

**ADJUSTING
STOCKING RATE
by
FORAGE STOCK**

DSS 3R web

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Instituto Nacional de Investigación Agropecuaria
U R U G U A Y

TEAM



Nicolás BARAIBAR (INIA UY)

Lucía BETANCOR

Santiago FARIÑA

Diego GIORELLO

Germán BERONE (INTA Balcarce)

Martín DURANTE (INTA Concepción del Uruguay)



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VOCABULARY

STOCK, *kg MS/ha*

. Average available biomass across a grazing platform

GRAZING PLATFORM IN USE, *ha*

. Number and Area of paddocks that are available for grazing

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ADJUSTING STOCKING RATE

. Weekly or Bi-weekly changes in the number of animals per unit area of grazing platform

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. Average available biomass across a grazing platform

GRAZING PLATFORM IN USE, *ha*

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ADJUSTING STOCKING RATE

. Weekly or Bi-weekly changes in the number of animals per unit area of grazing platform

TARGET STOCK

VOCABULARY

STOCK, *kg MS/ha*

. Average available biomass across a grazing platform

GRAZING PLATFORM IN USE, *ha*

. Number and Area of paddocks that are available for grazing

ADJUSTING STOCKING RATE

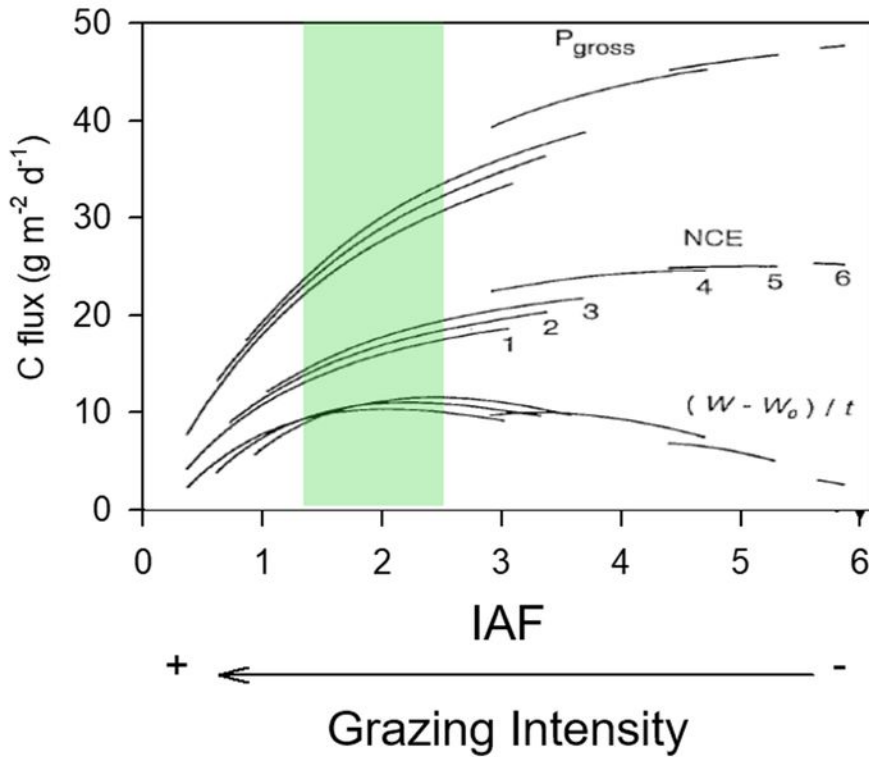
. Weekly or Bi-weekly changes in the number of animals per unit area of grazing platform

TARGET STOCK

TARGET STOCK, *kg MS/ha*

. Optimal range of STOCK (*for that farm, at that moment*)

VOCABULARY



GROSS Photosynthesis

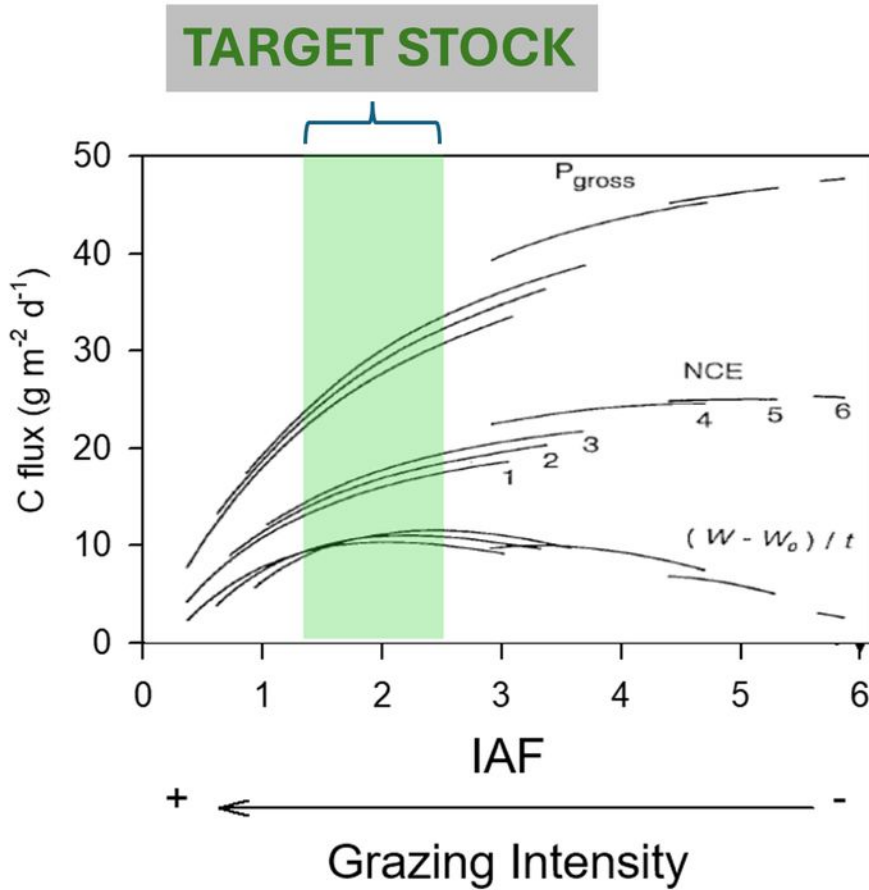
GROSS Growth

NET GROWTH = Animal INTAKE



Parsons *et al.* (1988)

VOCABULARY



GROSS Photosynthesis

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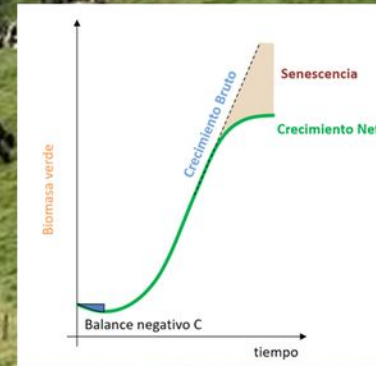
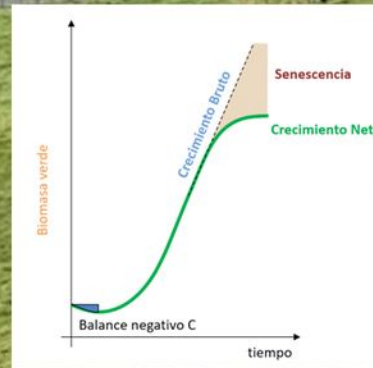
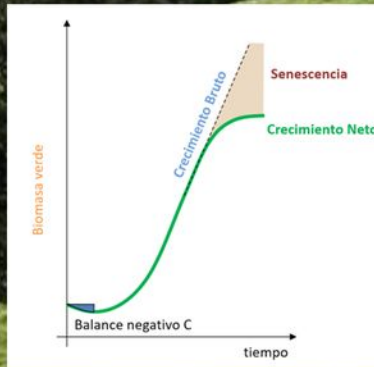
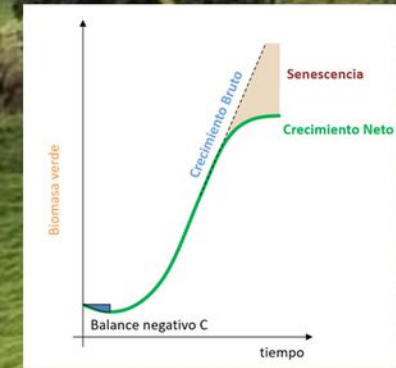
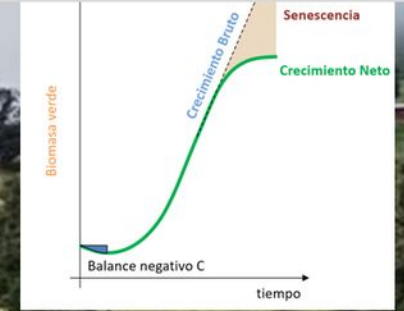
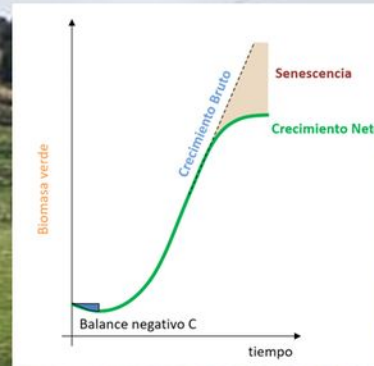
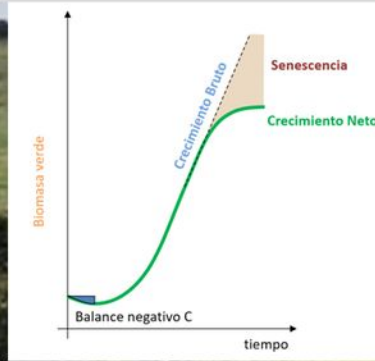


Parsons *et al.* (1988)

