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Global Field Sizes Dataset for Ecosystems Modeling

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Global Field Sizes provide the research community with valuable information to tackle the challenge of food security, in particular, of smallholder farmers, who often make up the most vulnerable parts of a population, living in poverty. To fill the gaps of missing information, especially for countries that have a limited food supply and lack a well-developed agricultural monitoring system, in June 2017, the IIASA Geo-Wiki team (https://geo-wiki.org/) ran the Global Field Size campaign, encouraging citizen scientists to classify field sizes on satellite images. The campaign was aimed at developing a global field sizes dataset to create an improved global cropland field sizes map for agricultural monitoring and food security assessments. During the campaign, the crowd was asked to identify whether there were fields in a certain location, and determine the relevant field sizes via visual interpretation of very high-resolution Google and Bing imagery. A “field” was defined as an agricultural area that included annual or perennial croplands, fallow, shifting cultivation, pastures or hayfields. Within one month, 130 participants completed 390,000 tasks – that is, they classified the field sizes in 130,000 locations around the globe. This study presents a new freely available global field sizes dataset as the result of the campaign and a global map of dominant field sizes. These data could be used as input for agricultural management in ecosystem models. The field sizes dataset can also help to determine what types of satellite data are needed for agricultural monitoring in different parts of the world, with areas dominated by small field sizes requiring satellite imagery of increased precision.