**Identifying representative corn rotation patterns in the US Western Corn Belt**

Crop rotations are a key element of agronomic management, as they can influence key ecosystem services such as crop yields, carbon and nutrient cycling, soil erosion, water quality, and pest and disease control. Despite the availability of databases which provide remotely sensed data on crop types in the US on a yearly basis, such as the Cropland Data Layer (CDL), crop rotation patterns remain poorly mapped due to the lack of tools that allow for efficient and consistent analysis of multi-year CDLs. Researchers in the DOE’s Great Lakes Bioenergy Research Center created an algorithm -“Representative Crop Rotations Using Edit Distance” (RECRUIT)- that can select representative crop rotations (RCR) by combining and analyzing multi-year CDLs. Among their findings were that RECRUIT is capable of accounting for over 90% of the variability of the more than 13,000 rotations in the Western Corn Belt (WCB) using a small number (82) of RCRs; it can also detect pronounced shifts from grassland to monoculture corn/soybean cultivation. Furthermore, the area estimates of the RCRs are comparable to those obtained from agricultural census data. RECRUIT can be a useful tool for providing input data to drive agro-ecosystem models and detect shifts in cropping patterns in response to environmental and socio-economic changes.

**References:** Sahajpal R, Zhang X, Izaurralde RC, Gelfand I, Hurtt GC. “Identifying representative crop rotation patterns and grassland loss in the US Western Corn Belt”. Computers and Electronics in Agriculture (2014) 173-182.

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