. Sugarcane yield response to potassium fertilization as related to extractable soil potassium on Florida Histosols. Agron. J. 109:2243-2252.

McCray, J. M., S. Ji, and M. Ulloa. 2017. Influence of compost/sludge application on sugarcane yield and nitrogen requirement on a sand soil. J. Plant Nutrition 40:2156-2167.

Kaler, A. S., J. M. McCray, A. L. Wright, and J. E. Erickson. 2016. Sulfur amendment response to nutrient availability in Histosols having variable calcium carbonates. Commun. Soil Sci. Plant Anal. 47 (19):2178-2188.

Kaler, A. S., J. M. McCray, A. L. Wright, and J. E. Erickson. 2017. Sugarcane yield and plant nutrient response to sulfur-amended Everglades Histosols. J. Plant Nutrition 40 (2):187-196.

McCray, J. M., and G. Powell. 2016. Sugarcane yield response to potassium on a Florida Histosol. J. Am. Soc. Sugarcane Technologists 36:9-18.

McCray, J. M., S. Ji, and L. Baucum, L*.* 2015. Sugarcane yield response to furrow-applied organic amendments on sand soils. Int. J. Agron. vol. 2015, Article ID 426387, 9 pages. doi:10.1155/20150426387.

McCray, J. M., K. T. Morgan, L. Baucum, and S. Ji. 2014. Sugarcane yield response to nitrogen on sand soils. Agron. J. 106:1461-1469.

Crusciol, A. C. C., R. Foltran, O. B. Rossato, J. M. McCray, and R. Rossetto. 2014. Effects of surface application of calcium-magnesium silicate and gypsum on soil fertility and sugarcane yield. Revista Brasileira de Ciencia do Solo (Brazilian Journal of Soil Science) 38:1843-1854.

McCray, J. M, and S. Ji. 2013. Comparison of silicon sources for sugarcane on mineral and organic soil in Florida. J. Am. Sugar Cane Technologists 33:1-19.

McCray, J. M., and R. W. Rice. 2013. Sugarcane yield response to elemental sulfur on high pH organic soils. Proc. Int. Soc. Sugar Cane Technologists 28:280-287.

McCray, J. M., and S. Ji. 2012. Calibration of sugarcane response to calcium silicate on Florida Histosols. J. Plant Nutrition 35:1192-1209.

McCray, J. M., R. W. Rice, Y. Luo, and S. Ji. 2012. Phosphorus fertilizer calibration for sugarcane on Everglades Histosols. Comm. Soil Sci. Plant Anal. 43:2691-2707.

McCray, J. M., A. L. Wright, Y. Luo, and S. Ji. 2012. Soil phosphorus forms related to extractable phosphorus in the Everglades Agricultural Area. Soil Sci. 177:31-38.

Sandhu, H. S., R. A. Gilbert, J. M. McCray, R. Perdomo, B. Eiland, G. Powell, and G. Montes. 2012. Relationships among leaf area index, visual growth rating, and sugarcane yield. J. American Society Sugar Cane Technologists 32:1-14.

Ye, R., A. L. Wright, and J. M. McCray. 2011. Seasonal changes in nutrient availability for sulfur-amended Everglades soils under sugarcane. J. Plant Nutrition. 34:2095-2113.

Ye, R., J. M. McCray, and A. L. Wright. 2011. Microbial response of a calcareous Histosol to sulfur amendment. Soil Sci. 176:479-486.

McCray, J. M., R. W. Rice, Y. Luo, and S. Ji. 2010. Sugarcane response to phosphorus fertilizer on Everglades Histosols. Agron. J. 102:1468-1477.

McCray, J. M., S. Ji., G. Powell, G. Montes, and R. Perdomo. 2010. Sugarcane response to DRIS-based fertilizer supplements in Florida. J. Agron. Crop Sci. 196:66-75.

McCray, J. M., S. Ji, G. Powell, G. Montes, R. Perdomo, and Y. Luo. 2010. Boundary lines used to determine sugarcane production limits at leaf nutrient concentrations less than optimum. Commun. Soil Sci. Plant Anal. 41:606-622.

Ye, R., A. L. Wright, J. M. McCray, K. R. Reddy, and L. Young. 2010. Sulfur-induced changes in phosphorus distribution in Everglades Agricultural Area soils. Nutr. Cycl. Agroecosys. 87:127-135.

Ye, R., A. L. Wright, W. H. Orem, and J. M. McCray. 2010. Sulfur distribution and transformations in Everglades Agricultural Area soil as influenced by sulfur amendment. Soil Sci. 175:263-269.

McCray, J. M., S. Ji, G. Powell, G. Montes, R. Perdomo, and Y. Luo. 2009. Seasonal concentrations of leaf nutrients in Florida sugarcane. Sugar Cane International 27(1):17-24.

Gilbert, R. A., D. R. Morris, C. R. Rainbolt, J. M. McCray, R. E. Perdomo, B. Eiland, G. Powell, and G. Montes. 2008. Sugarcane response to mill mud, fertilizer, and soybean nutrient sources on a sandy soil. Agron. J. 100:845-854.

Gilbert, R. A., C. R. Rainbolt, D. R. Morris, and J. M. McCray. 2008. Sugarcane nutrient content, growth and yield responses to a three-month summer flood. Agric. Water Management 95:283-291.

Andreis, H. J. and J. M. McCray. 1998. Phosphorus soil test calibration for sugarcane grown on Everglades Histosols. Commun. Soil Sci. Plant Anal. 29 (5&6): 741-754.

McCray, J. M., and J. E. Matocha. 1992. Effects of soil water levels on solution bicarbonate, chlorosis, and growth of sorghum. Journal of Plant Nutrition. 15 (10): 1877-1890.

McCray, J. M., D. E. Radcliffe, and M. E. Sumner. 1991. Influence of solution Ca on water retention and soil strength of Typic Hapludults. Soil Sci. 151(4): 312 - 316.

McCray, J. M. and M. E. Sumner. 1990. Assessing and modifying Ca and Al levels in acid subsoils. Adv. Soil Sci. 14: 45-75.

McCray, J. M., M. E. Sumner, D. E. Radcliffe, and R. L. Clark. 1991. Soil Ca, Al, acidity, and penetration resistance with subsoiling, lime, and gypsum treatments. Soil Use and Management.

7(4): 193 - 199.

Sumner, M. E., D. E. Radcliffe, J. M. McCray, E. Carter, and R. L. Clark. 1990. Gypsum as an ameliorant for subsoil hardpans. Soil Technol. 3: 253-258.

McCray, J. M. and J. B. Sartain. 1985. Nutrient concentration of bermudagrass as related to Mehlich I and Mehlich II soil extractable nutrients. Soil Crop Sci. Soc. Florida Proc. 44: 59-63.

McCray, J. M. and J. B. Sartain. 1986. Effects of lime and applied Mn on plant Mn, growth, and chlorophyll concentration of ‘Tifway II’ bermudagrass. Commun. Soil Sci. Plant Anal.

17 (11): 1169-1184.