



Remotely sensed estimates of soybean planting and harvest dates in Brazil



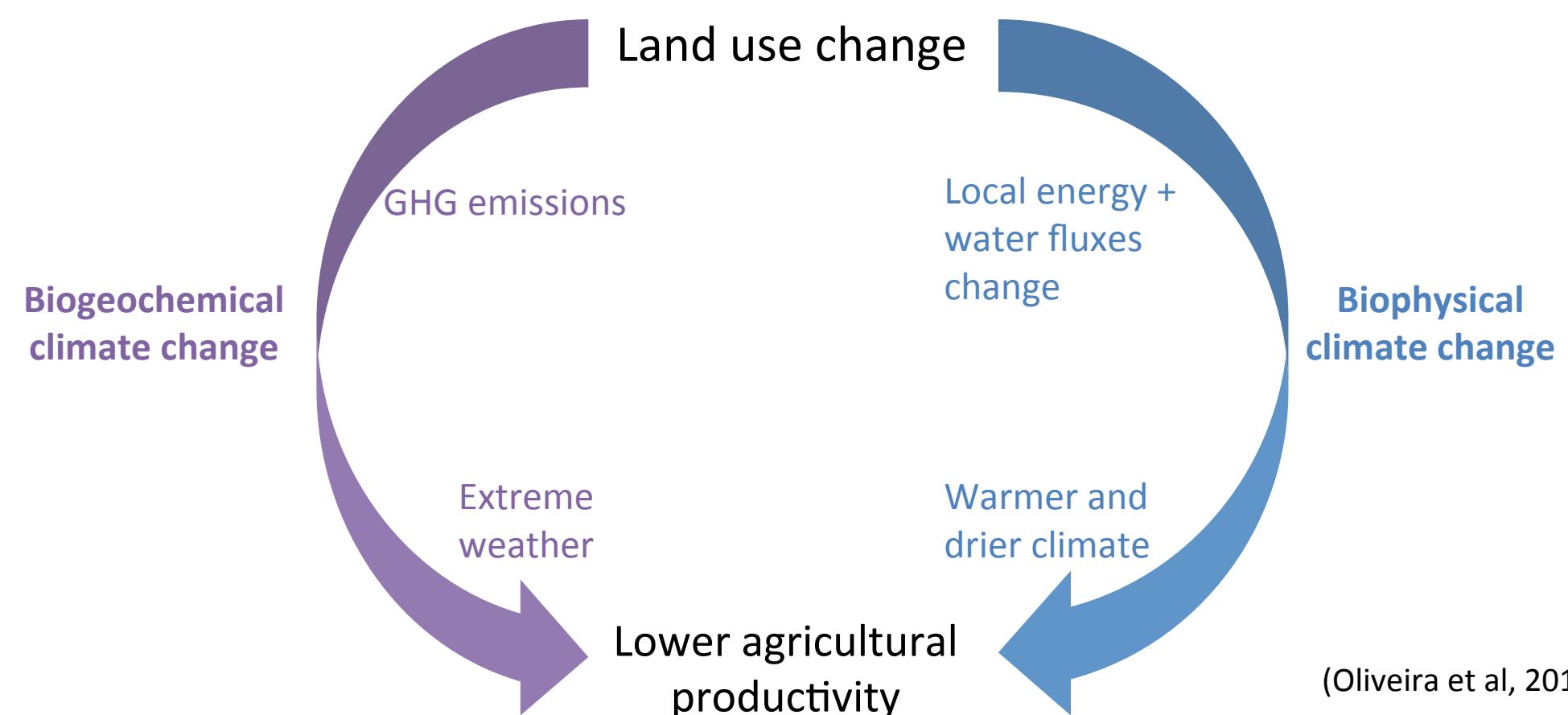
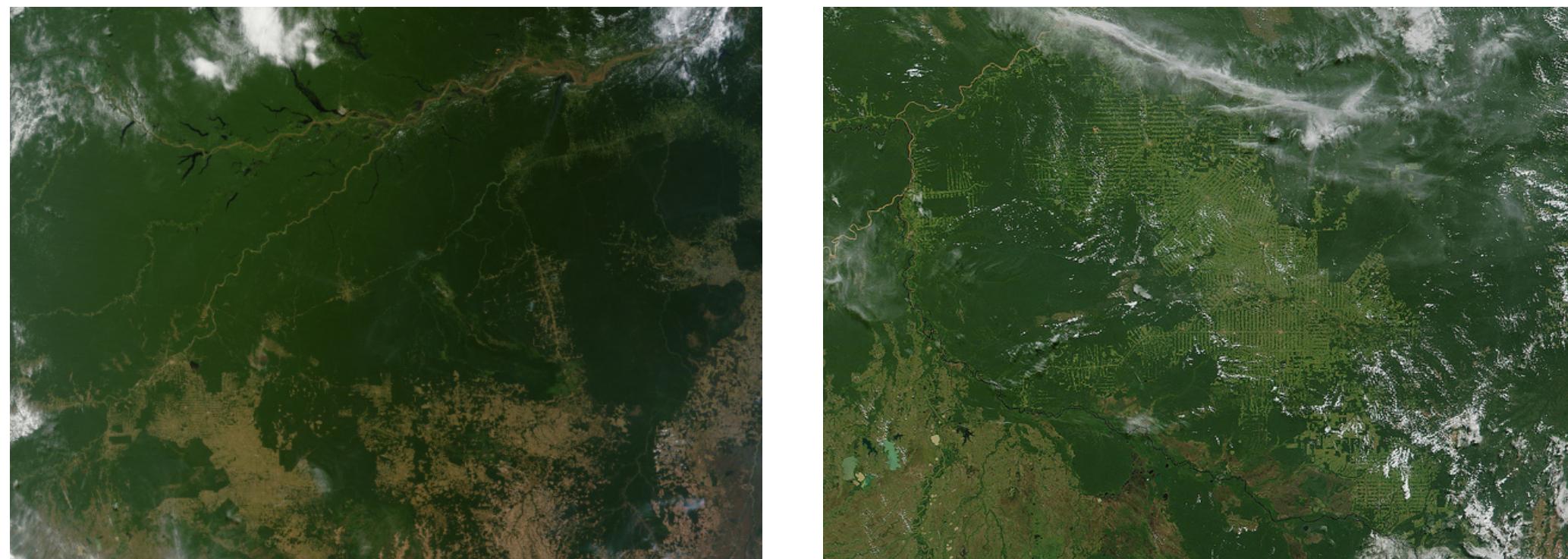
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