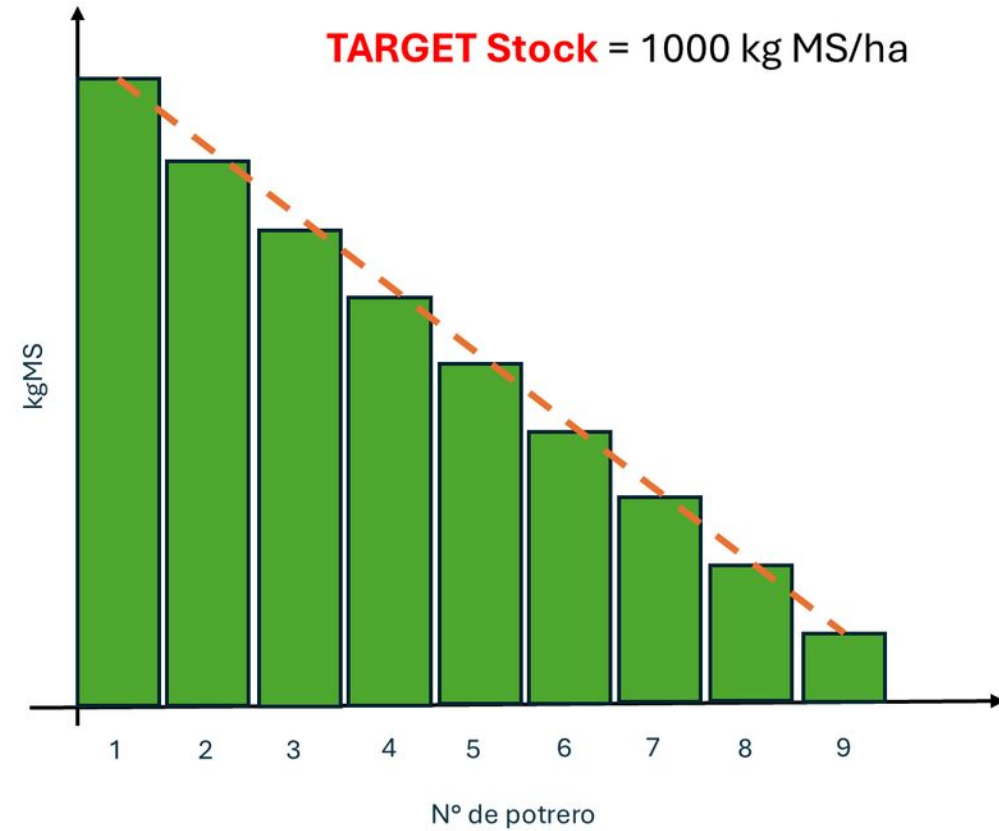
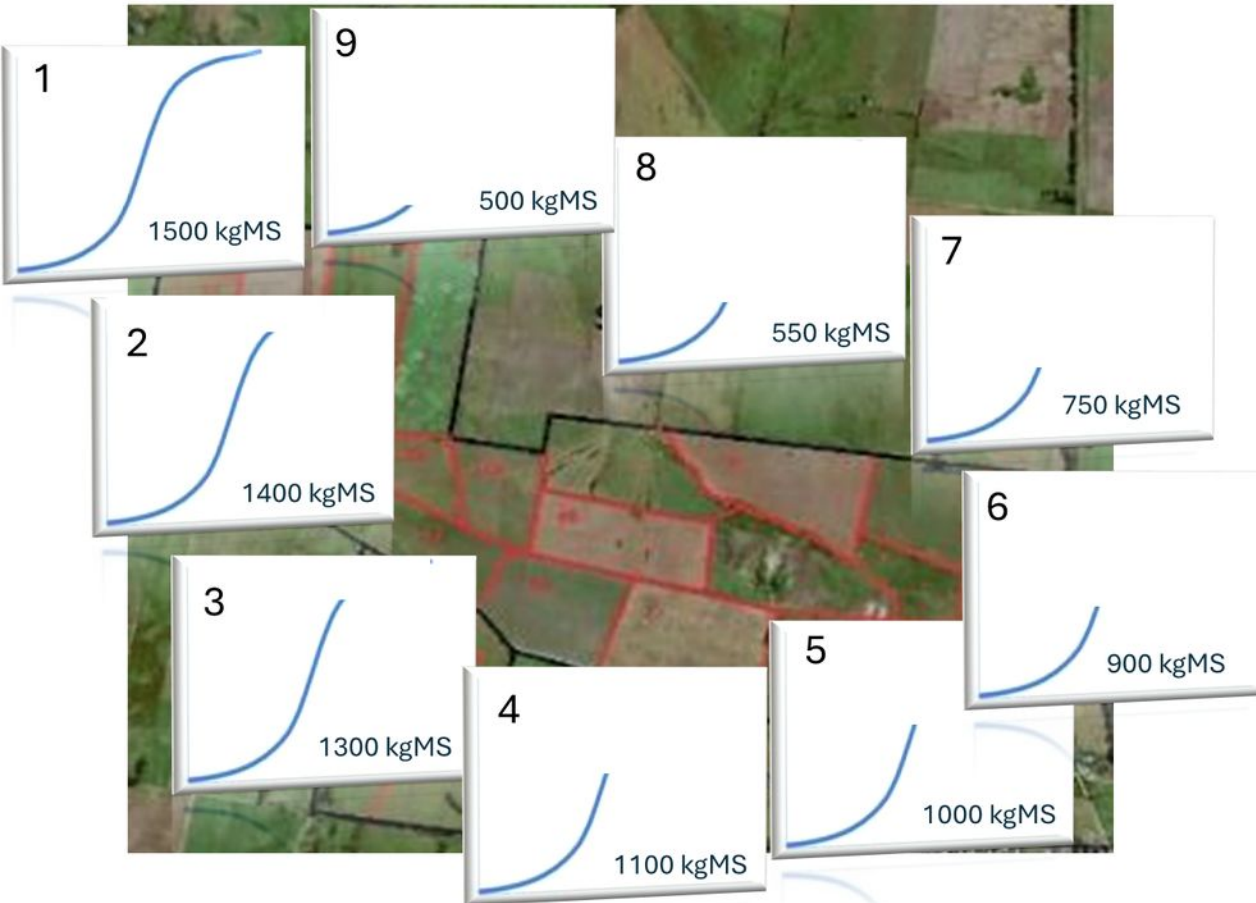
THE CHALLENGE



