FAPESP
FUNDAÇÃO DE AMPARO À PESQUISA DO ESTADO DE SÃO PAULO

eScience FAPESP

Workshop eScience:
O Rural na Era Digital

Agropecuária digital

Desafios para o futuro

UNICAMP

FEAGRI

GEO
Grupo de Estudos em Geoprocessamento

Jansle Vieira Rocha

jansle@g.unicamp.br

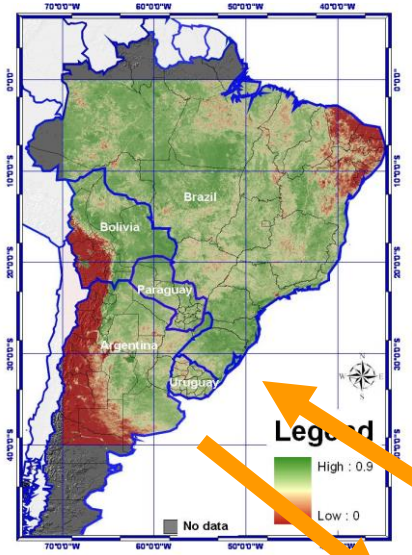
Pretérito: Apoios recebidos da FAPESP em projetos pioneiros de tecnologia digital na agricultura

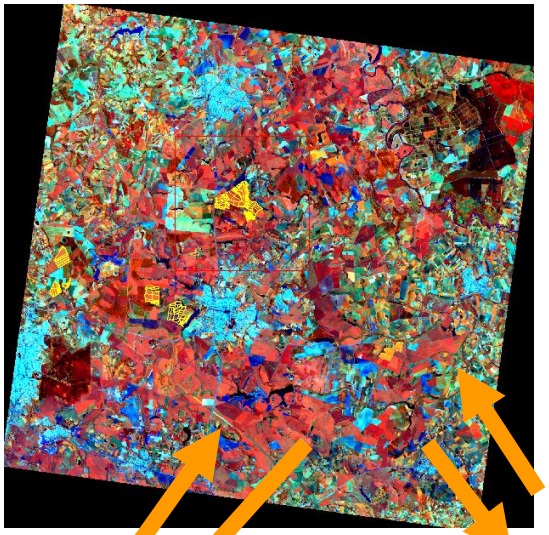
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O Rural na Era Digital

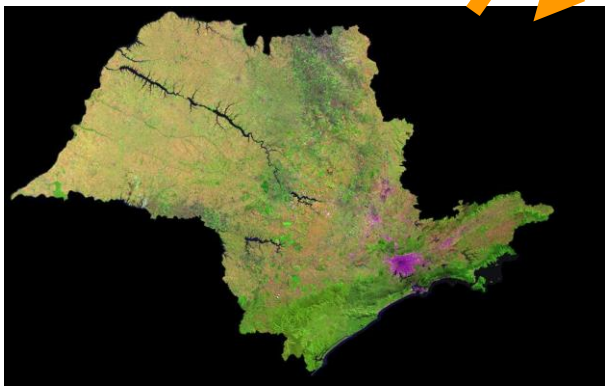
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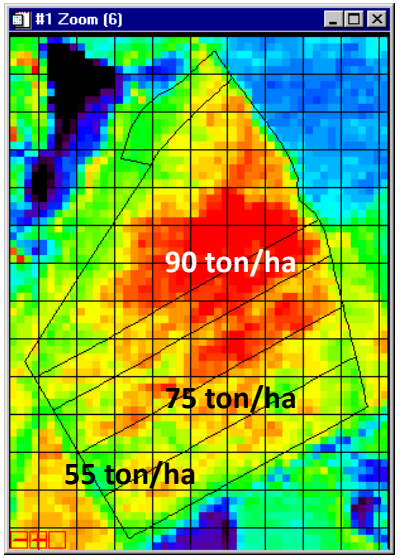
Auxílio à Pesquisa

Sensoriamento remoto aplicado ao mapeamento da variabilidade espacial da produtividade da cana-de-açúcar para agricultura de precisão

