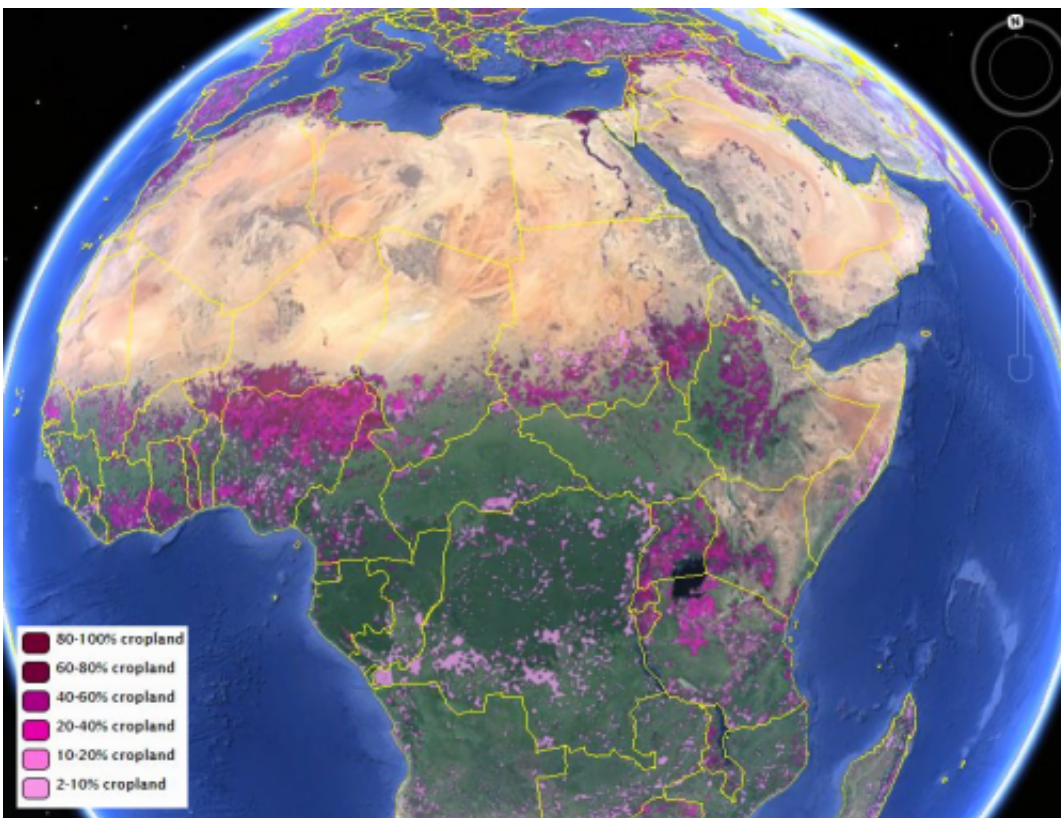


# Finding farmland: New maps offer a clearer view of global agriculture

January 16 2015

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View of the IIASA-IFPRI Global Cropland Map for Africa. Credit: IIASA Geo-Wiki Project; Google

Knowing where agricultural land is located is crucial for regional and global food security planning, and information on field size offers valuable insight into local economic conditions. Two new global maps,

released today in the journal *Global Change Biology*, provide a significant step forward in global cropland information on these two topics.