THE CHALLENGE



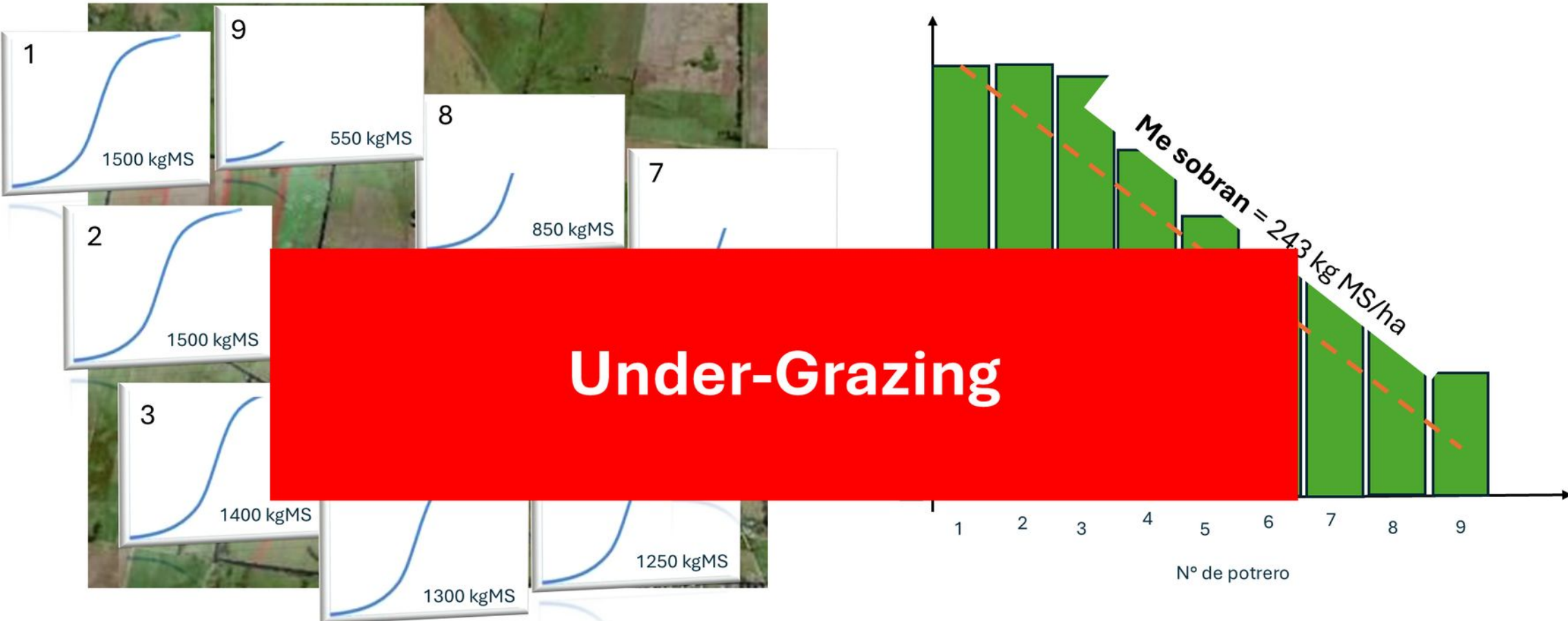
TARGET STOCK - A CONCEPTUAL TOOL



TARGET STOCK - A CONCEPTUAL TOOL

TARGET Stock = 1000 kg MS/ha

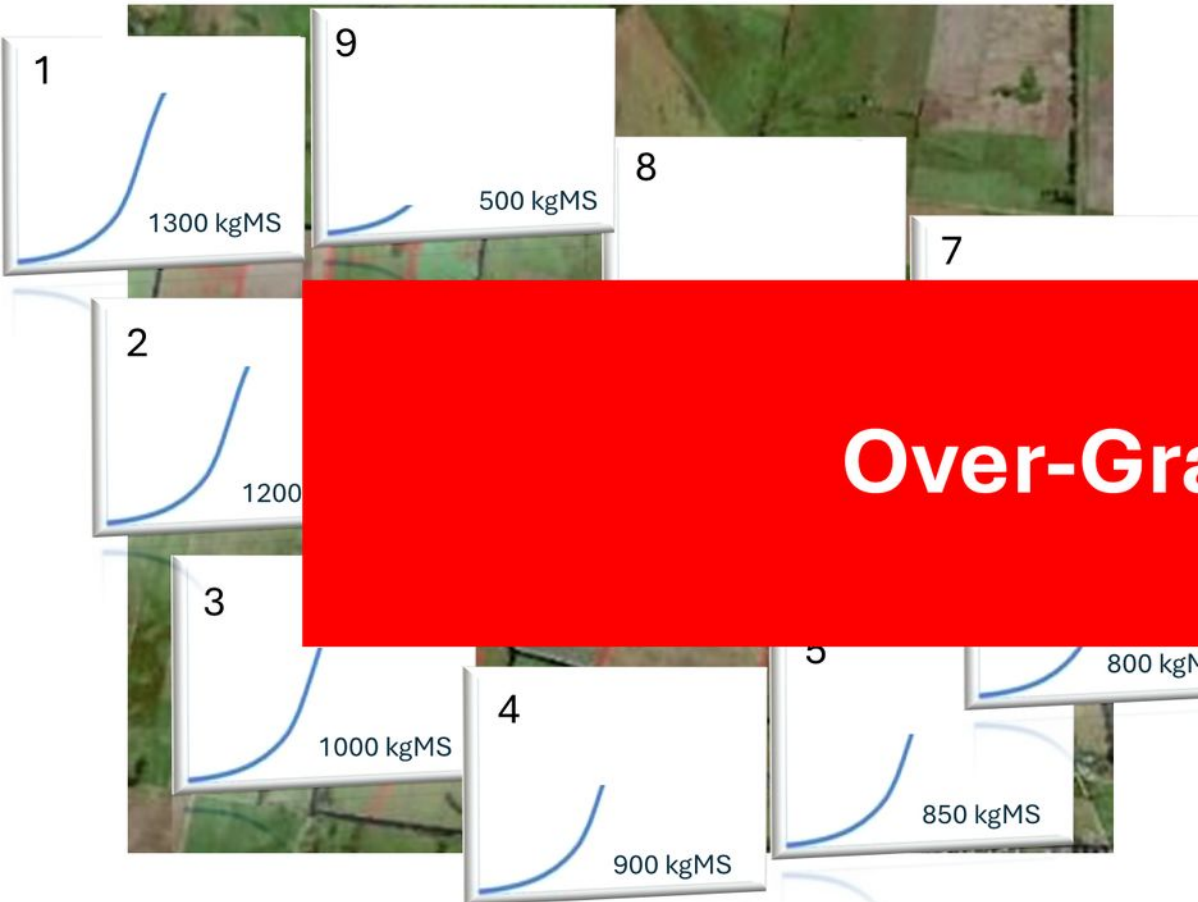
Stock = 1243 kg MS/ha



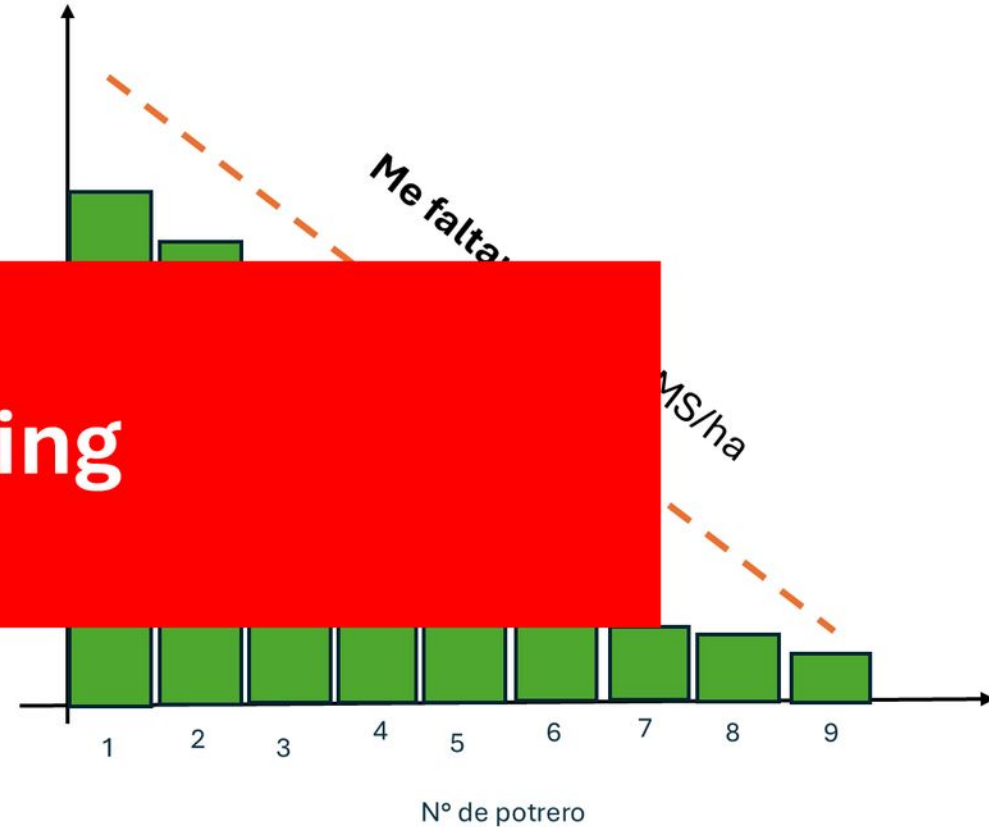
TARGET STOCK - A CONCEPTUAL TOOL

TARGET Stock = 1000 kg MS/ha

Stock = 844 kg MS/ha



Over-Grazing



THE REALITY SO FAR

Evolution of STOCK in farms

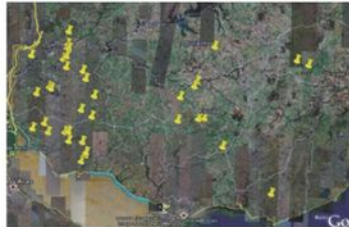
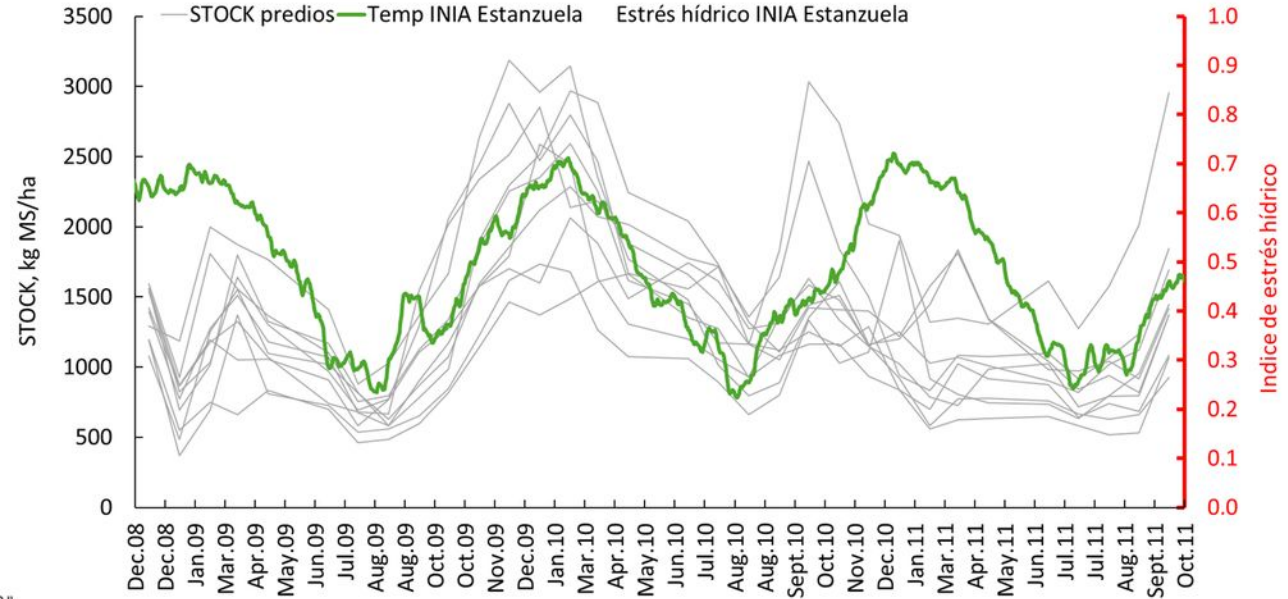
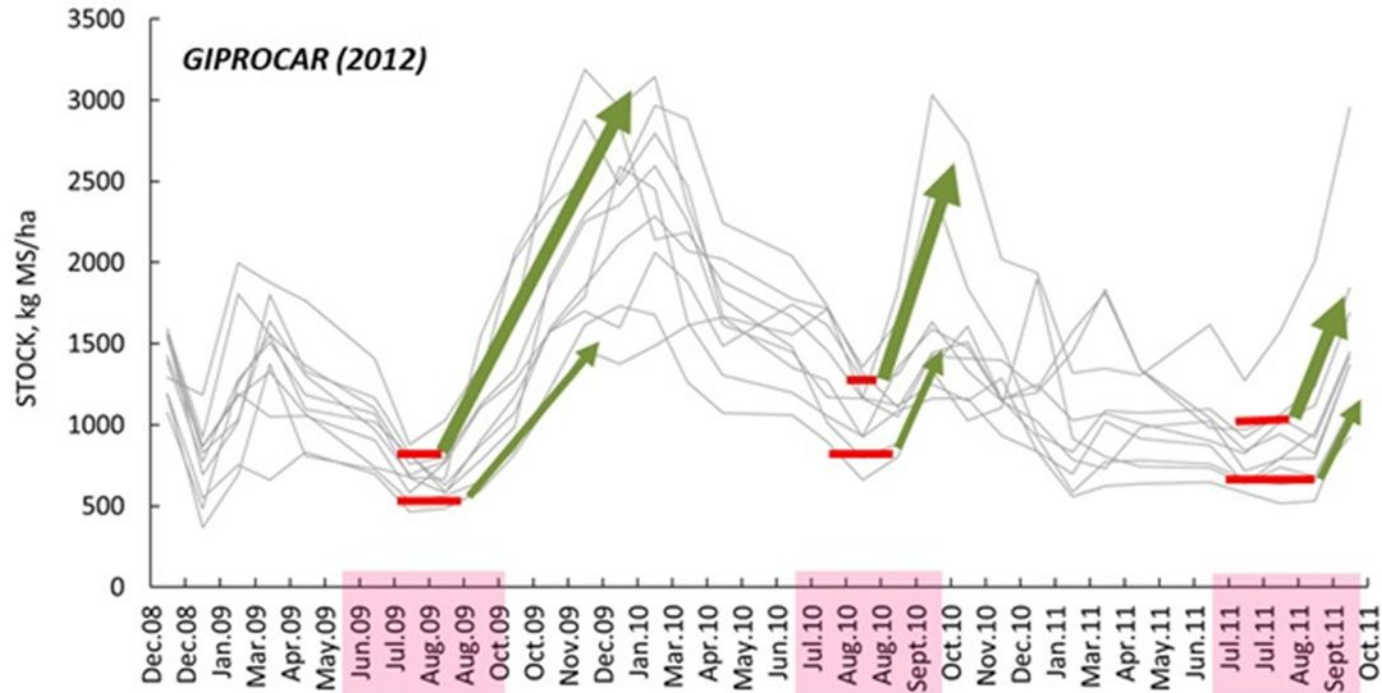


Figura 1. Ubicación geográfica de predios integrantes del GIPROCAR II.