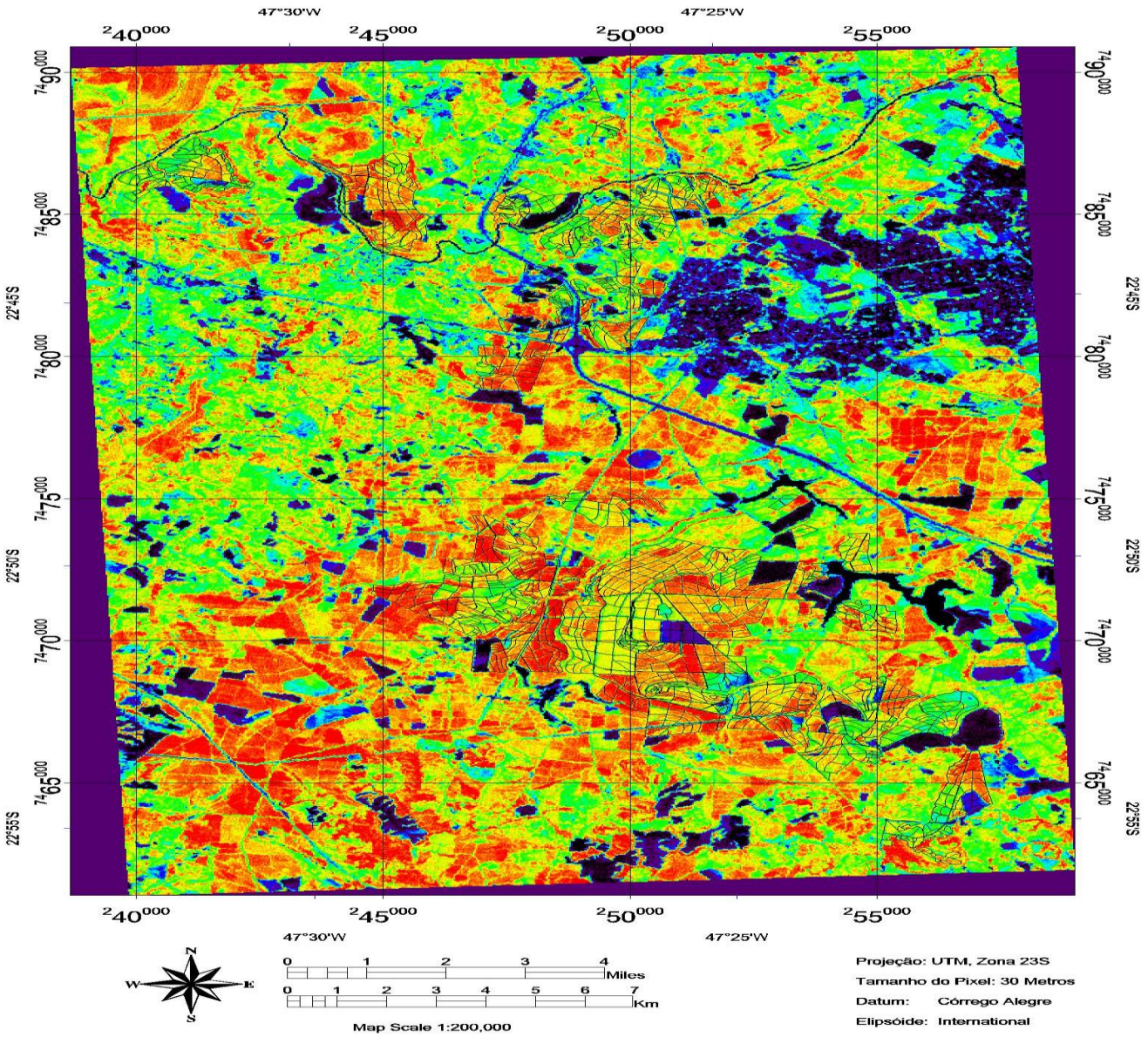








Mapa de variabilidade regional da biomassa



Processo: 07/54558-1

Auxílio à Pesquisa

e-Farms: uma estrada de mão dupla de pequenas fazendas para o mundo em rede

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O Rural na Era Digital

eform

Sistema online de Informações Espacializadas

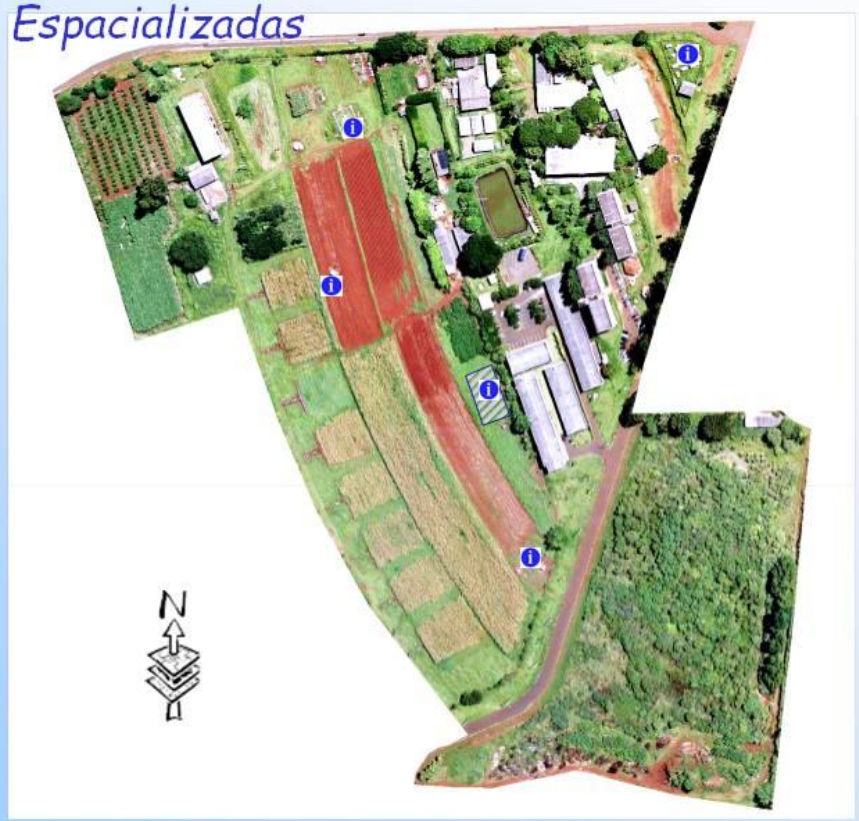
- Sobre o Sistema
- Equipe
- Informações em tempo real de sua propriedade.
- Agilidade nas previsões
- Ferramenta de apoio ao Gerenciamento e a tomada de decisões
- Rastreabilidade
- Contato

Acesso ao Sistema

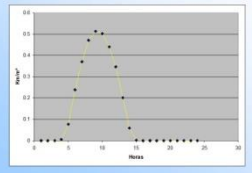
User

Senha

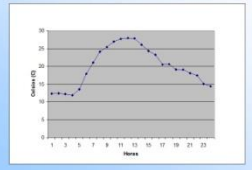
Cadastro...



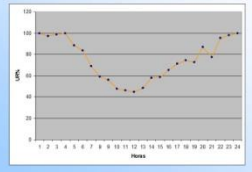
Radiação Global



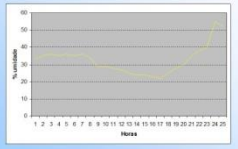
Temperatura



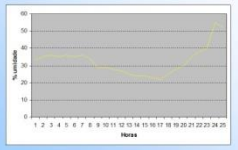
Umidade Relativa



Umidade do Solo



Umidade da Estufa



Processo: 12/50048-7 **Metodologia para utilização de VANT no monitoramento de cana-de-açúcar para fins de agricultura de precisão**

