INP TOULOUSE

PURPAN Learning for the future

Ecole d'ingénieurs

Sciences du vivant
Agriculture • Agroalimentaire
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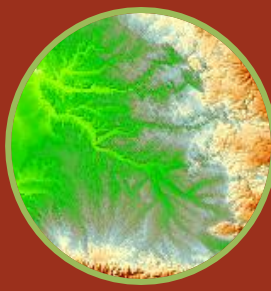
TAKE5 USERS DAY - 02/10/2013



UMR 1201 DYNAFOR

Télédétection et Gestion des Territoires

Anne JACQUIN – Antoine ROUMIGUIE

Research Area

- Use of medium spatial resolution images (MODIS/MERIS) time series in 3 domains of interest:
  - Forest vulnerability assessment
  - Landcover mapping and change analysis
  - Forage production monitoring
- BUT we need high spatial resolution images time series:
  - For validation
  - For methodological improvements
- SO, Take5 time series is an opportunity to realize significant advances

Forest vulnerability and landcover mapping

- What's been realized?

Analysis of seasonal cycle from MODIS time series to extract phenological indicators

- Why SPOT-4 Take5 is interesting?

Time series analysis: High spatial resolution and high frequence of acquisition… but need to have a complete cycle and over different years for comparison purpose

Results of acquisition over the Pyrénées: To few usable images over the forest areas to develop a time series analysis

Complementary MSR time series and high resolution

- Research realized in the framework of the OPCC project (http://www.opcc-ctp.org)

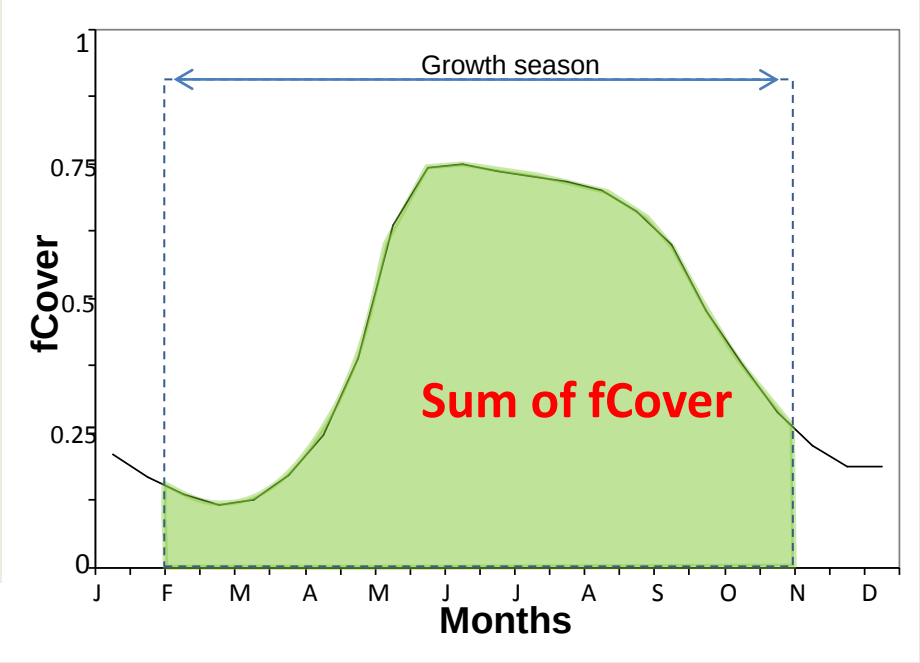
OPCC
OBSERVATOIRE PYRÉNÉEN DU CHANGEMENT CLIMATIQUE
OBSERVATORIO PIRENAICO DEL CAMBIO CLIMÁTICO
OBSERVATORI PIRINENC DEL CANVI CLIMÀTIC
OBSERVATÓRI PIRENENC DEL CAMBIAMENT CLIMATIC
KLIMA ALDAKETAREN PIRINIOETAKO BEHATOKIA

Forage production monitoring

- Context

Development of a Forage Production Index (FPI), calculated from MSR time series (300m) to monitor forage production at national level and estimate loss in case of extreme climatic events

- What's the FPI?



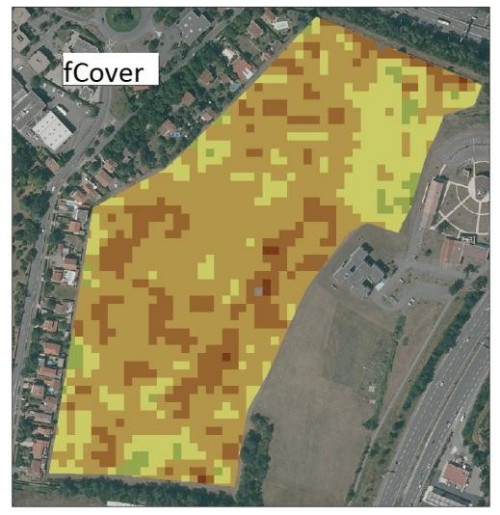
Forage production monitoring

- Objective: To validate the FPI index
- Method

For 6 grassland parcels and during the spring growing season (from march to june):

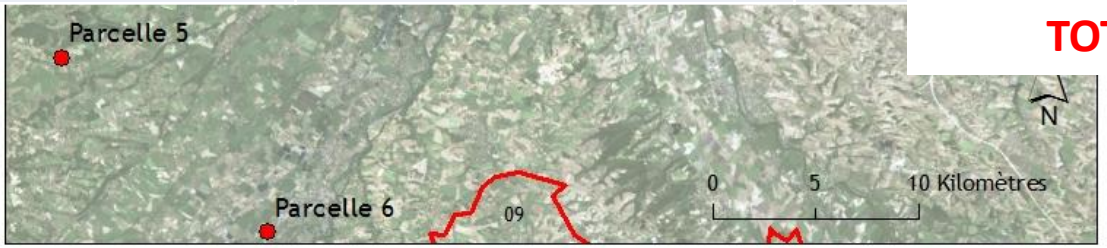
Collection of production data every 15 days