GIPROCAR (2012)



THE REALITY SO FAR



Stocks mínimos más bajos en Julio-Agosto se asocian a inicios de primavera más tardías

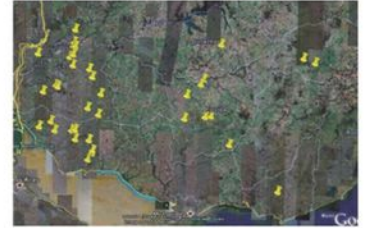


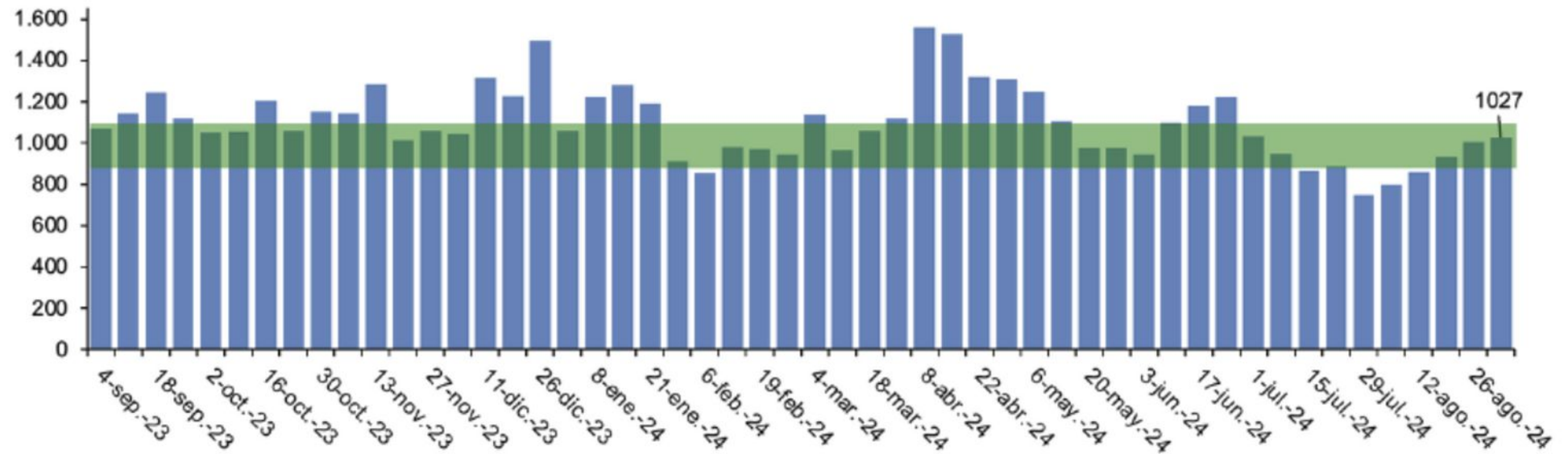
Figura 1. Ubicación geográfica de predios integrantes del GIPROCAR II.

GIPROCAR (2012)

WHAT IS ACHIEVABLE

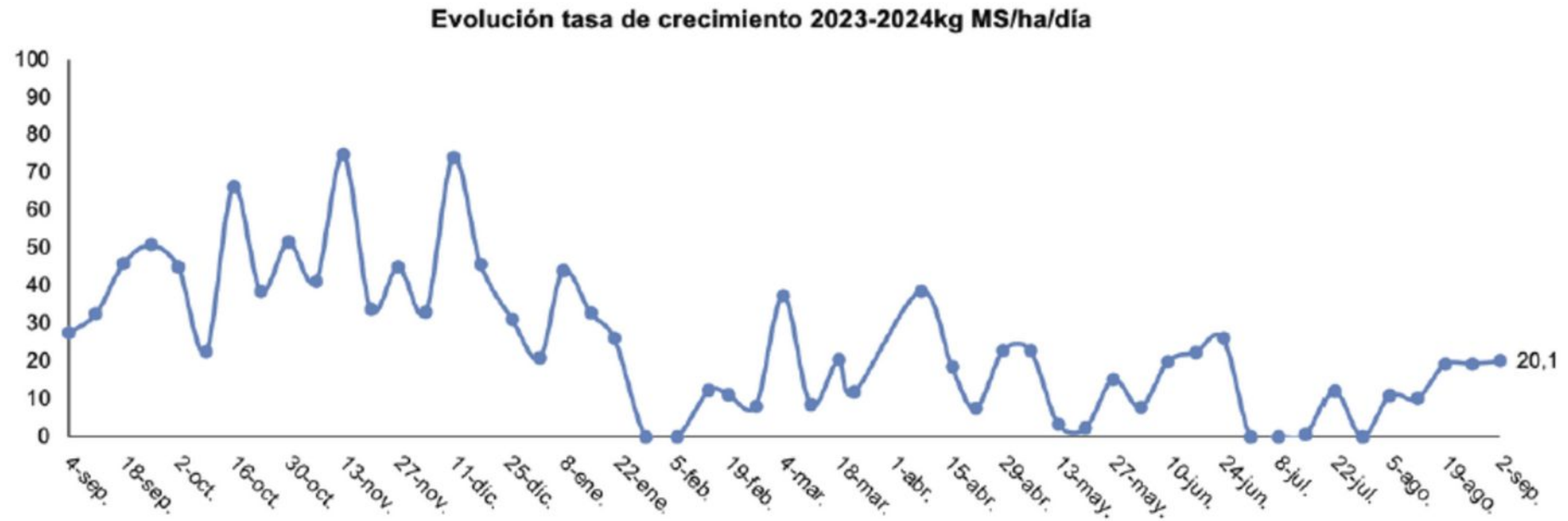
INIA La Estanzuela - Unidad de Lechería

Evolución del stock de pasto 2023-2024kg MS/ha



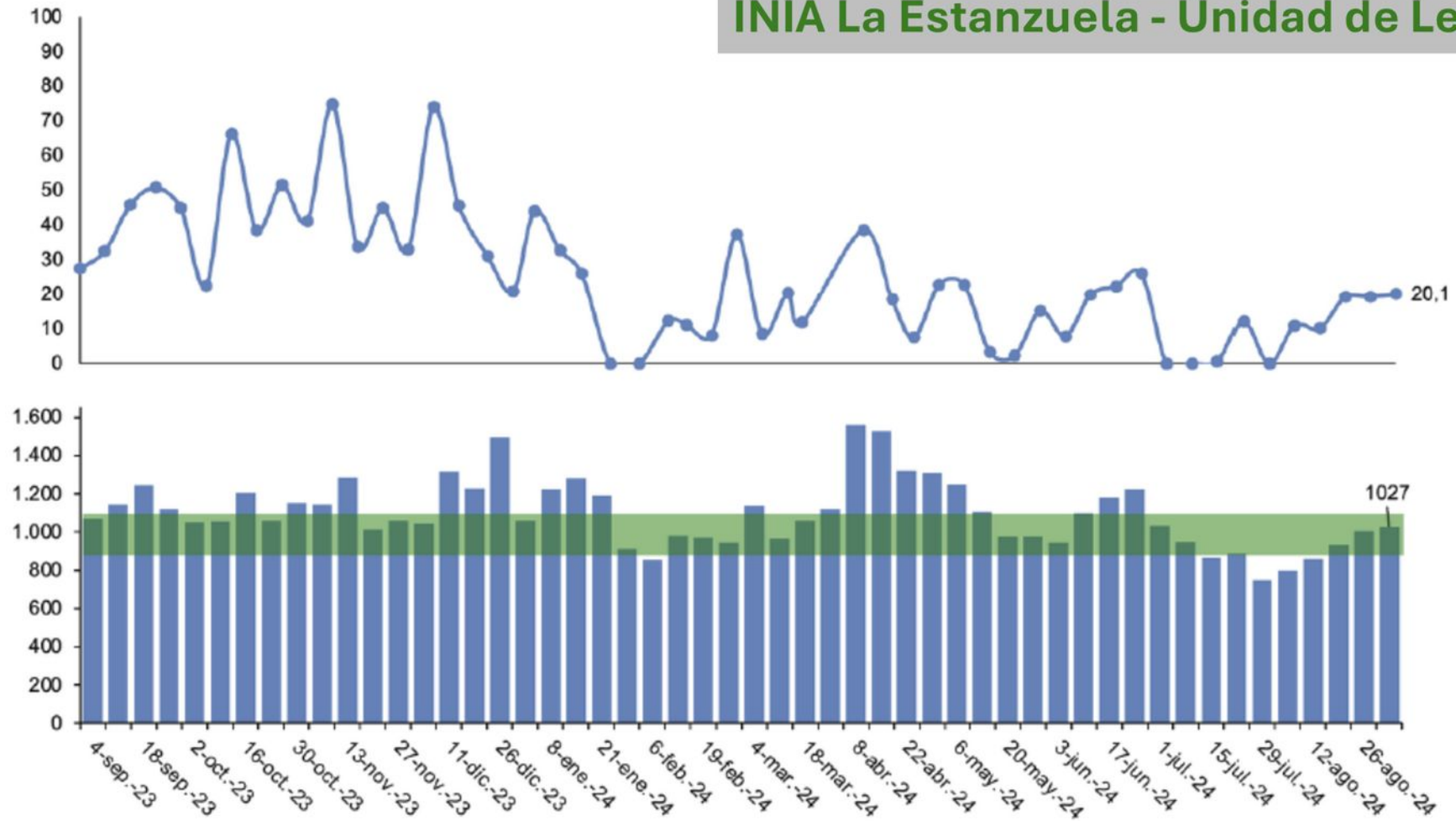
WHAT IS ACHIEVABLE

INIA La Estanzuela - Unidad de Lechería



The relationship between Stock and Growth Rate ...

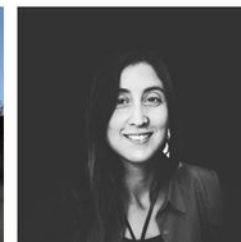
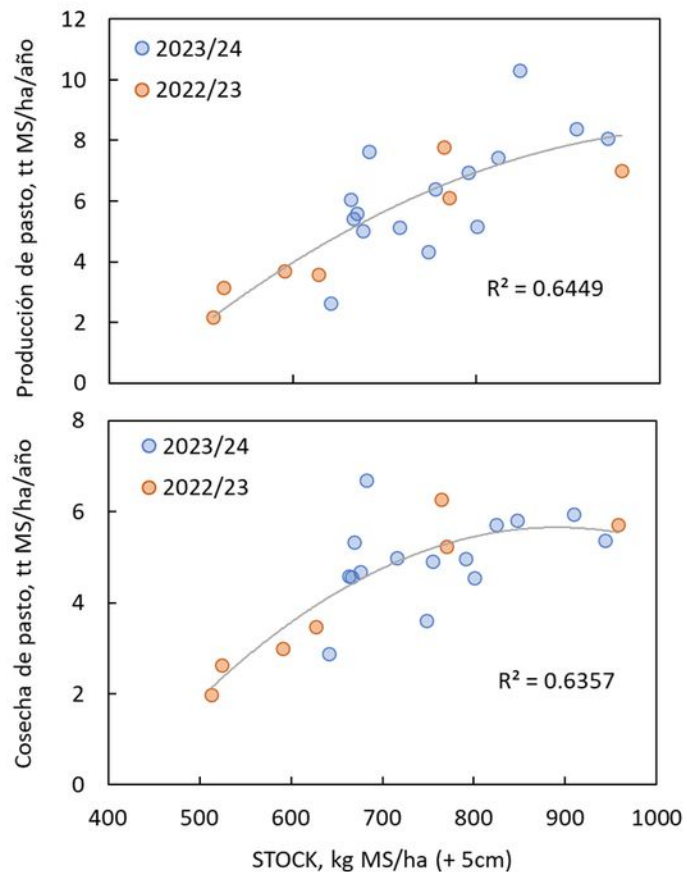
INIA La Estanzuela - Unidad de Lechería