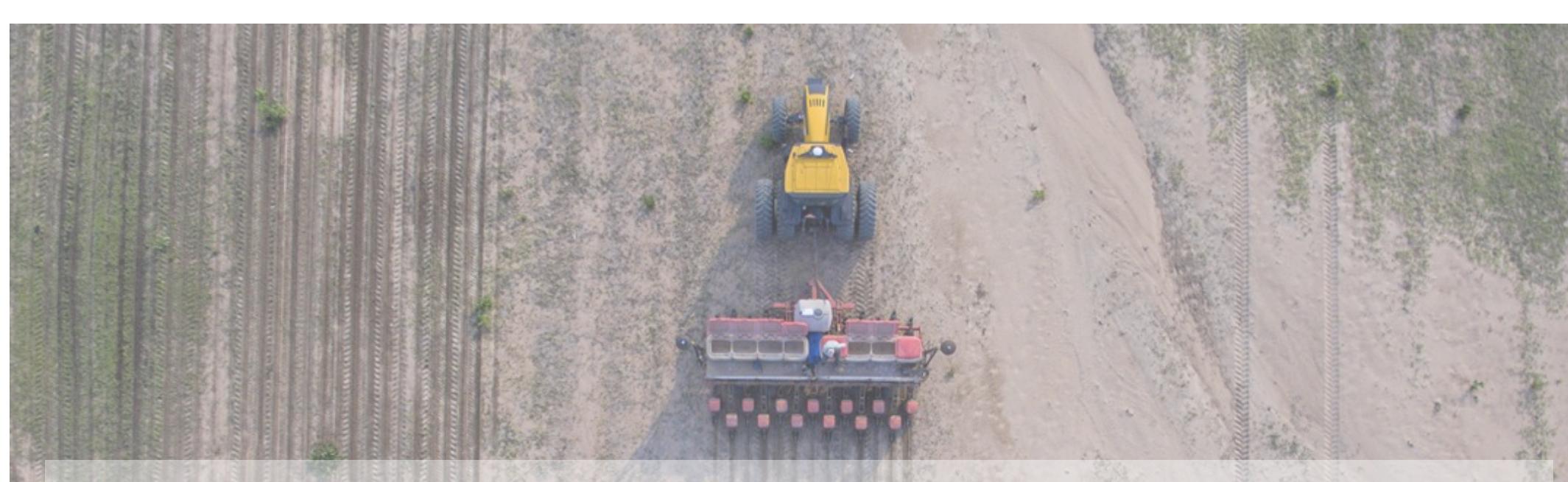
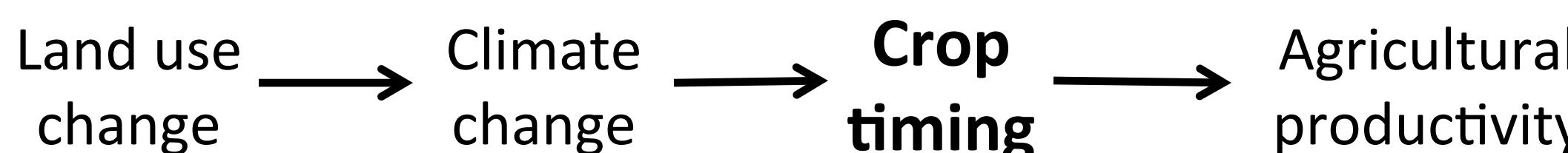
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Deforestation in Brazil creates a ‘no win’ scenario for agricultural production