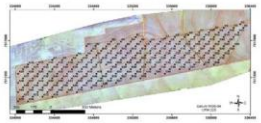
PITE

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Condutividade do solo



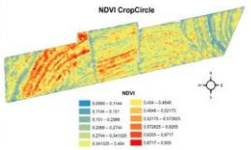
Amostras de solo



"Medidas de NDVI - CropCircle

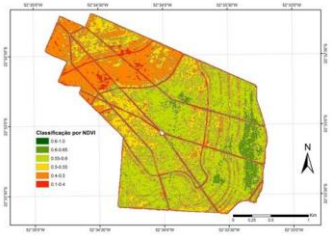


Mapa de variabilidade de NDVI



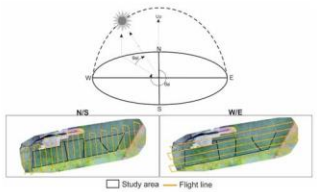
Mapa de variabilidade Rapid Eye

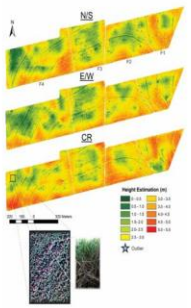




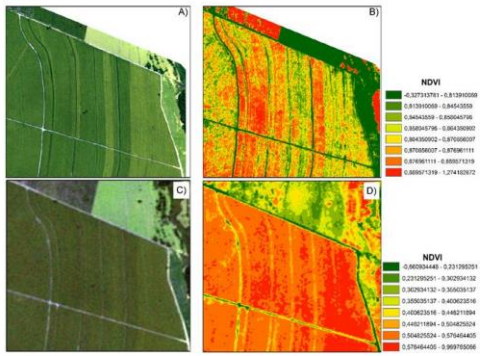
Sensoriamento Remoto: Aplicações

- Identificação de altura de planta em Cana-de-açúcar





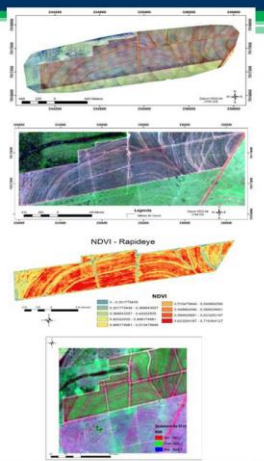
PLEIADS (A and B) X RAPID EYE (C and D)



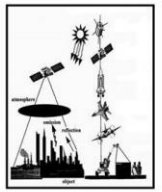
UAV

Rapid Eye

Landsat 8

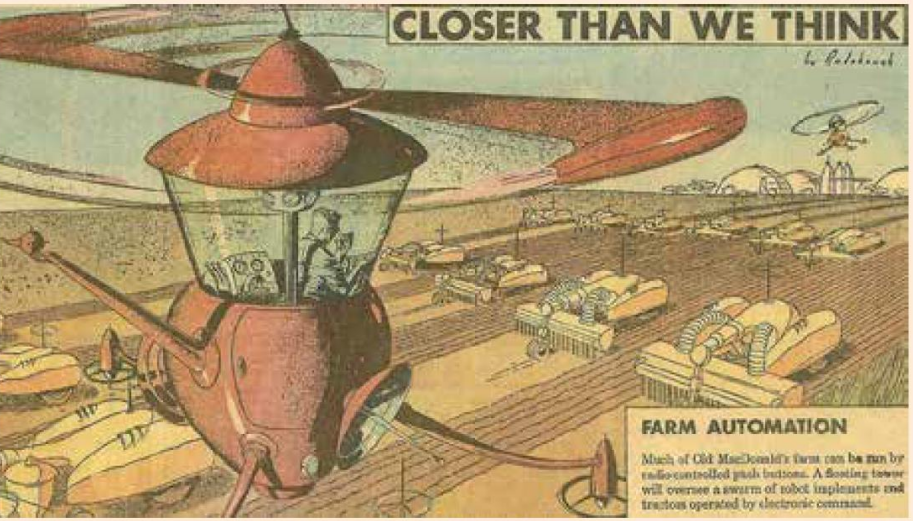


Passagem de escala

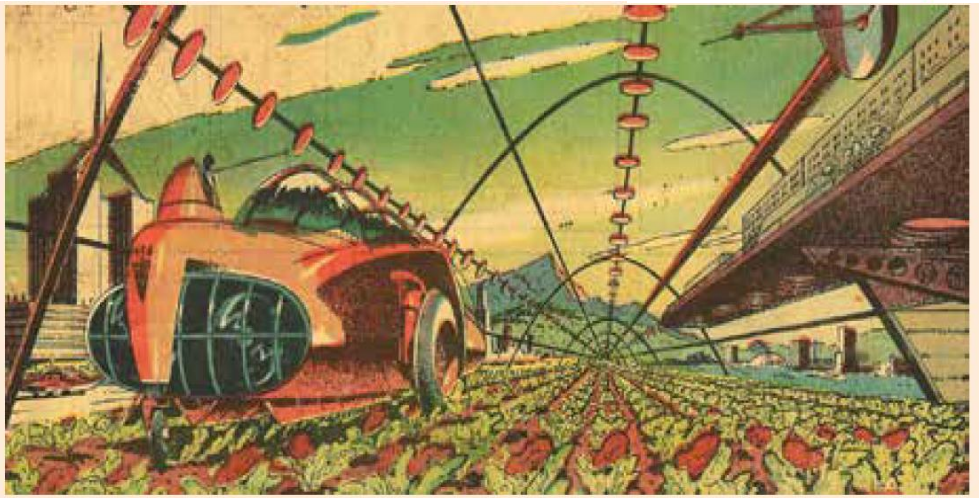


Apostas para o Futuro?????

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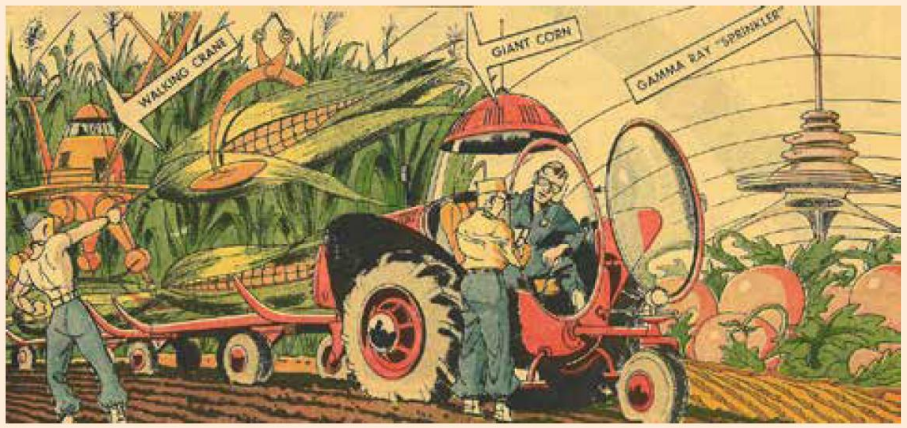
'Farm Automation' (1958)