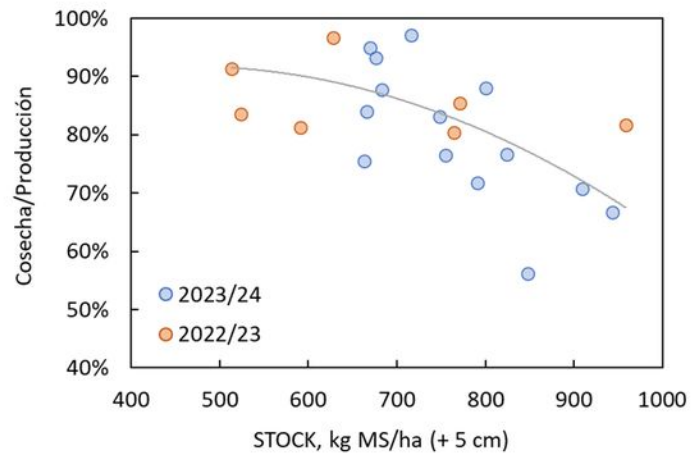
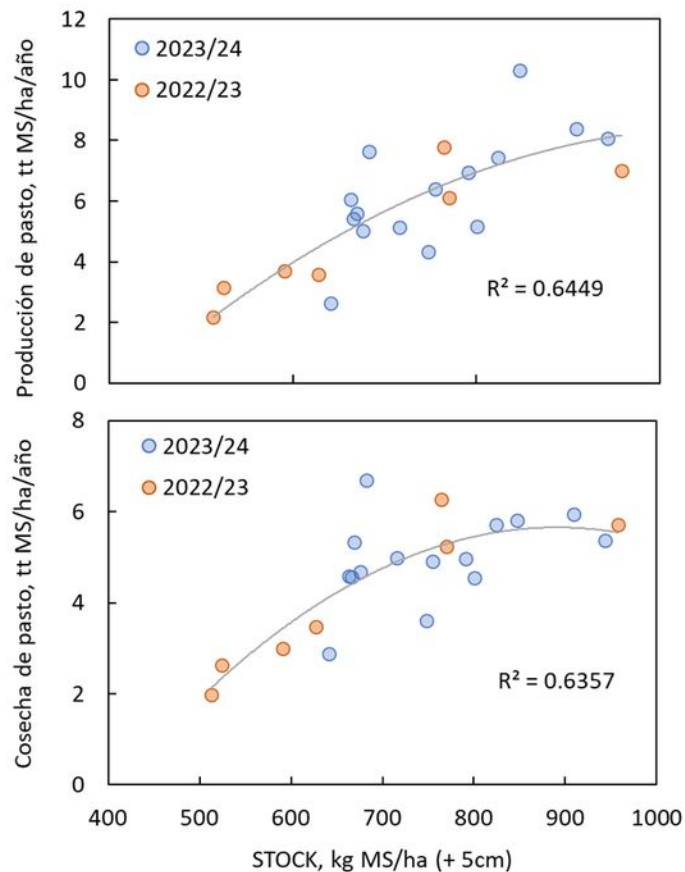
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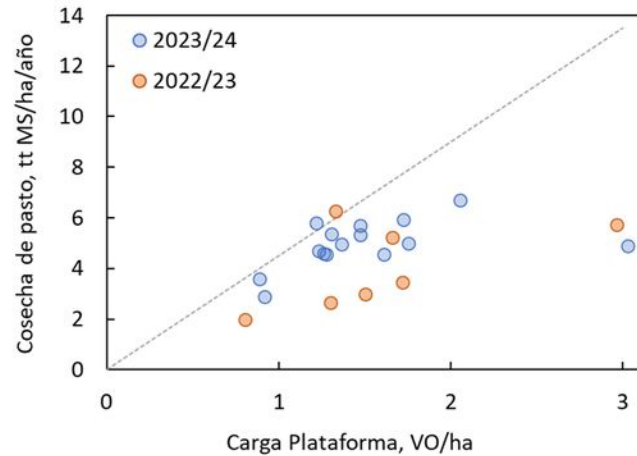
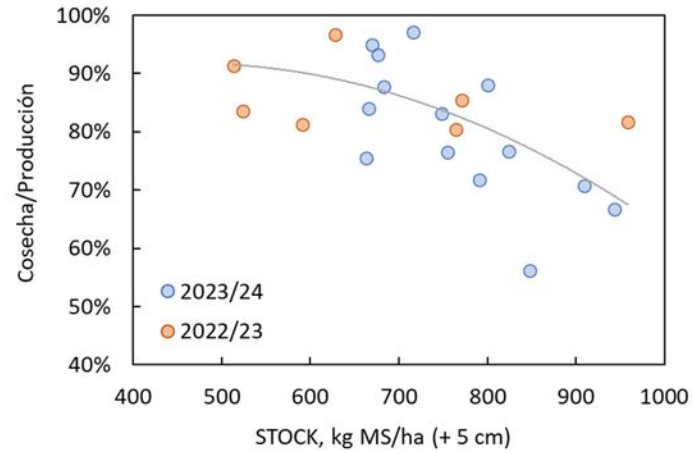
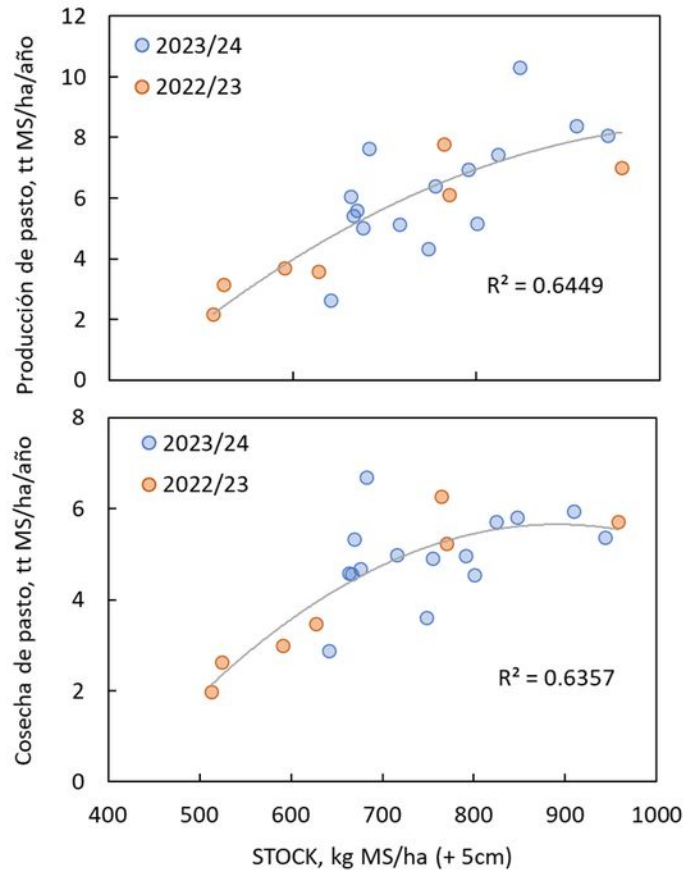
WHAT IS ACHIEVABLE



WHAT IS ACHIEVABLE



WHAT IS ACHIEVABLE



A TOOL to GUIDE GRAZING MANAGEMENT DECISIONS



email

contraseña

Ingresar

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FONTAGRO

gentos



inia
Instituto de Investigación Agraria
URUGUAY

INTA



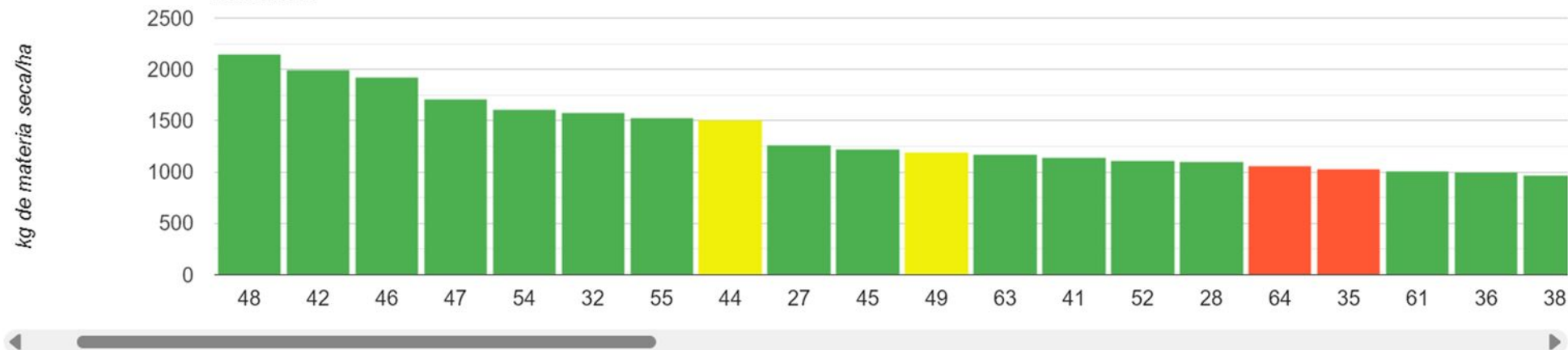
**MICHIGAN STATE
UNIVERSITY**

Ministry for Primary Industries
Manatū Ahu Matua



WHAT IS ON OFFER? → Real-Time Available Biomass Estimation

Distribución del stock
24/07/2023



- En pastoreo
- Pastoreado desde la última recorrida
- Disponible para pastorear

WHAT IS REQUIRED? → Energy-Based Animal Intake Estimation

DMI Calculator — CSIRO Growing Cattle v2.0

Estimates Dry Matter Intake & Energy consumed from grazing data (QuikIntake NRDR model)



