



Kenshi Sakai, professor, department of ecoregion science, Tokyo University of Agriculture and Technology (TUAT), is being honored for his work as a pioneering world leader in the application of nonlinear dynamics and chaos theory in agricultural and biological engineering.

Sakai's career began when he worked on a tractor-vibratory subsoiler system for his dissertation and found that nonlinear dynamics is ubiquitous in agricultural tractors and machinery. He had observed small scale variability in tillage data during his PhD research and also noticed similar variability in infiltration data at UC Davis. He started to see chaos, determinism, self-similarity, and fractals all around in the field of agriculture in general and in agricultural and biological engineering in particular. He has demonstrated the presence of nonlinear dynamics in not only soil-tillage tool interaction systems, but also in alternate bearing of fruits and nuts, weed infestation in fields, citrus and pistachio yields, acorn yield, and forest ecology. He is now considered a world authority in applying nonlinear dynamics principles to various problems in agriculture and proposing techniques in terms of nonlinear dynamics and synchronization theory. Sakai has also worked tirelessly to pursue and promote international collaborative education programs between TUAT and UC Davis in advancing educational opportunities for students to broaden and deepen the quality of their experience.

A 23-year member of ASABE, Sakai has been extensively involved in the Machinery Systems Technical Community Soil, Plant, and Machine Dynamics committee, as both a leader and member. Sakai is a current board member of the Japanese Society of Agricultural Machinery and Food Engineers (JSAM) and is also chair of the International Committee of the JSAM. He serves as a counselor for the Japanese Society of Agricultural Informatics and a delegate member of the Japan Association of the International Commission of Agricultural and Biosystems Engineering.

Sakai is author and coauthor of more than 150 reviewed articles, books, book chapters and conference proceedings. Most notably, he authored *Nonlinear Dynamics and Chaos in Agricultural Systems*. Sakai's high quality work has been recognized by significant awards including the 2018 Academic award from Japan Association of International Commission of Agricultural and Biosystems Engineering. He also received a Certificate of Excellence award from UC Davis for his contributions to the field of Nonlinear Dynamics and its Application to Agriculture.