"Fat Plants and Meat-Beats" (1958)



'Factory Farm' (1961)



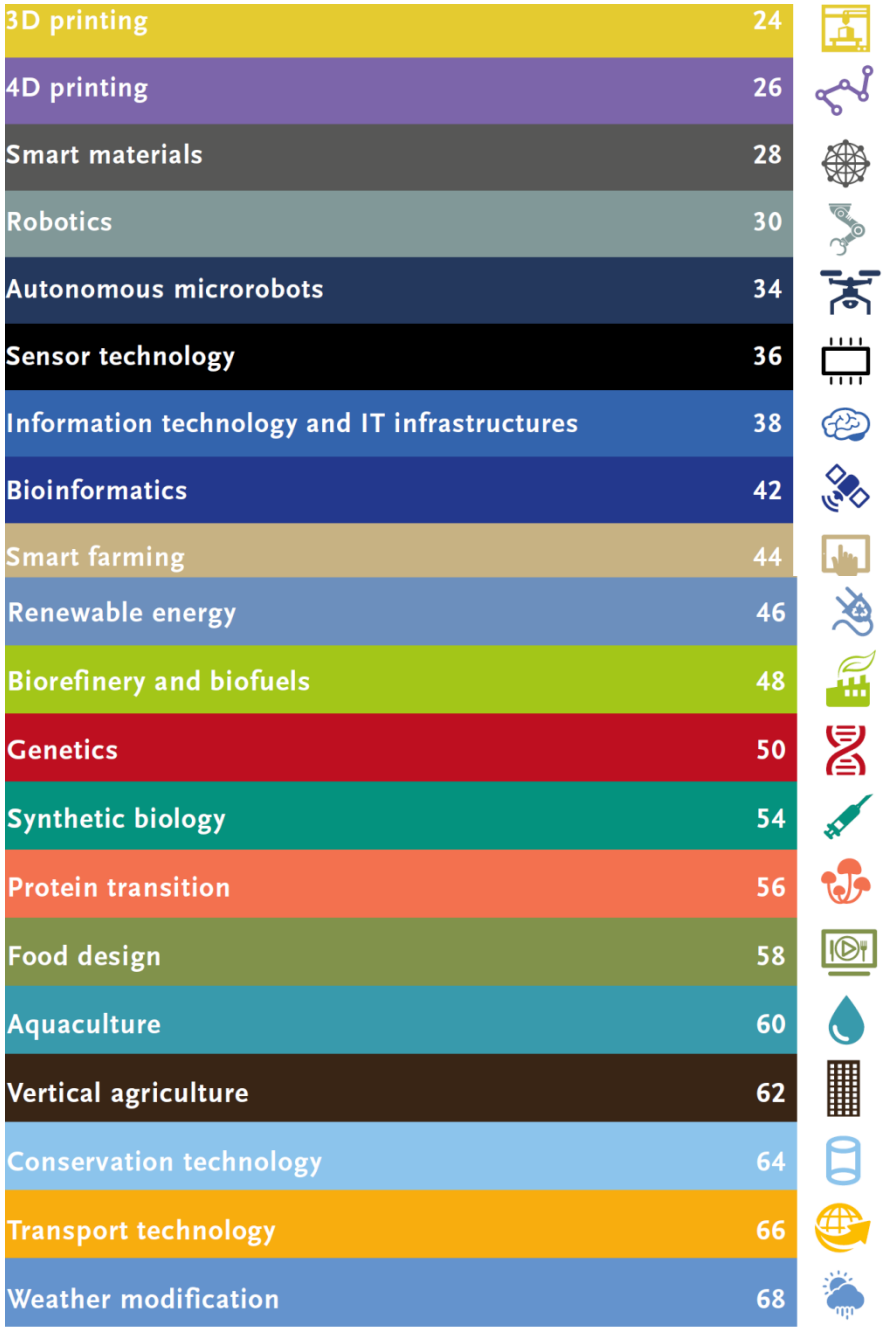
'Colossal Crops' (1962)

The future of Technology on Agriculture (2016)

Silke de Wilde, STT, The Hague
Ellen Willemse, Raoul Blankesteijn and
Koen Donker van Heel

STT – Netherlands Study Center for Technology Trends

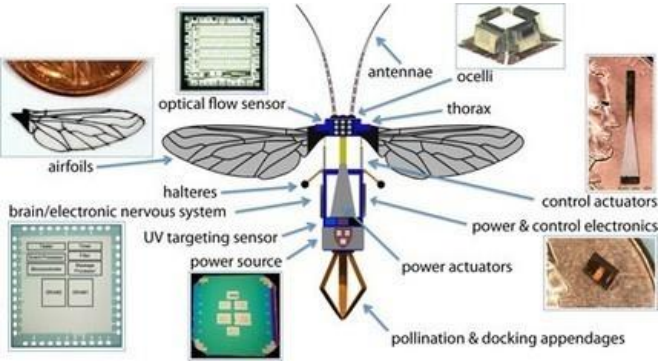
https://stt.nl/stt/wp-content/uploads/2016/05/ENG-Toekomstverkenning-agri-food-Web.pdf

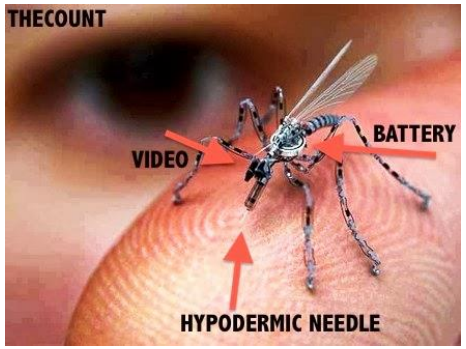


Apostas para o Futuro?????