Measurement of fCover using SPOT-4 Take5 time series to calculate the FPI index



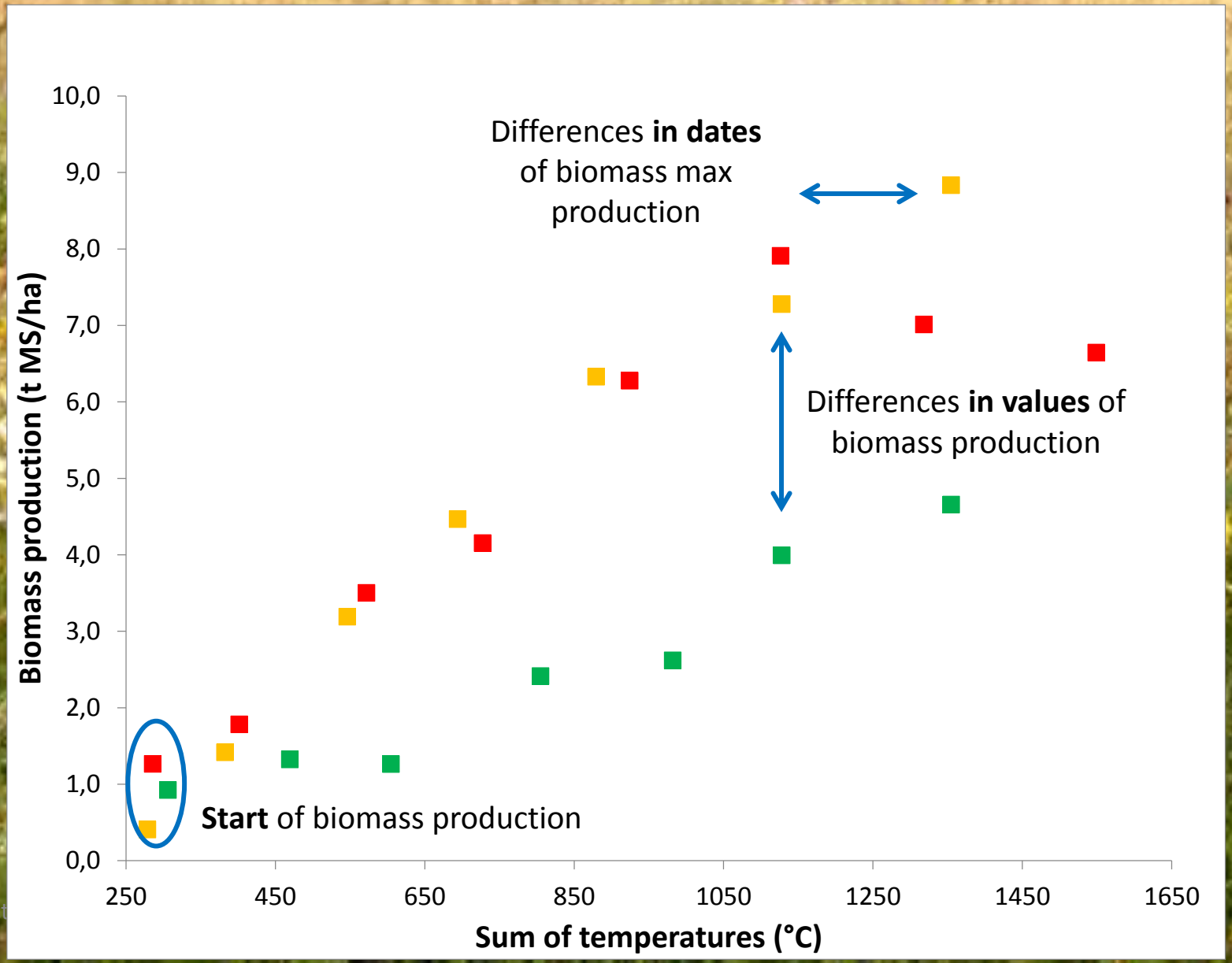
Grassland parcels

Parcel number	Localisation	Grassland species	Area (ha)	Sampling method
1	Préserville	Ray-Grass	8,6	7 points / 15 days
2	Buzet sur Tarn	Alfalfa	7,3	7 points / 15 days
3	Carbonne	Fescue / Dactyl	6,8	7 points / 15 days
4	Toulouse	Natural grassland	9,4	10 points / 15 days
5	Sainte-Foy de Peyrolières	Natural grassland	6,0	6 points / 15 days
6	Savères	Fescue / Dactyl /White clover	9,5	10 points / 15 days