File B — Animals performance **required**

Excel (.xlsx) with one row per observation
drop here or click to browse



File C — Areas & Forage **Resources required**

Animal-group ID · Date · Area (ha) · Resource
drop here or click to browse

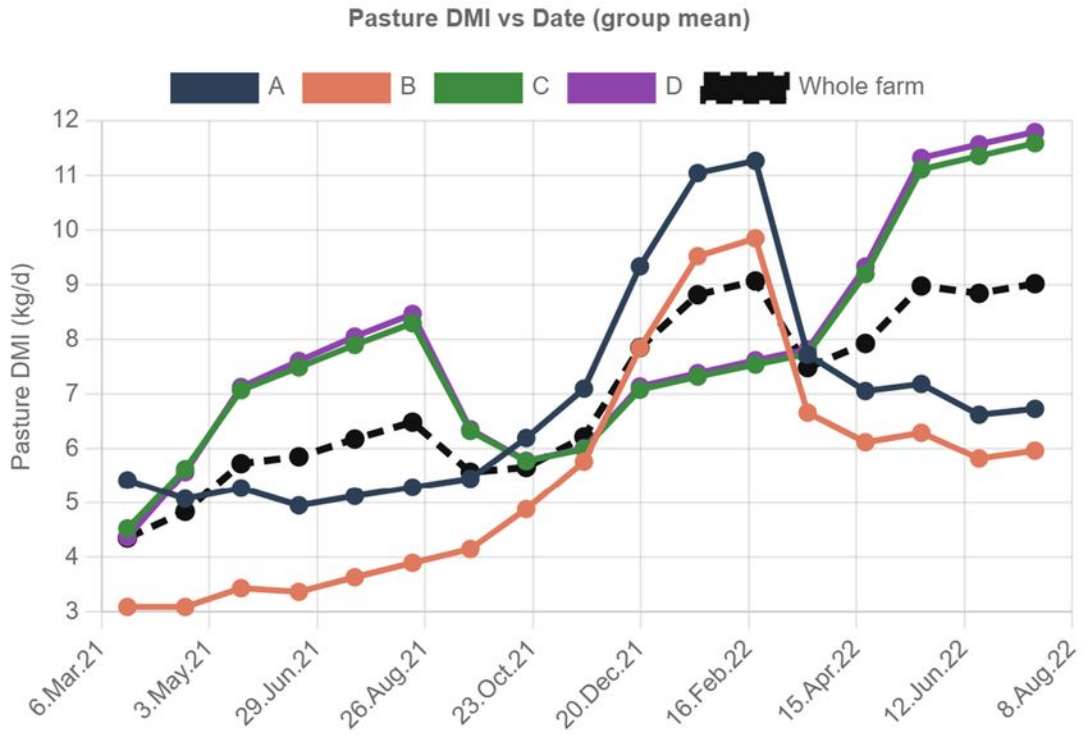


File D — Nutritive value **required**

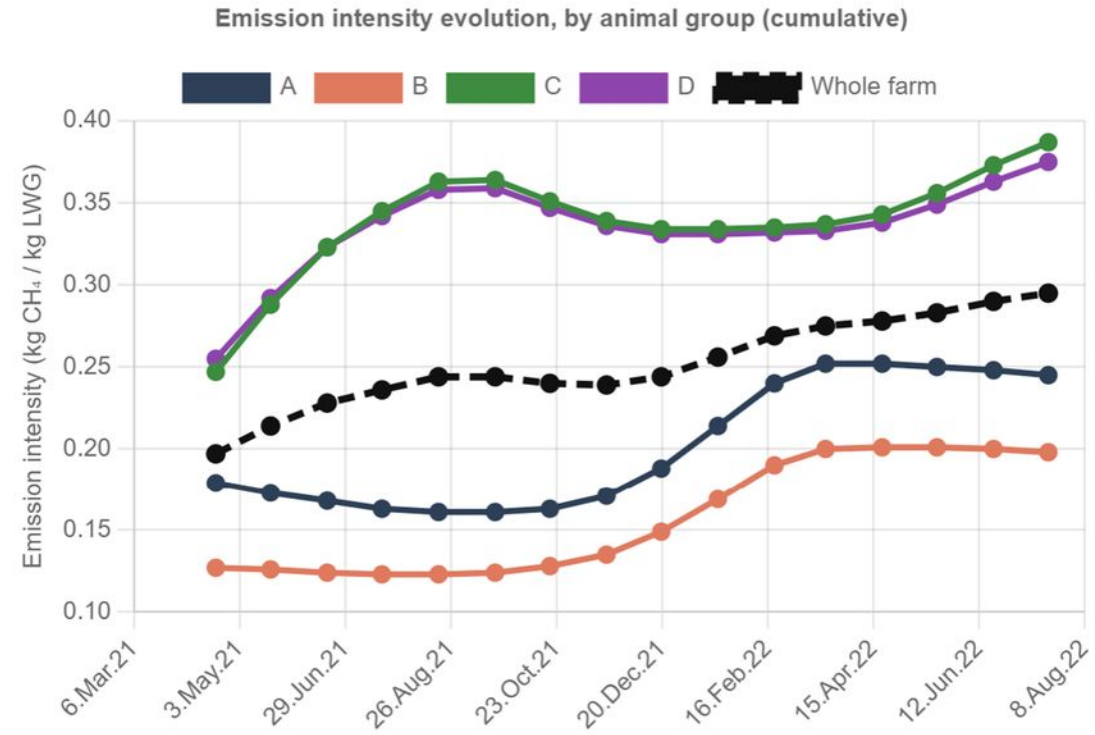
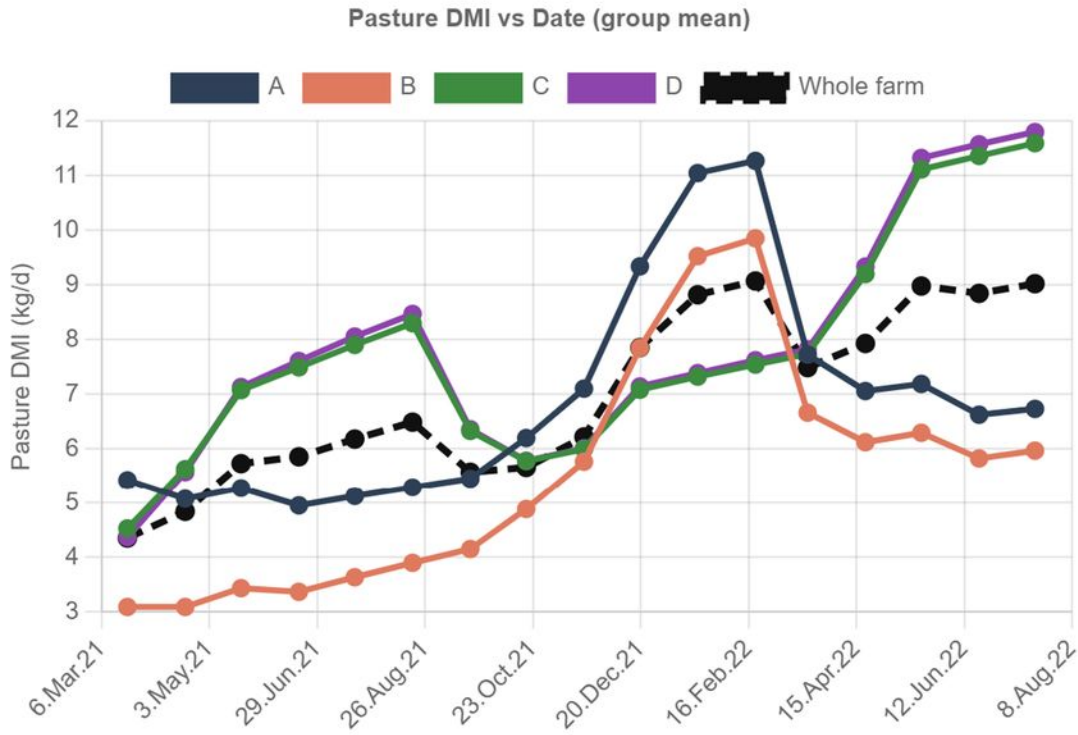
Monthly DMD · FDA · FDN · Proteina per
forage resource
drop here or click to browse

Calculate DMI →

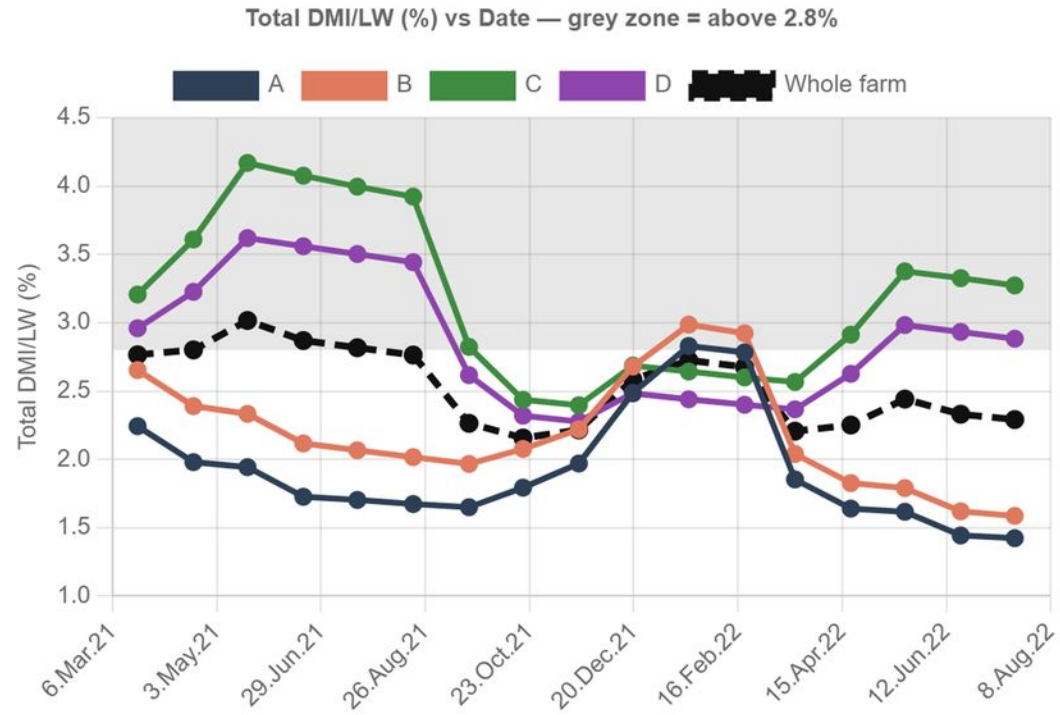
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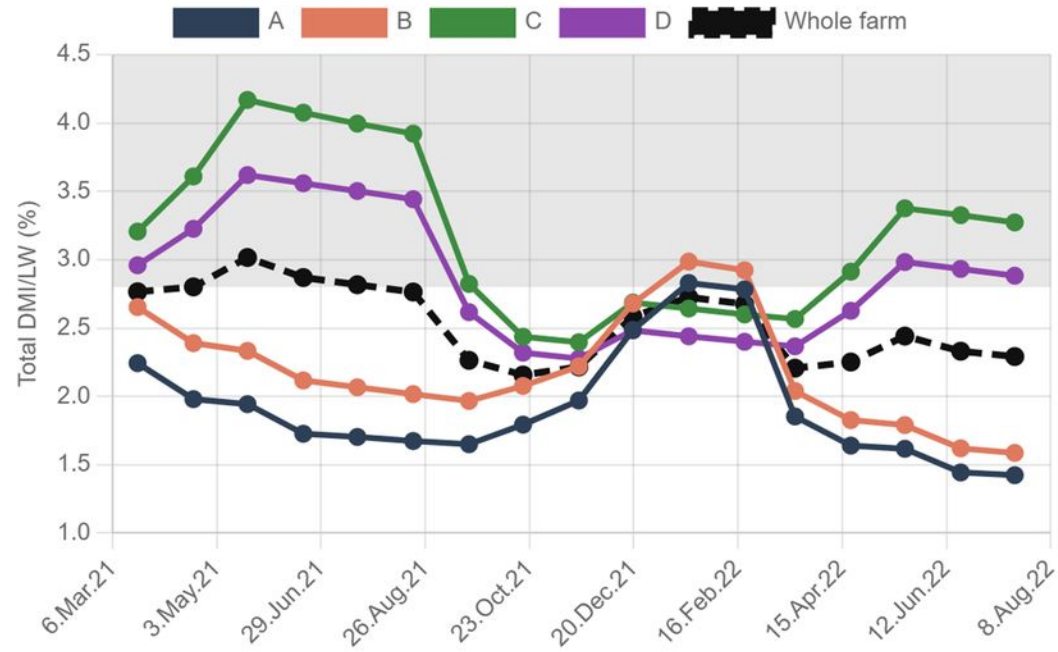