Micro Drones ⟶ **Enxames de Drones**

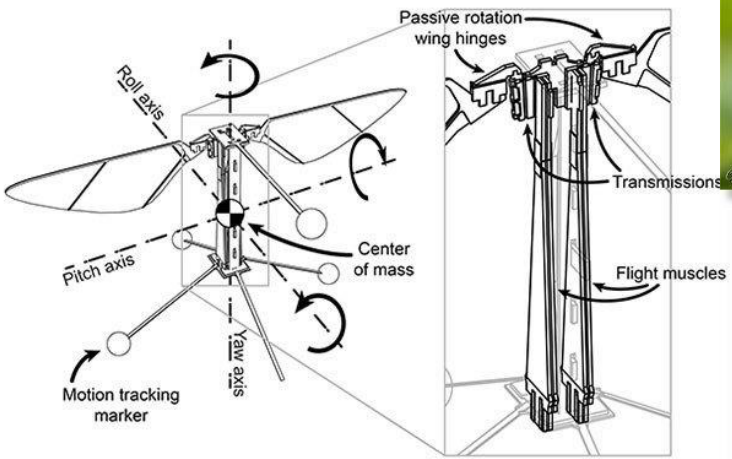
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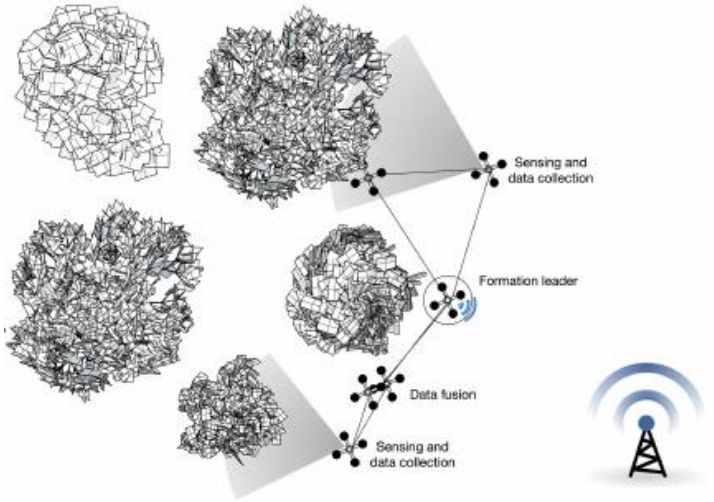


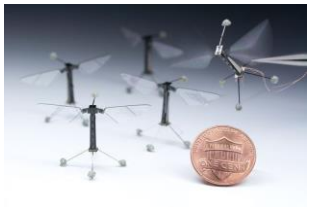














Apostas para o Futuro?????

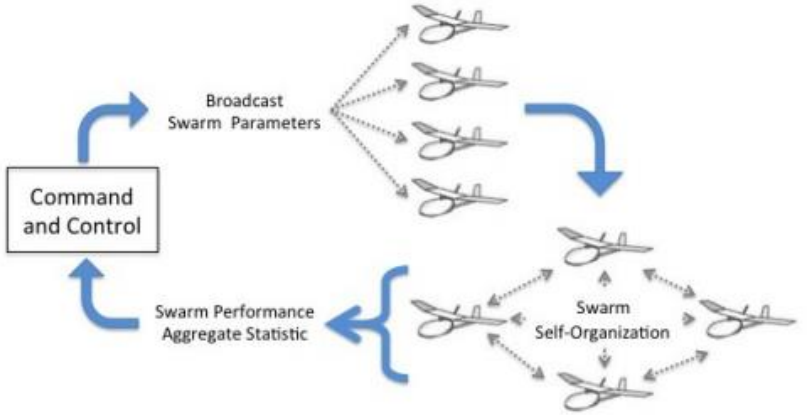
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Polinização e controle

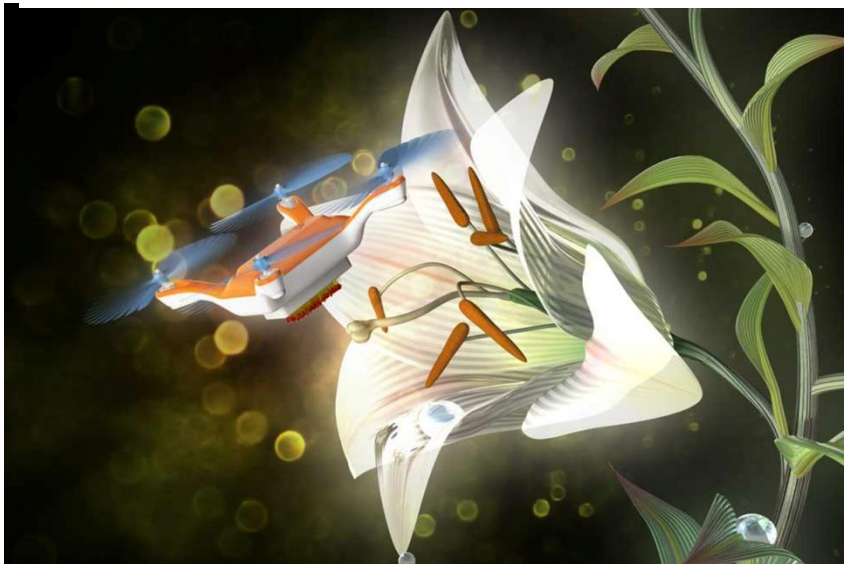






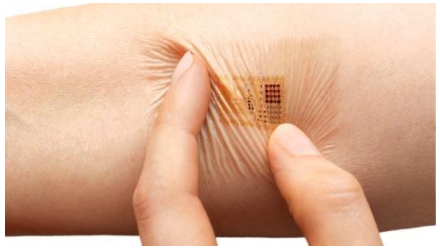




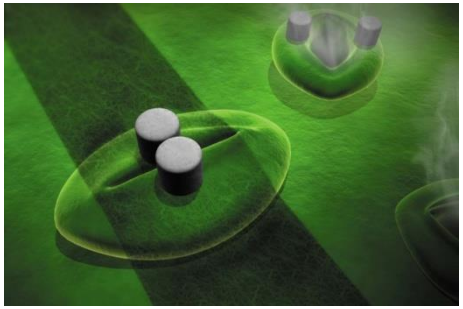


Apostas para o Futuro?????

Sensores (chip) nas plantas







Boulder scientist's invention could save water, money

Chip lets plants ask for a drink



New Micro-chip lets plants call home when they need water

Home | Green Design and Sustainable Living | New Micro-chip lets plants call home when they need water



Apostas para o Futuro?????