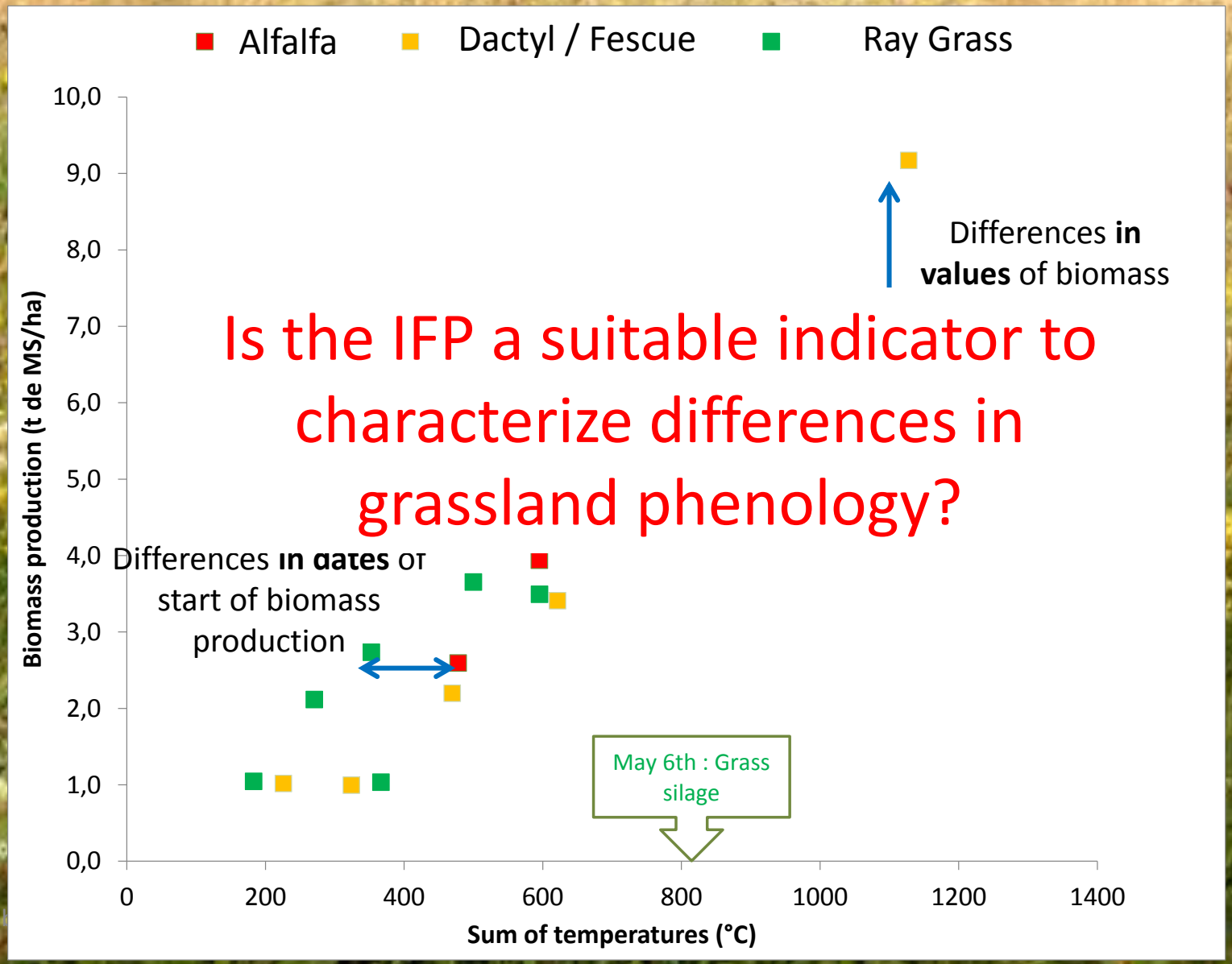


TOTAL = 320 points

Collection of production data: Results on the 3 natural grassland

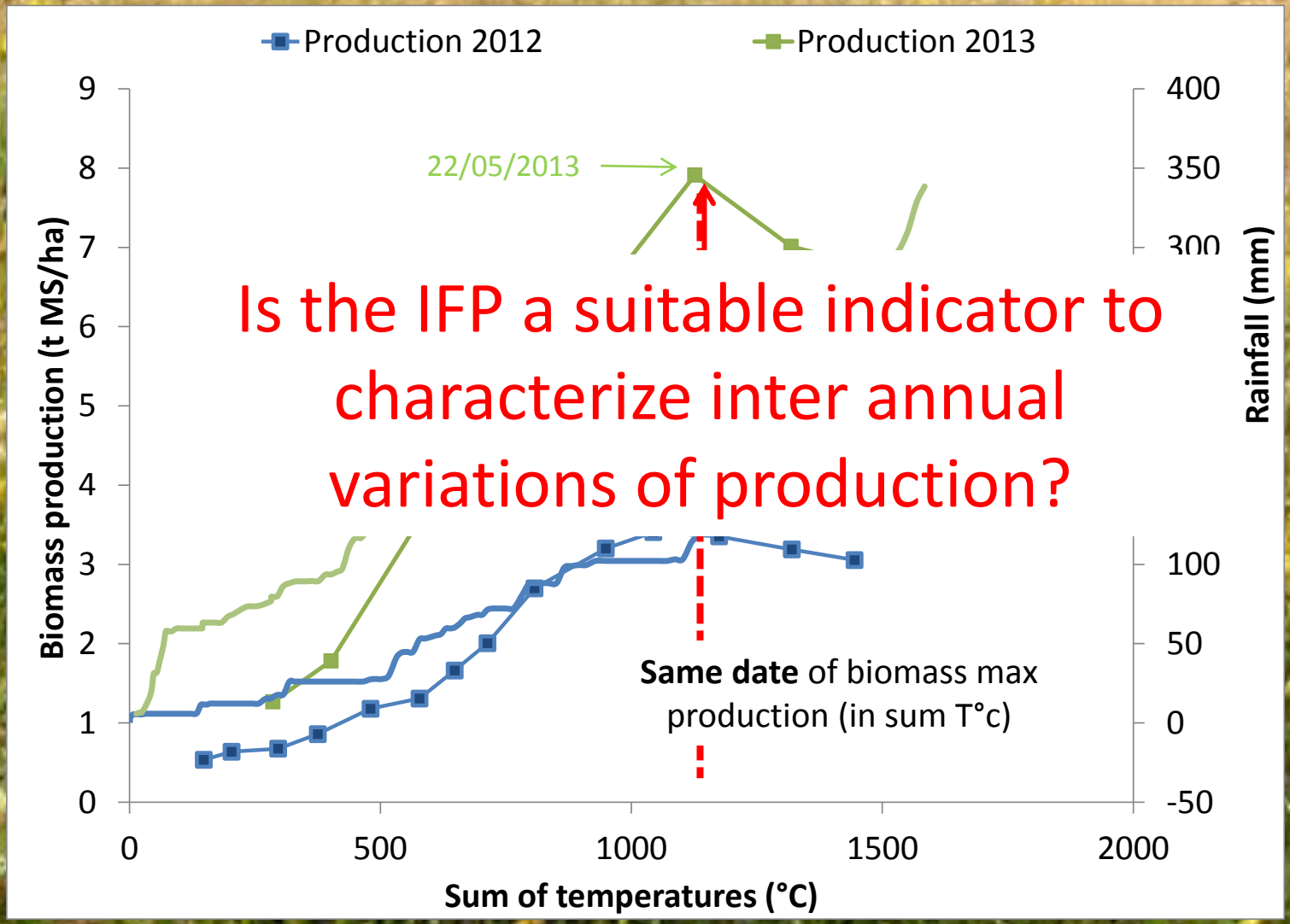


Collection of production data: Results on the 3 artificial grassland



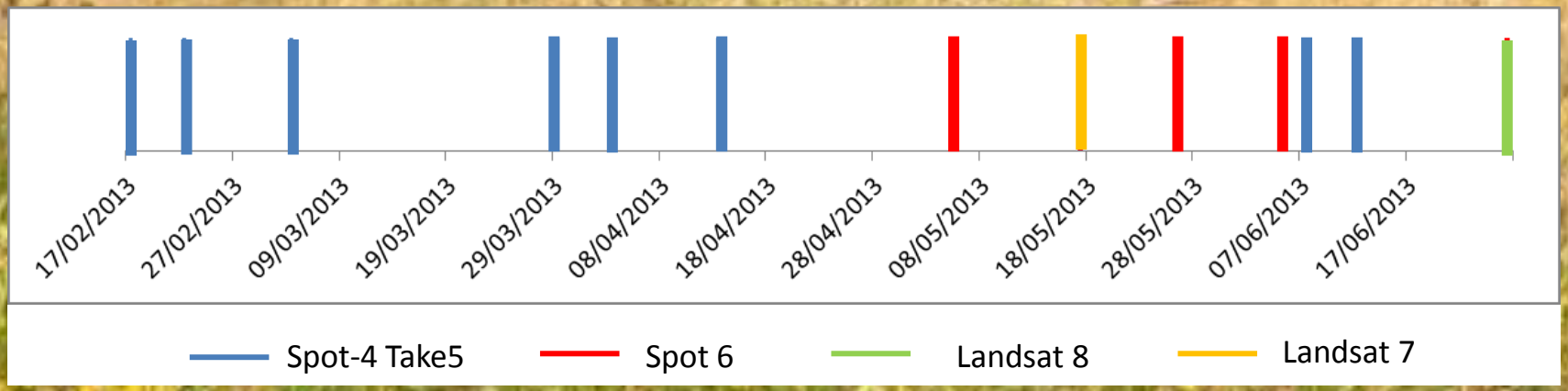
The case of PURPAN

Comparison of spring production data between 2012 and 2013