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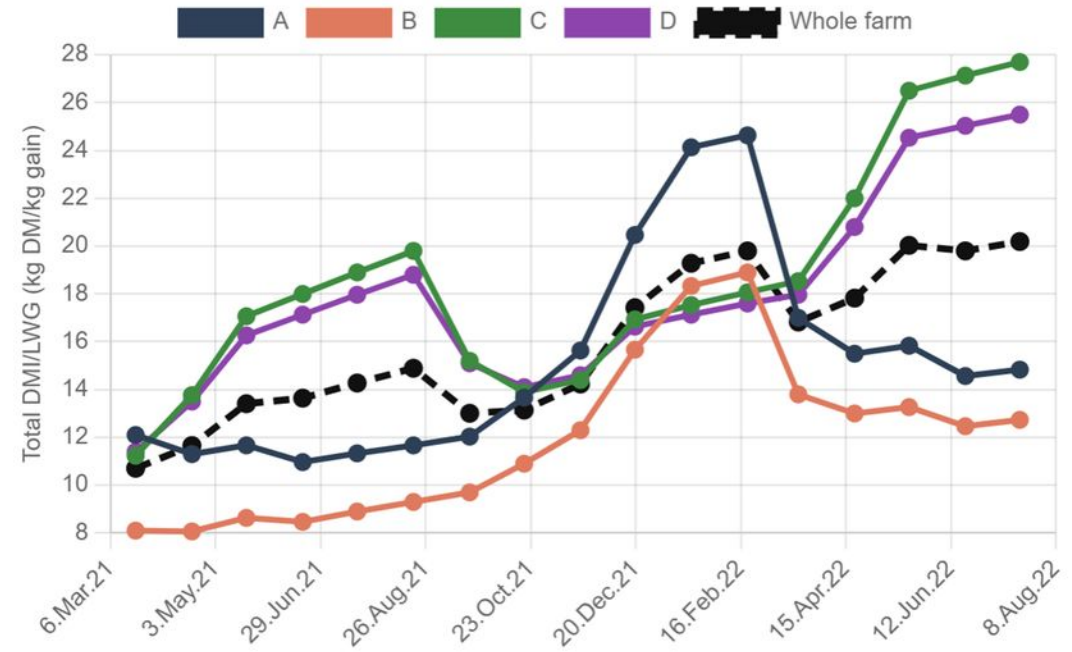


WHAT IS REQUIRED? → Energy-Based Animal Intake Estimation

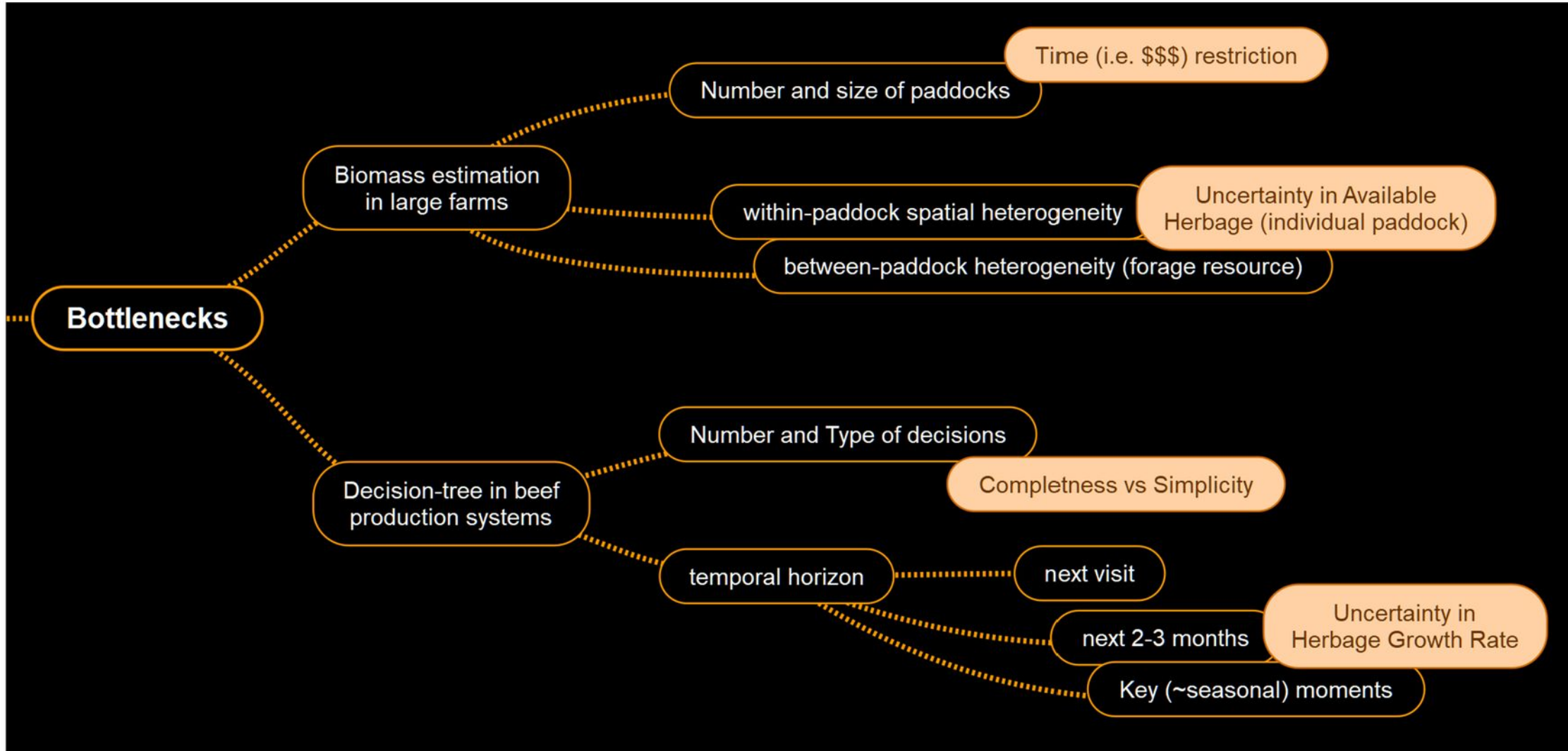
Total DMI/LW (%) vs Date — grey zone = above 2.8%