Biomarcadores nas plantas

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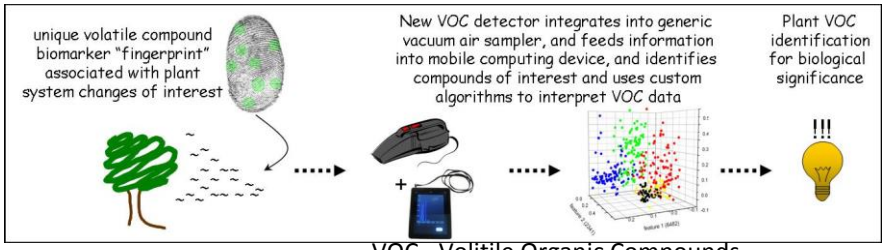
UCDAVIS UNIVERSITY OF CALIFORNIA

Bioinstrumentation and BioMEMS Laboratory

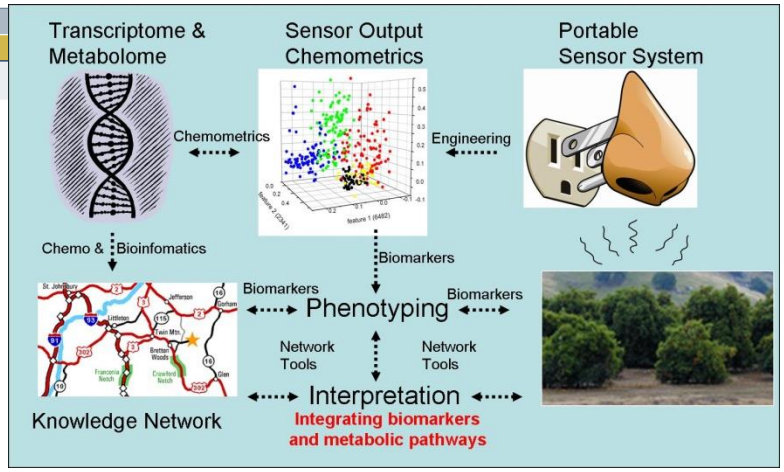
Home | About Our Laboratory | Professor Cristina Davis | Meet The Lab Members | Lab Affiliations | Announcements | Publicity Links
Funding Sponsors | Photographs | Lab Capabilities | Open Positions | Lab Alumni | Prof. Davis' Classes | Publications

Upcoming
Affiliated

Sensor System Development for Precision Agriculture



VOC - Volitile Organic Compounds



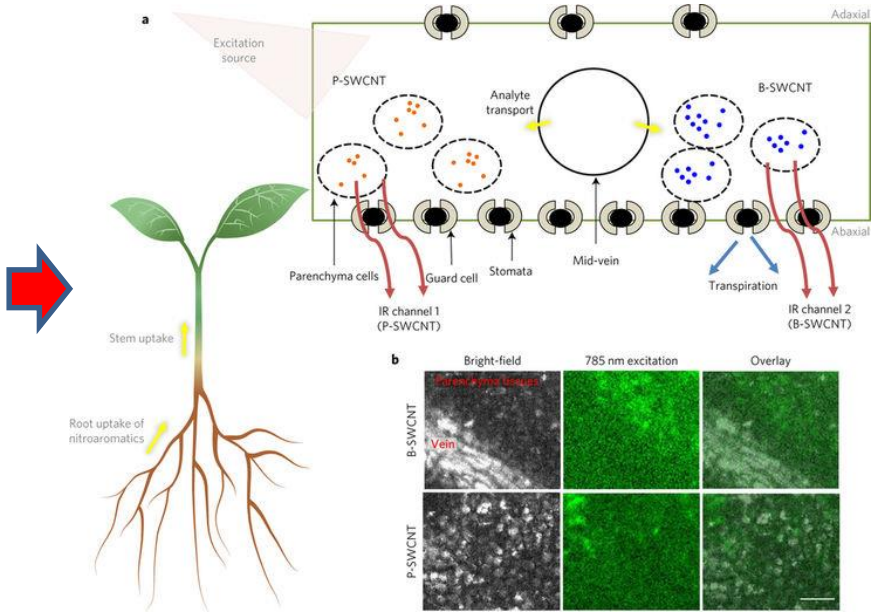
MENU
nature materials

Access provided by UNICAMP - Universidade Estadual de Campinas

Altmetric: 868 Citations: 13 More detail »

Article

Nitroaromatic detection and infrared communication from wild-type plants using plant nanobionics



Apostas para o Futuro?????

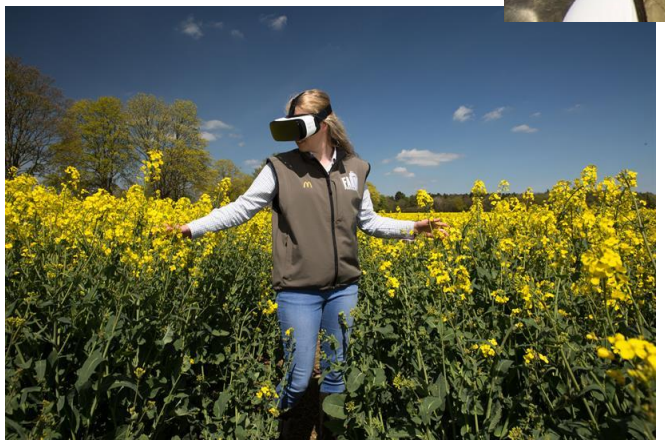
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Smart Glass













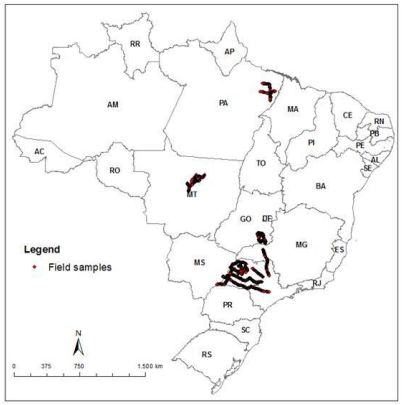
Processo: 14/26928-2

Auxílio à Pesquisa

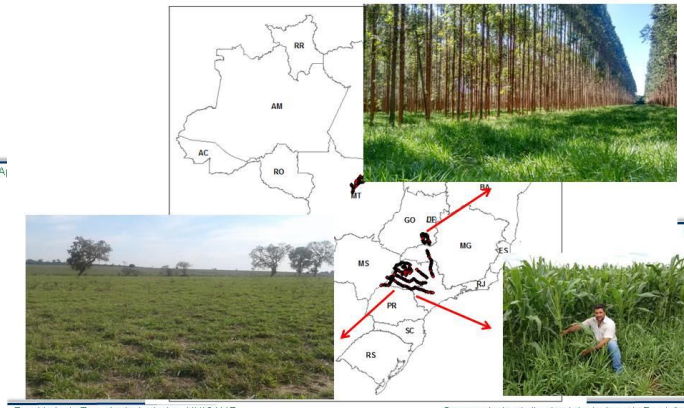
Caracterização e detecção de áreas de pastagens intensificadas por meio de séries temporais MODIS