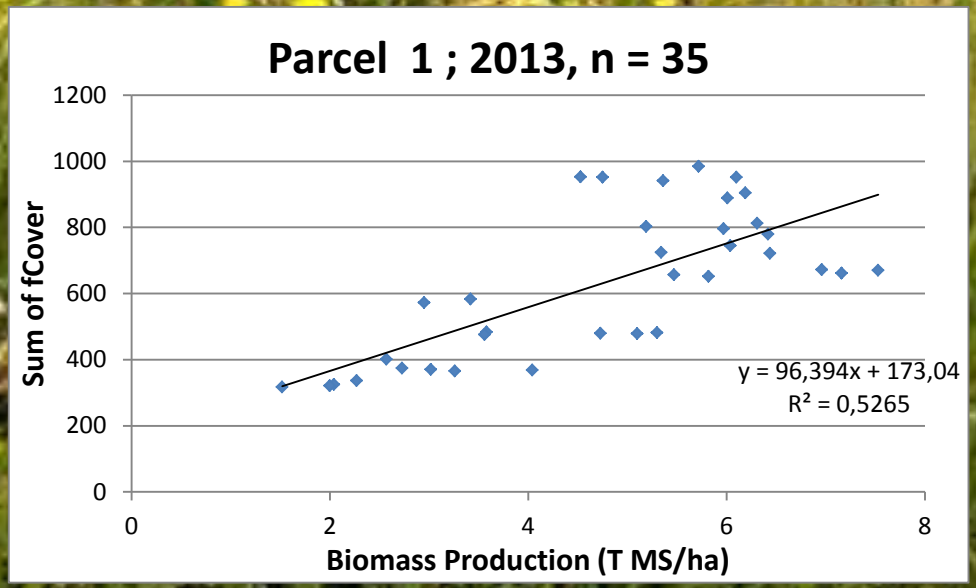


Estimation of production with IFP: Parcel 1

HSR time series

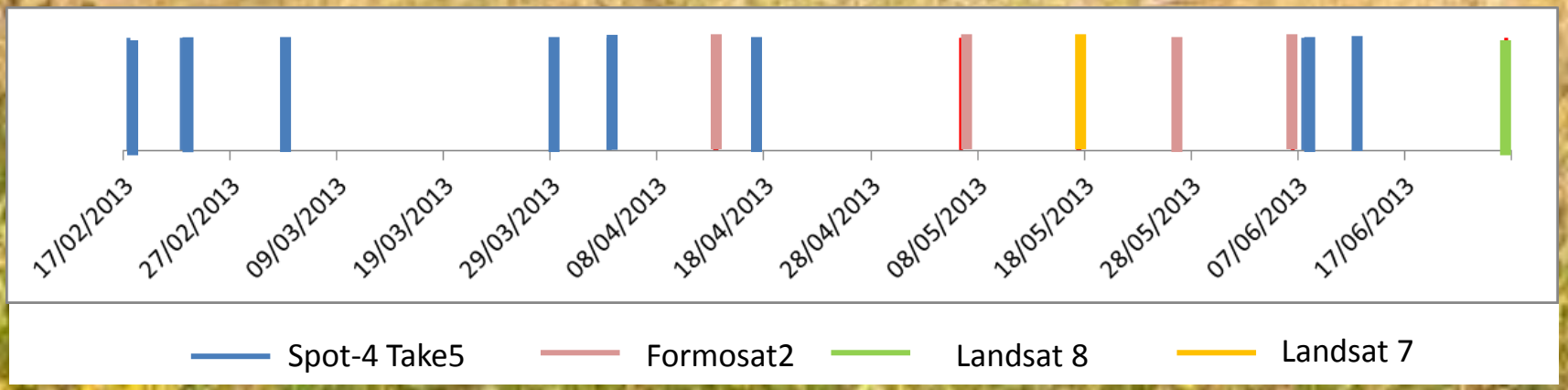


Relation between IFP and production data

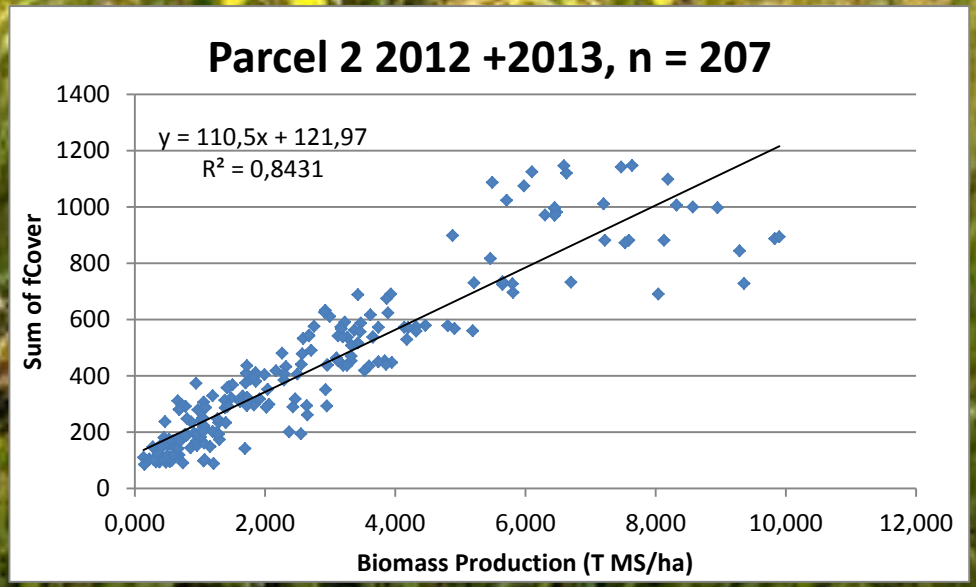


Estimation of production with IFP: Parcel 2

HSR time series

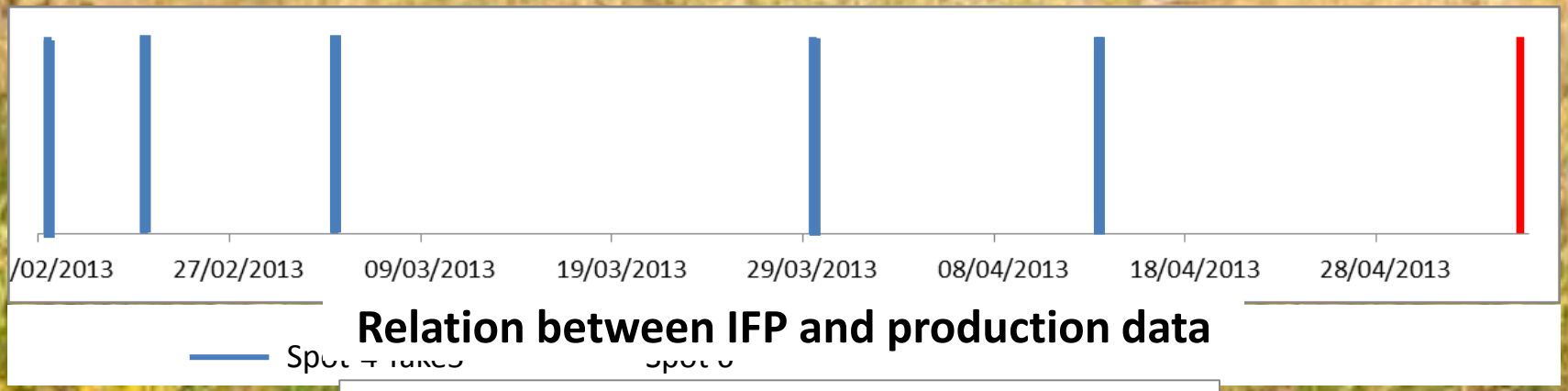


Relation between IFP and production data

