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REVIEW OF CROP MODELS

- *Agriculture applications usually require quantitative remote data with acceptable accuracy and resolution. Specifically for crop production forecasting, due to its strategic sensitivity, high accuracy data and reliable remote sensing data are recommended .*
- *Therefore agro-meteorological plant growth models usually work at the point domain where remote sensing data work at a distributed grid domain. The solution for this strategy is to develop a distributed agro-metrological data with high resolution, which can be attained by using multi-points measurements or retrieved data from satellite*

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Second strategy

- Incorporating remote sensing data in crop yield estimations by developing accurate mathematical models between remote sensing data with ground yield historical information. These models assume that there is a positive –linear or non linear relationship between crop yield and vegetation stage vigorousness and negative plant stress (Gavade & Raipurohi 2013).

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Examples of indices that can be derived from remote sensing data and have impact on yield

Index	Model	Reference
Water deficit index	$WDI = 1 - \frac{\lambda ET}{\lambda ET_p}$	Moran et al. (1994)
Ratio vegetation index	$RVI = \frac{R}{NIR}$	Pearson and Miller (1972)
Yellow vegetation index	$YVI = -aB + bG + cR - DNIR$	Kauth and Thomas (1976)
Redness	$Ri = \frac{(R-G)}{(R+G)}$	Escadafal and Huete (1991)
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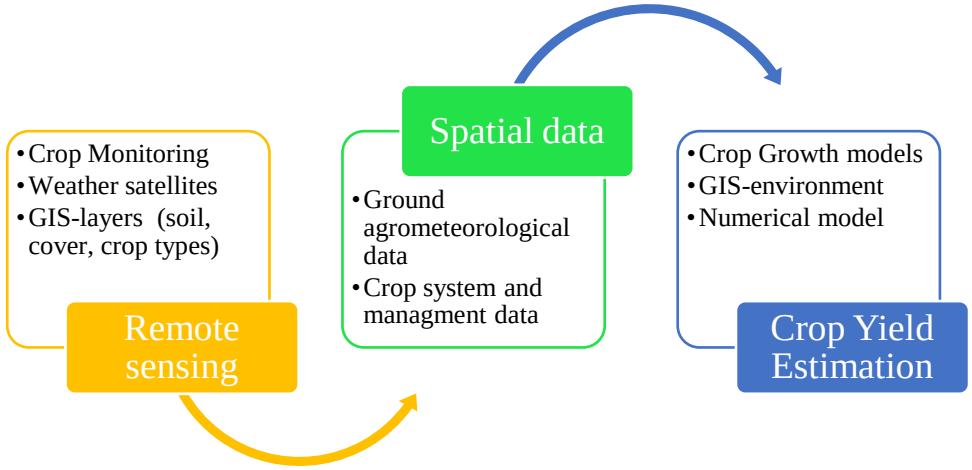
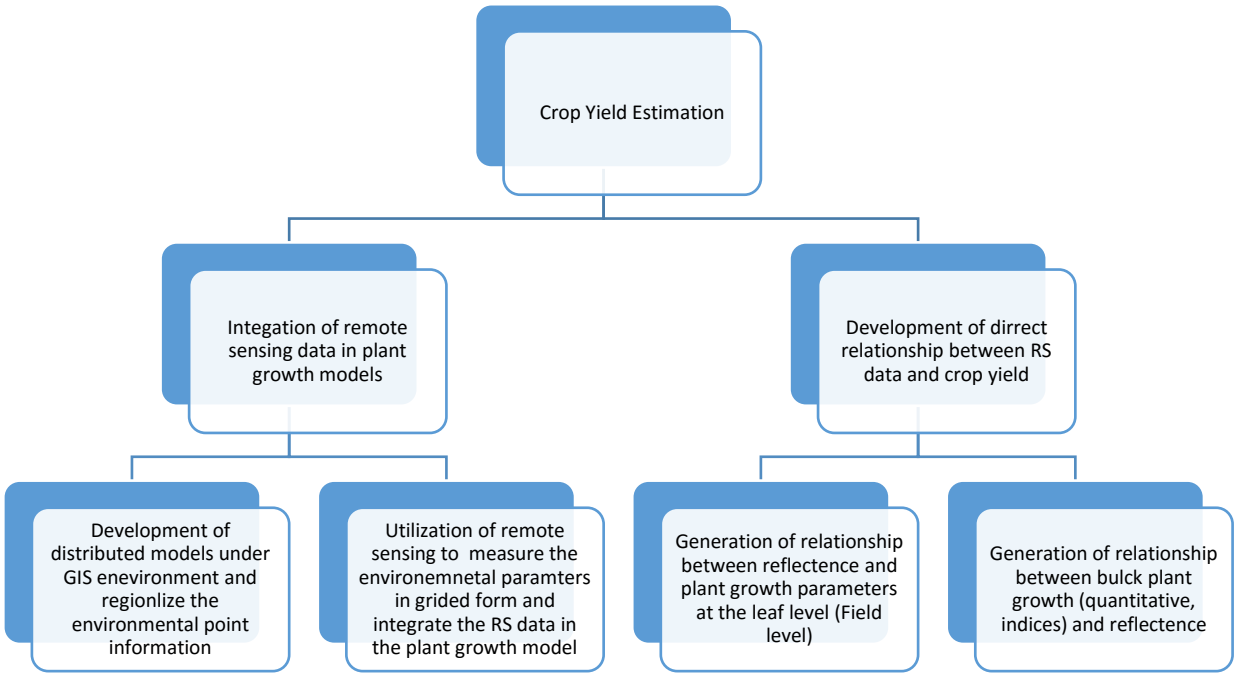
Integration of remote sensed and agro – meteorological data



An Integrated framework for Crop Yield estimation



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Examples of Integrated framework models Applications

- Decision Support system for Agrotechnology Transfer (DSSAT).
- Cropping system CERES (can be integrated with Modis data (Fang et al 2007 in indian USA).
- Labus et al 2010 ,muilti temporal NDVI statelite imagery can be used for wheat yield estimates,case study montana USA

THANK YOU!

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