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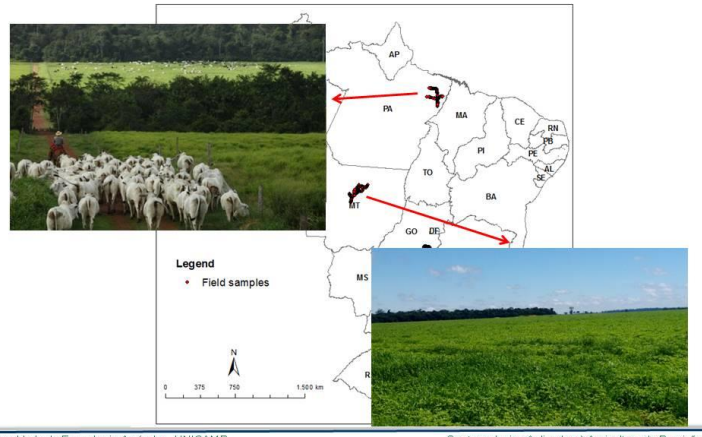
Test sites and field campaigns



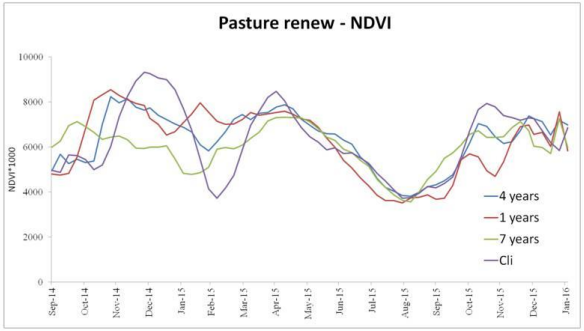
Field campaigns



Field campaigns



Pasture management



Embrapa — Empresa Brasileira de Pesquisa Agropecuária
Ministério da Agricultura, Pecuária e Abastecimento

A Embrapa | Soluções Tecnológicas | Biblioteca | Projetos | Cursos e Eventos

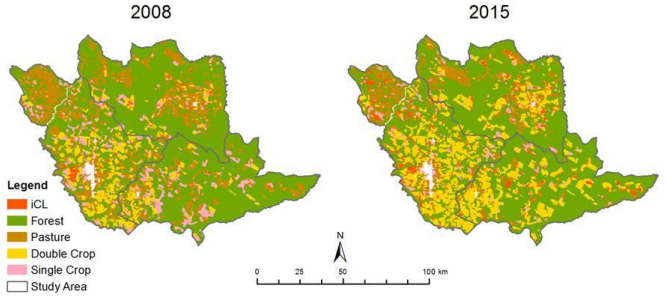
Notícias / Busca de Notícias / Adoção de ILPF chega a 11,5 milhões de hectares

Notícias

03/11/16 | ILPF

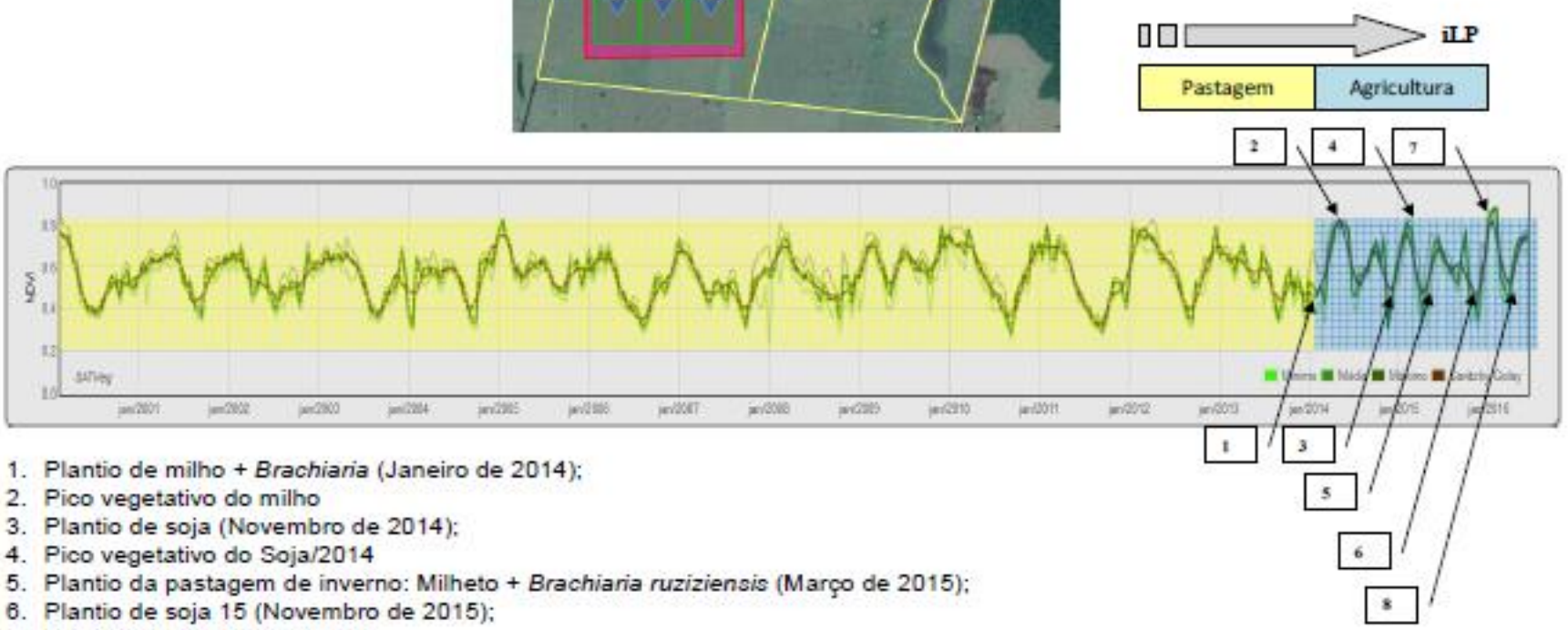
Adoção de ILPF chega a 11,5 milhões de hectares