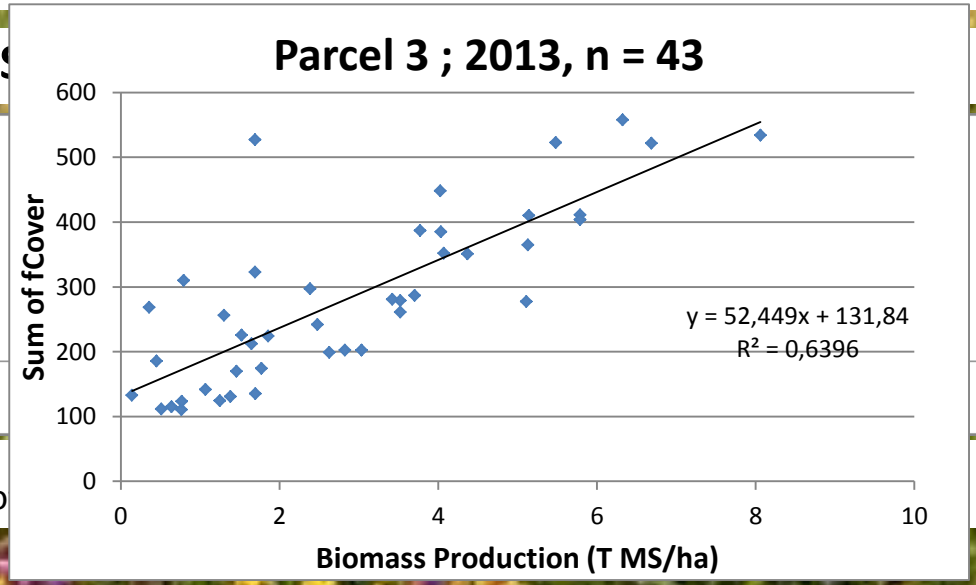


Estimation of production with IFP: Parcel 3

HSR time series over the 1st period of growth

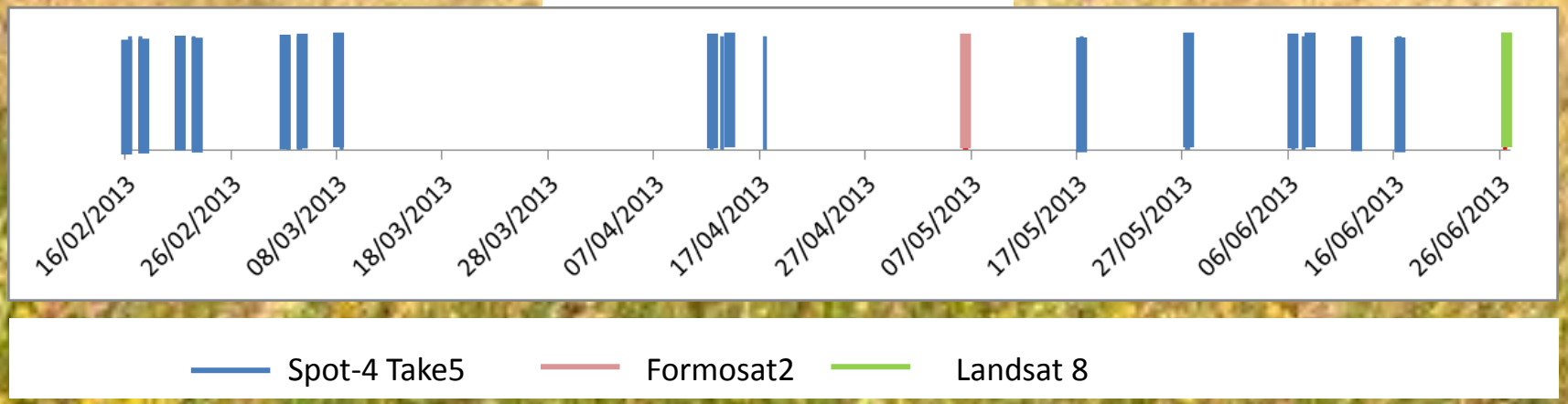


Relation between IFP and production data

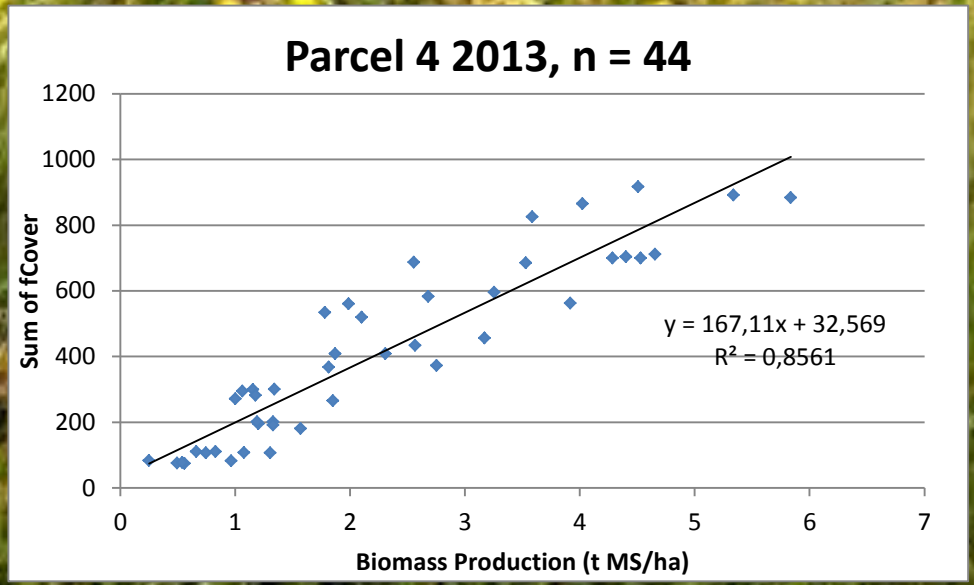


Estimation of production with IFP: Parcel 4

HSR time series

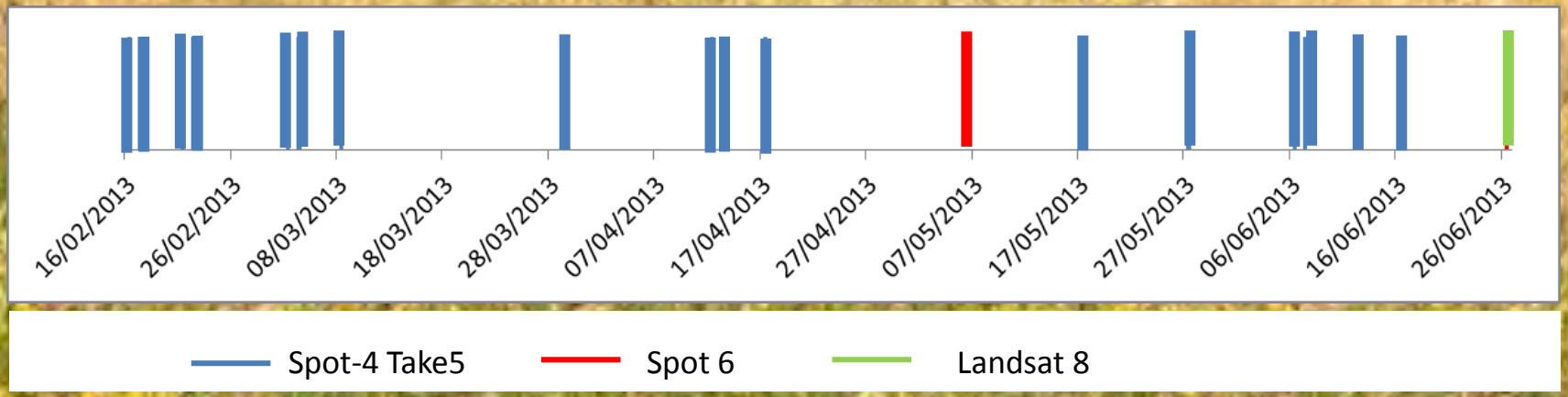