Crop timing decisions play a role in this ‘no win’ scenario



In Brazil, a one-month reduction in the wet season is predicted by end of this century (Sampaio et al, 2007).

A shifting wet season is expected to force planting and harvest dates to suboptimal times and may change cropping intensity from double to single cropping.

Remotely sensed information can illuminate the role of crop timing in this ‘no win’ scenario

Historical crop timing and climate data will characterize crop timing’s response to climate change. The shift in crop timing can be translated to a change in agricultural yield.



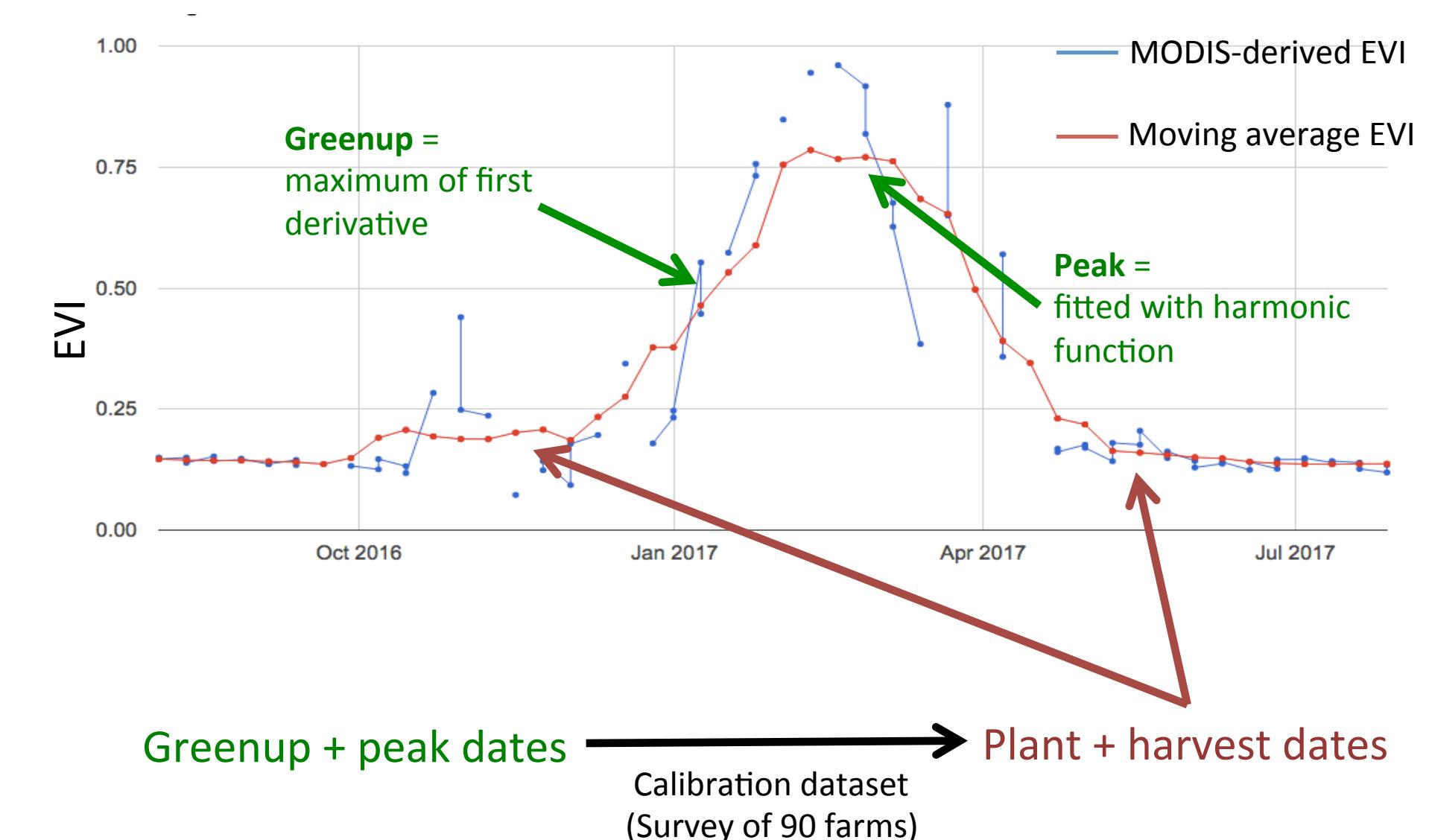
Field scale crop timing data do not exist in Brazil, but can be estimated with remotely sensed data.