Mapping Integrated Crop-Livestock Systems (Mato Grosso State)





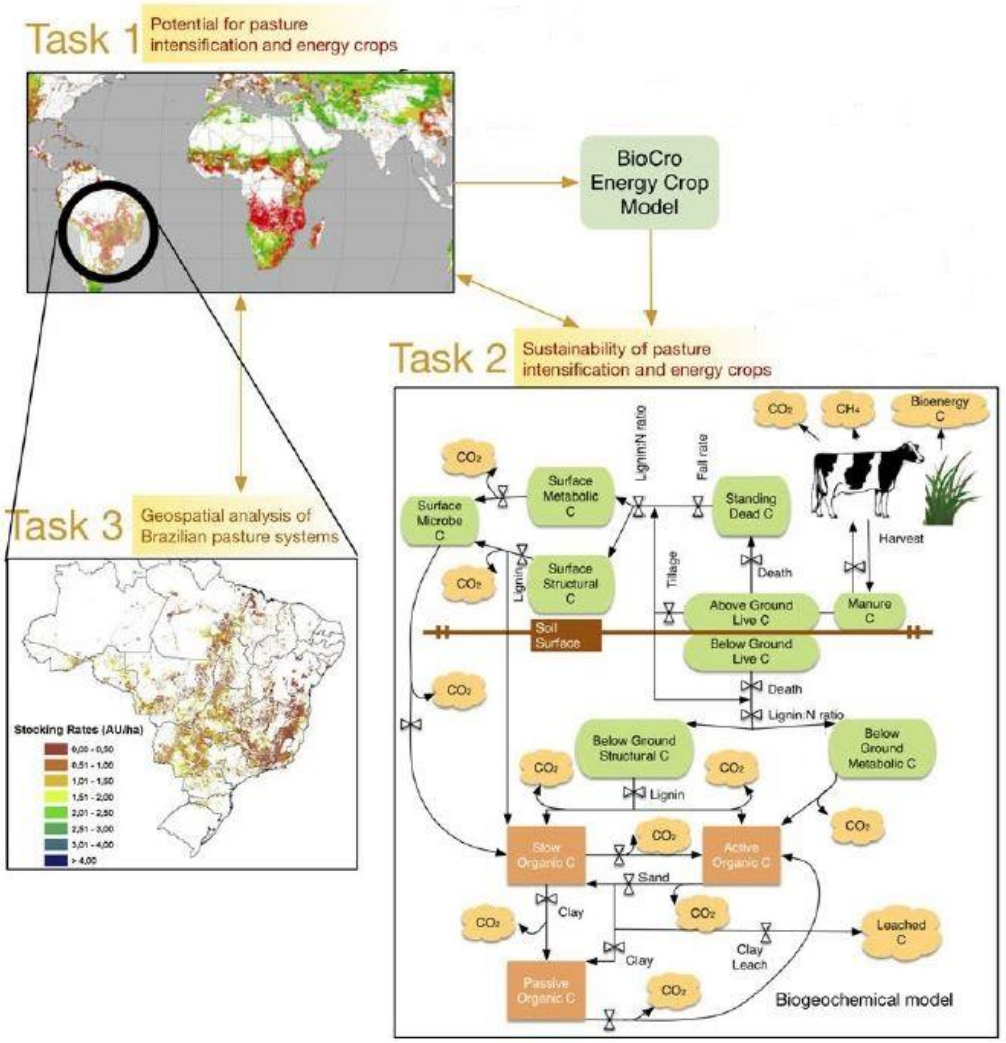




1. Plantio de milho + *Brachiaria* (Janeiro de 2014);
2. Pico vegetativo do milho
3. Plantio de soja (Novembro de 2014);
4. Pico vegetativo do Soja/2014
5. Plantio da pastagem de inverno: Milheto + *Brachiaria ruziziensis* (Março de 2015);
6. Plantio de soja 15 (Novembro de 2015);
7. Pico vegetativo do Soja/2015
8. Plantio da Pastagem definitiva (Março de 2015).

Figura 2. Perfil temporal de índice de vegetação (NDVI), da Quadra 02.

Project
Geospatial & environmental analysis of pastureland intensification for bioenergy



FAPESP
FUNDAÇÃO DE AMPARO À PESQUISA DO ESTADO DE SÃO PAULO

Grant Number: 2014/26767-9

- Remote Sensing
- Modeling

Considerações:

- Crescimento dos sistemas integrados iLPF
- Expansão do volume de dados e informações para processamento
- Melhor calibração de modelos → melhores prognósticos/estimativas/ previsões
- Necessidade de sistemas inteligentes para agilizar tomadas de decisão
- Acesso à tecnologia → melhorias das telecomunicações/tramsissão de dados → inclusão digital

Limitações:

TIC Domicílios - 2016

Domicílios

A - DOMÍCILIOS QUE POSSUEM EQUIPAMENTO TIC

A - DOMÍCILIOS QUE POSSUEM EQUIPAMENTO TIC
Total de domicílios

Percentual (%)		Televisão	Telefone celular	Rádio	Antena parabólica	Telefone fixo	TV por assinatura	Computador de mesa	Computador portátil	Tablet	Console de jogo
TOTAL		97	93	66	37	29	30	22	29	17	18
Área	Urbana	97	94	67	31	33	33	25	32	19	19
	Rural	93	84	63	70	8	10	7	10	7	7
Região	Sudeste	97	94	68	26	45	40	29	36	22	24
	Nordeste	96	89	63	50	12	16	13	19	14	9
	Sul	98	94	77	37	28	30	21	32	15	19
	Norte	95	92	47	51	11	20	12	20	11	10
	Centro-Oeste	96	94	64	37	25	27	22	28	17	17

- Fonte: CGI.br/NIC.br, Centro Regional de Estudos para o Desenvolvimento da Sociedade da Informação (Cetic.br), Pesquisa sobre o Uso das Tecnologias de Informação e Comunicação nos domicílios brasileiros - TIC Domicílios 2016.

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OBRIGADO!!!

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