Relation between IFP and production data

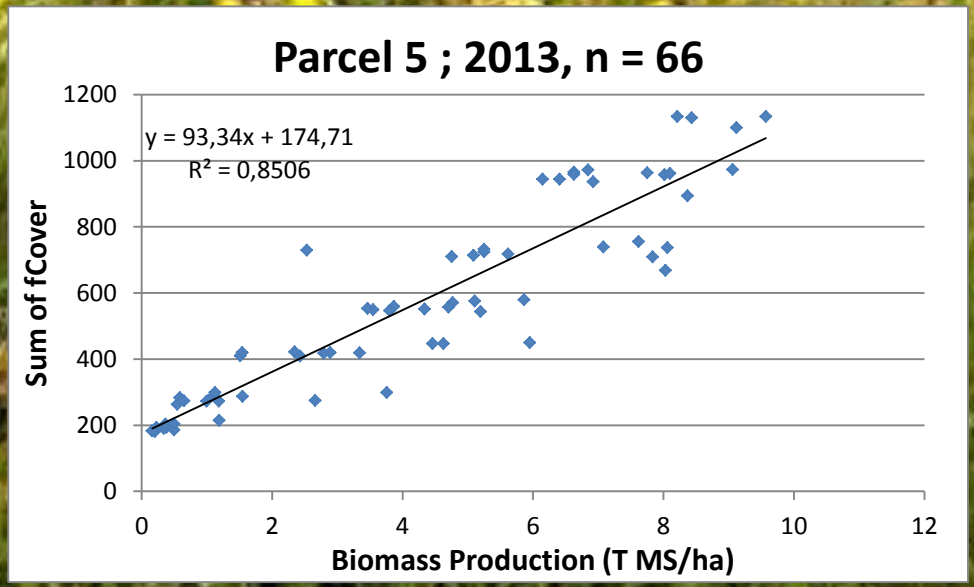


Estimation of production with IFP: Parcel 5

HSR time series

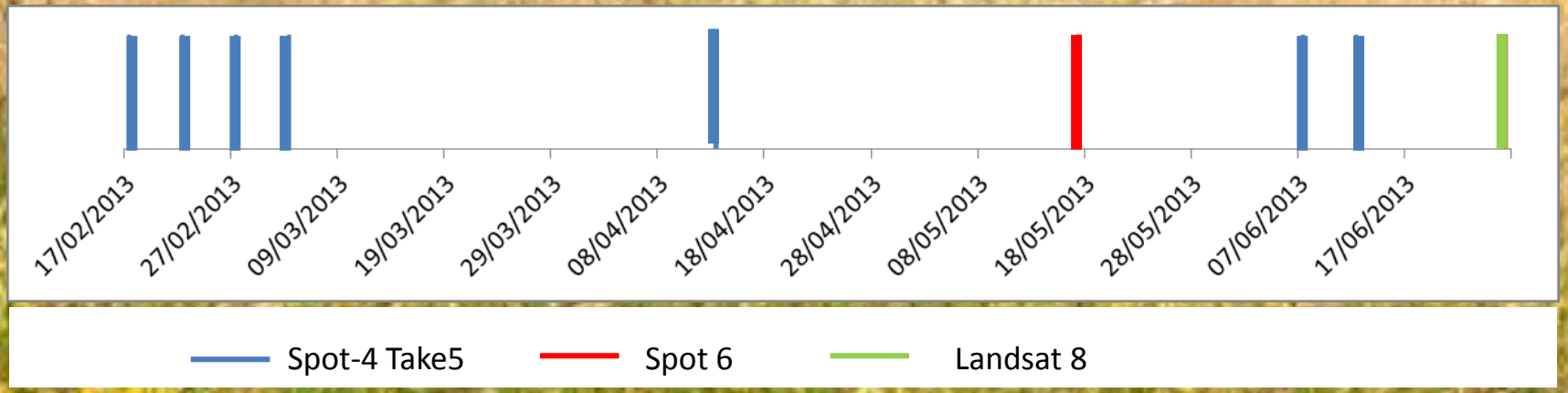


Relation between IFP and production data

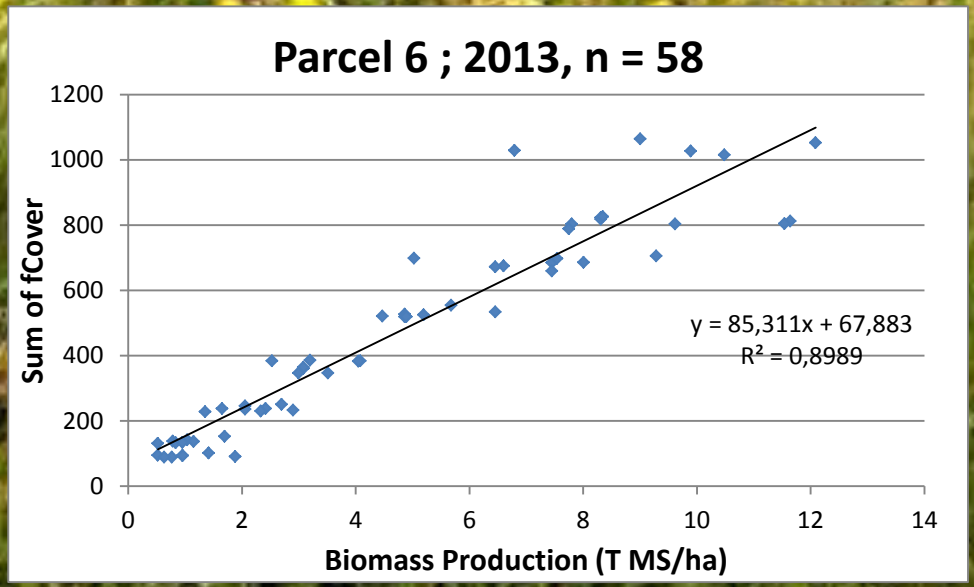


Estimation of production with IFP: Parcel 6

HSR time series

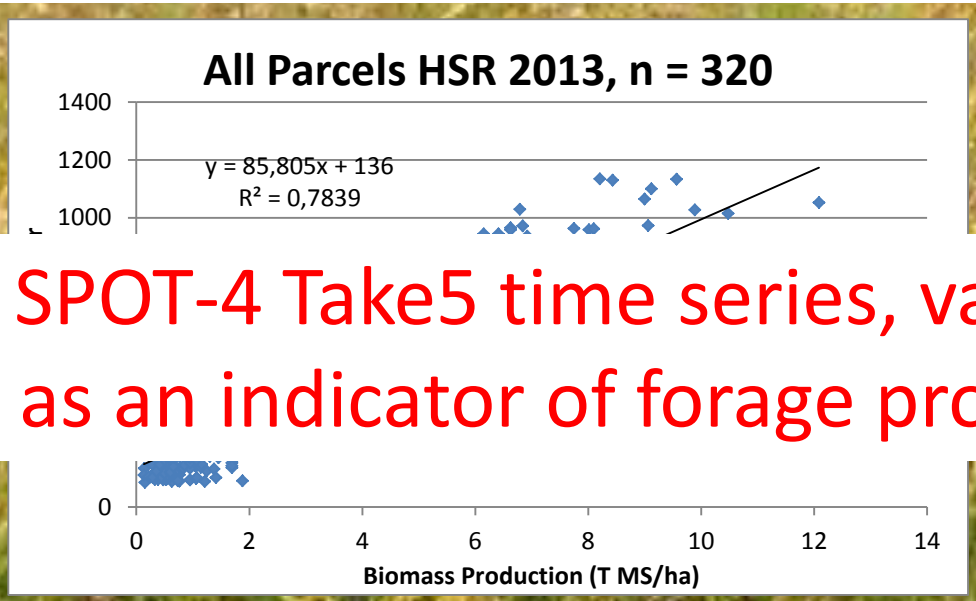


Relation between IFP and production data



Estimation of production with IFP
Summary results

Relation between IFP and production data



Using SPOT-4 Take5 time series, validation of IFP as an indicator of forage production

What's next?

Validation of IFP indicator calculated from MSR time series using IFP indicator obtained with SPOT-4 Take5 time series

- Protocol applied on 450 grassland parcels localized in Lot (46)
- Work realised in collaboration with CESBIO (Group project of UPS M2 A3TA – Sep. 2013 to Feb. 2014)

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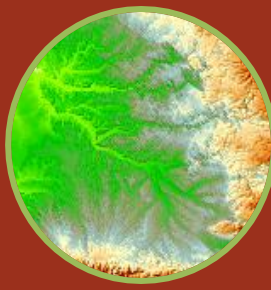
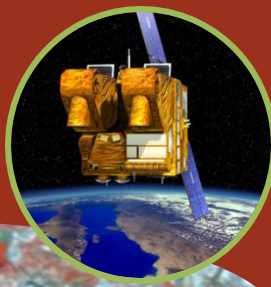
THANK YOU
ANY QUESTIONS?





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