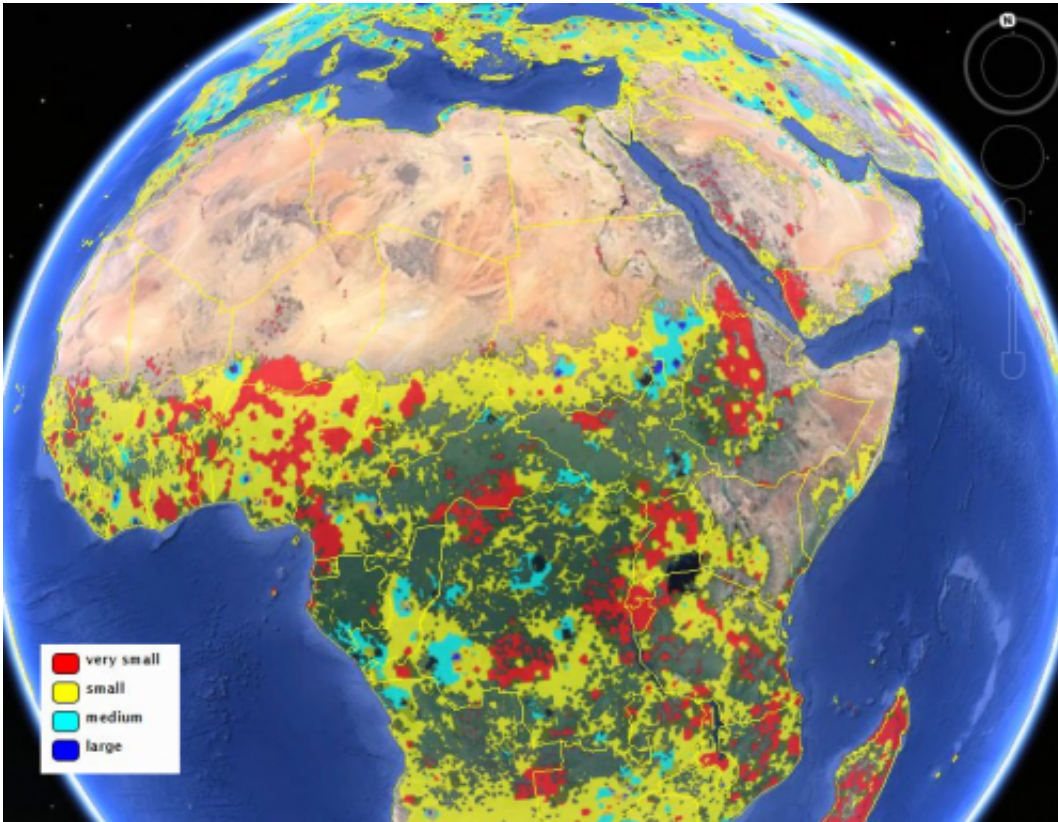
## **IIASA-IFPRI Global Cropland Map**

The first map shows global cropland percentages at 1 kilometer resolution for the year 2005. It was developed by the International Institute for Applied Systems Analysis (IIASA) and the International Food Policy Research Institute (IFPRI) using a hybridization of multiple data sources contributed by many other institutes and organizations, combined with crowdsourcing validation data where volunteers used high-resolution data to check the accuracy of larger-scale maps.

"Current sources of information on cropland extent are not accurate enough for most applications," says IIASA researcher Steffen Fritz, who led the project. "The global cropland map is a low cost solution to fill this need."

IIASA researcher and co-author Linda See adds, "Our hybrid approach combines existing maps to produce a better integrated product than any of the individual global base maps currently available."

The new global cropland map is more accurate, by virtue of increased agreement between different datasets on cropland cover. The researchers used a likelihood method to quantify the level of uncertainty, using agreement between maps to assign a likelihood to each area. See explains, "Where all maps agree there is cropland, there is a higher likelihood that cropland is present." The map improves an earlier hybrid map first released in 2011 by IIASA.



View of Africa from the IIASA Field Size Map. Credit: IIASA Geo-Wiki Project; Google

"Getting an accurate crop map is particularly difficult in developing countries, where smallholder plots are tough to differentiate from the surrounding vegetation," said Liangzhi You, a senior research fellow at IFPRI. "Yet cropland information is fundamental to both policymakers and donors so that they can better target their agricultural and rural development policies and investments."

## Global Field Size Map

The study also presents the first ever global field size map—an important proxy for mechanization and human development. This map

was based entirely on crowdsourced data collected through IIASA's Geo-Wiki project, a crowdsourcing initiative that relies on a global network of citizen scientists, who have looked at thousands of high-resolution images of land cover to determine whether cropland was present or not.

See says, "The field size [map](#) is really unique—no such global product currently exists."

The researchers say that the new maps show the power of crowdsourcing for massive data analysis projects. Last year, Fritz won a Consolidator Grant from the European Research Council to continue and expand this work. He and colleagues are now working to expand the field size mapping activities in collaboration with Sokoine University of Agriculture in Tanzania.

Fritz says, "Crowdsourcing has incredible potential for gathering this type of information, and it could be particularly valuable in Africa, where future food security is a major uncertainty."

**More information:** Both maps are available for exploration and download via IIASA's Geo-Wiki Web site: [geo-wiki.org/Security/login?BackURL=%2FApplication%2Findex.php](http://geo-wiki.org/Security/login?BackURL=%2FApplication%2Findex.php) (registration required)

Reference: Fritz et. al. 2015. Mapping global cropland and field size. *Global Change Biology*. Advance Copy Available Upon Request

Provided by International Institute for Applied Systems Analysis

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