Timeseries analysis of MODIS data produces crop timing estimates

The enhanced vegetation index (EVI) responds to soy growth.

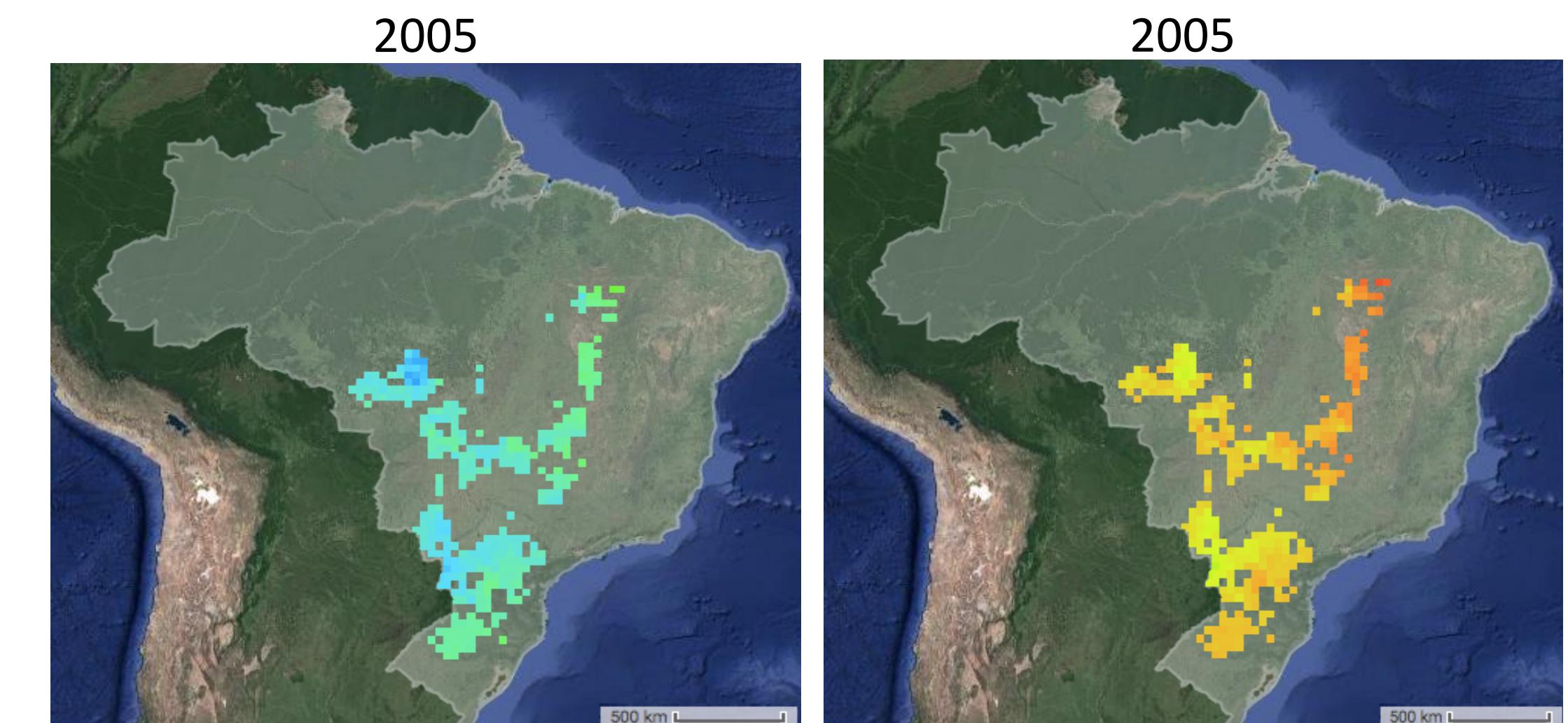
$$EVI = 2.5 * \frac{NIR - red}{NIR + 6 * red - 7.5 * blue + 1}$$

Timeseries analysis of MODIS-derived EVI produces field scale (500m) estimates of soybean planting and harvest dates across Brazil.



MODIS-derived crop timing estimates

Planting date



Harvest date