Total DMI/LWG vs Date — grey zone = below 8

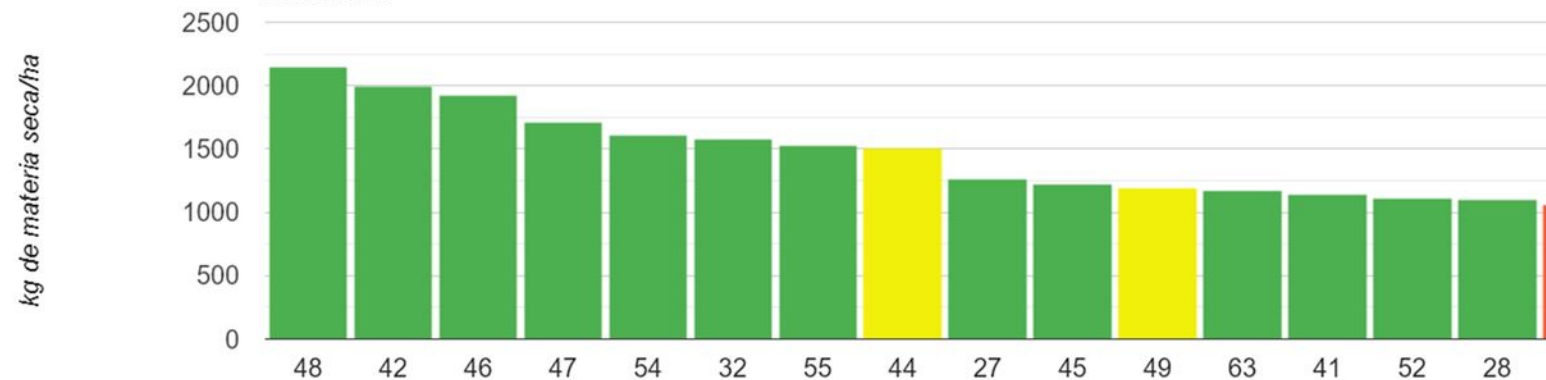


ADAPTING THE DSS to LARGE BEEF-PRODUCTION FARMS

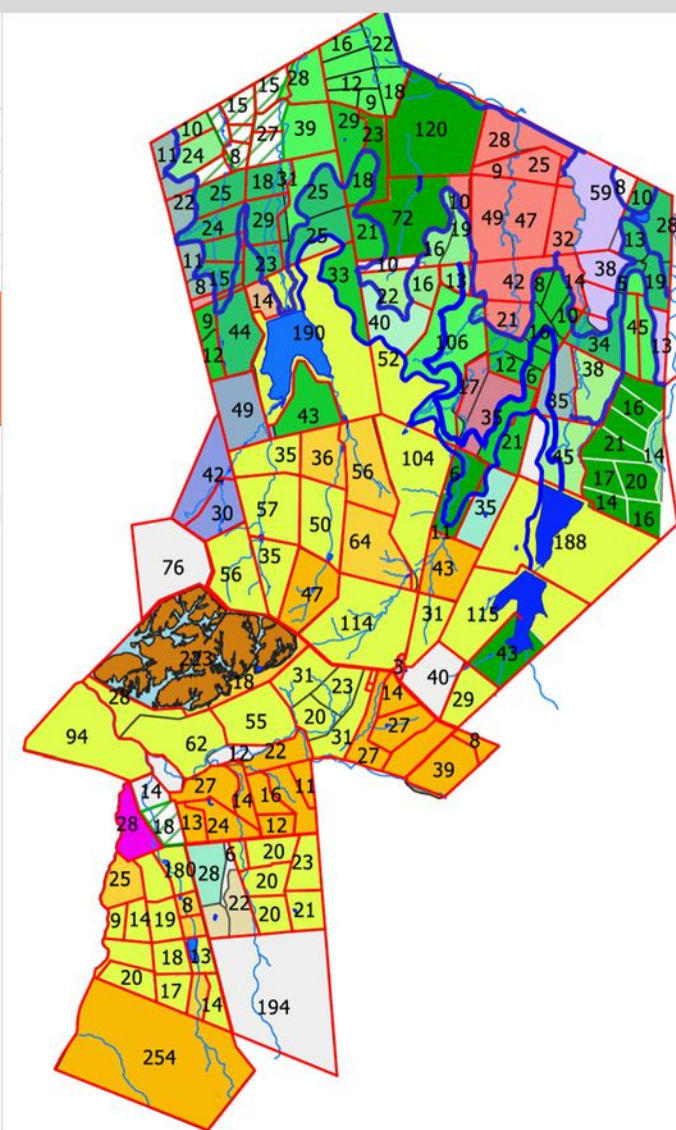


ADAPTING THE DSS to LARGE BEEF-PRODUCTION FARMS

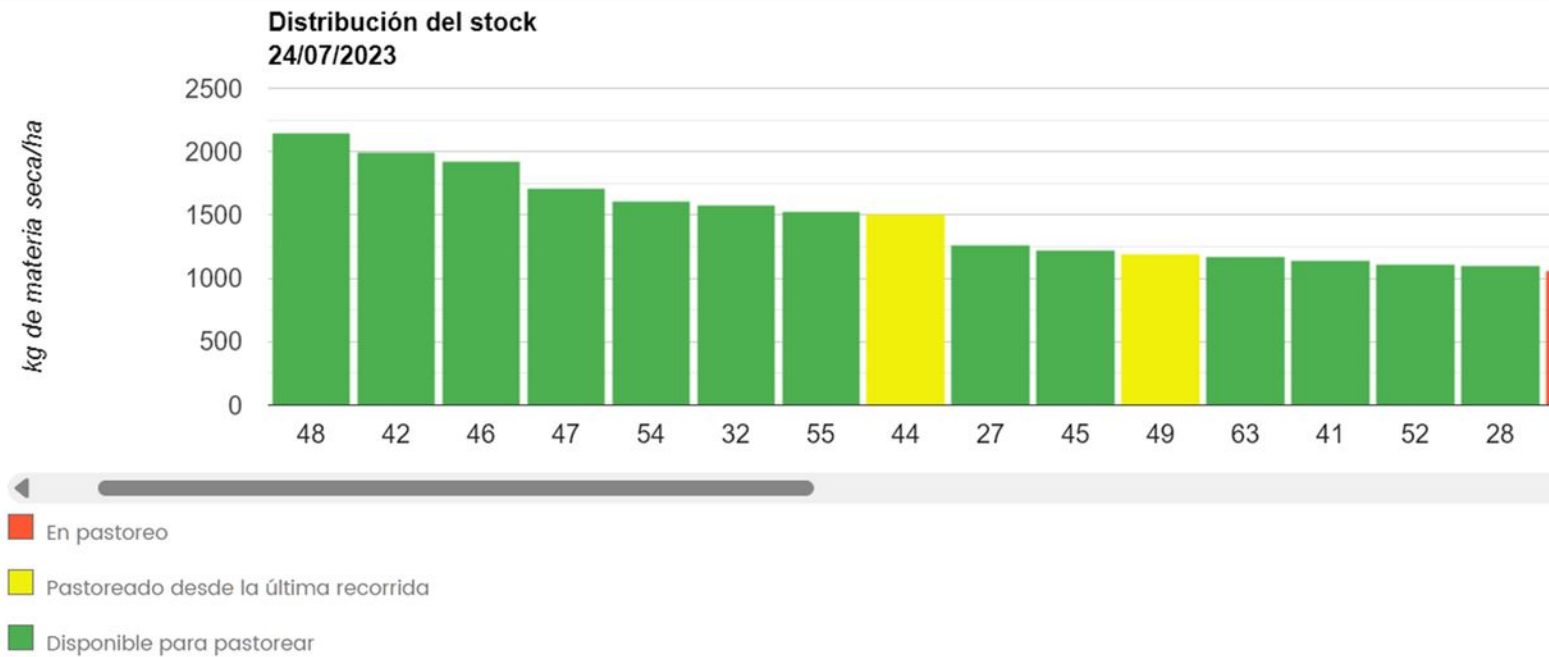
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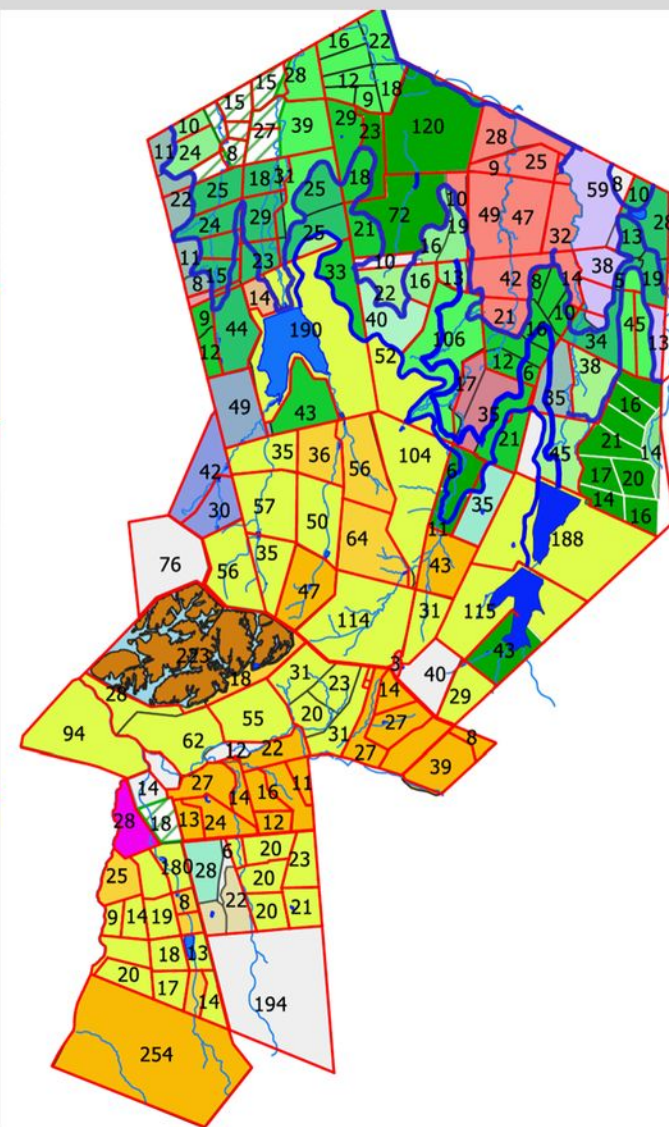


ADAPTING THE DSS to LARGE BEEF-PRODUCTION FARMS



Real-time monitoring of the quantity and nutritional value of available biomass in commercial pasture-based systems: integration of satellite and climate data, models, and field measurements

NEW STUDENT



ADAPTING THE DSS to LARGE BEEF-PRODUCTION FARMS



remote sensing



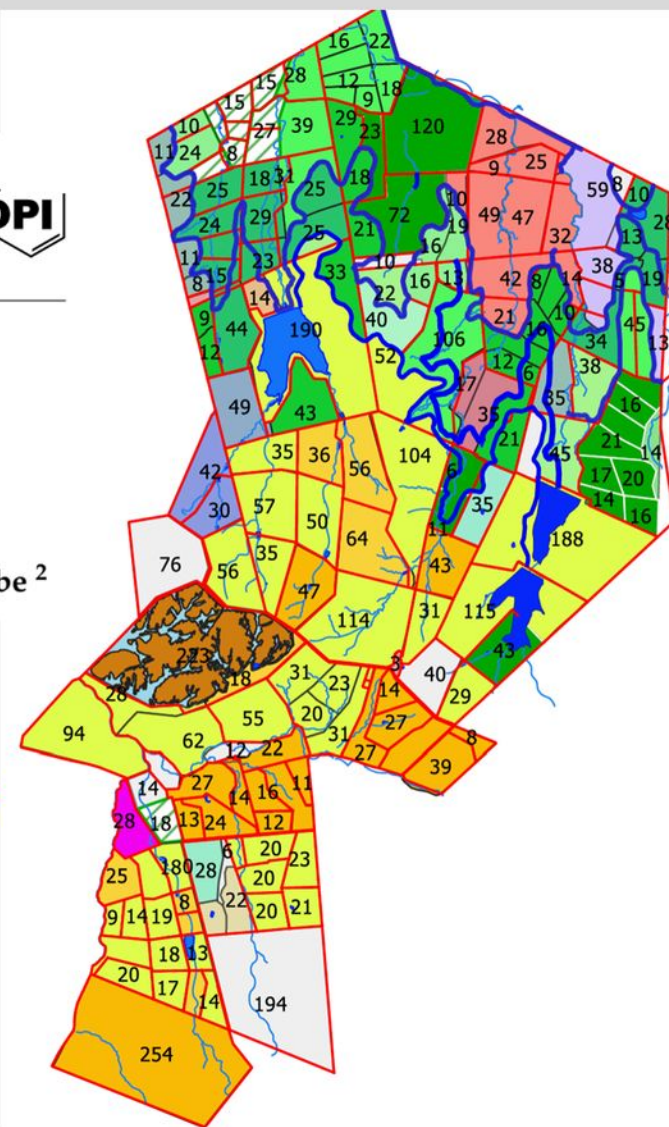
Article

GRAZE-FUSE: Grazing-Informed Integration of APSIM and Sentinel-2 for Pasture Biomass Monitoring

Michael Gbenga Ogungbuyi ^{1,2,*} , Matthew Tom Harrison ¹ , Caroline Mohammed ¹ and Richard Azu Crabbe ²

Real-time monitoring of the quantity and nutritional value of available biomass in commercial pasture-based systems: integration of satellite and climate data, models, and field measurements

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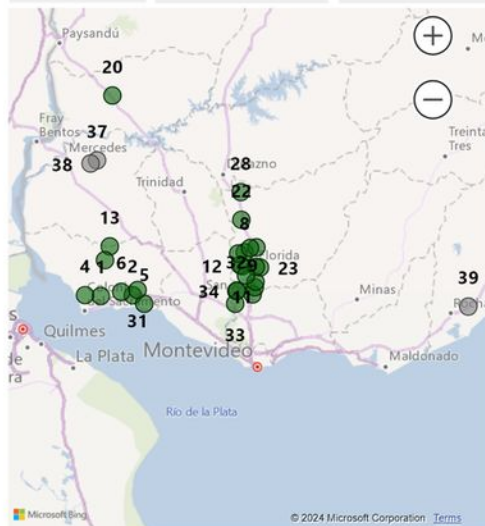
Selección de fechas:

9/27/2023

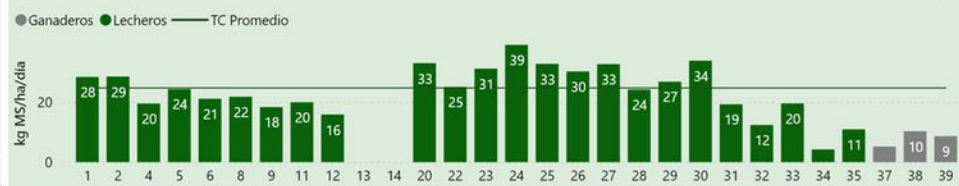
9/30/2024



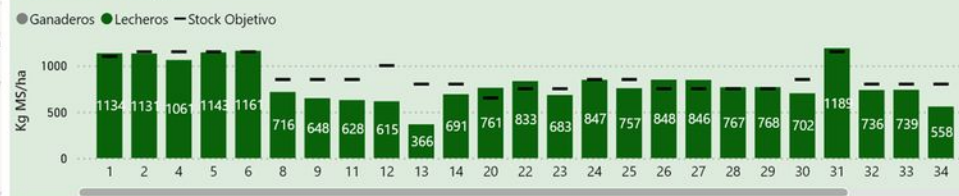
Tasa de crecimiento promedio	Stock de forraje promedio	Remanente promedio
25	947	405
KgMS/ha/día	KgMS/ha	KgMS/ha



Tasa de crecimiento



Stock de forraje



Remanente



LINK



3R Crecimiento Pasturas

Created
4 Apr 2022 13:05

Recorrida de Pastoreo

02-09-2024

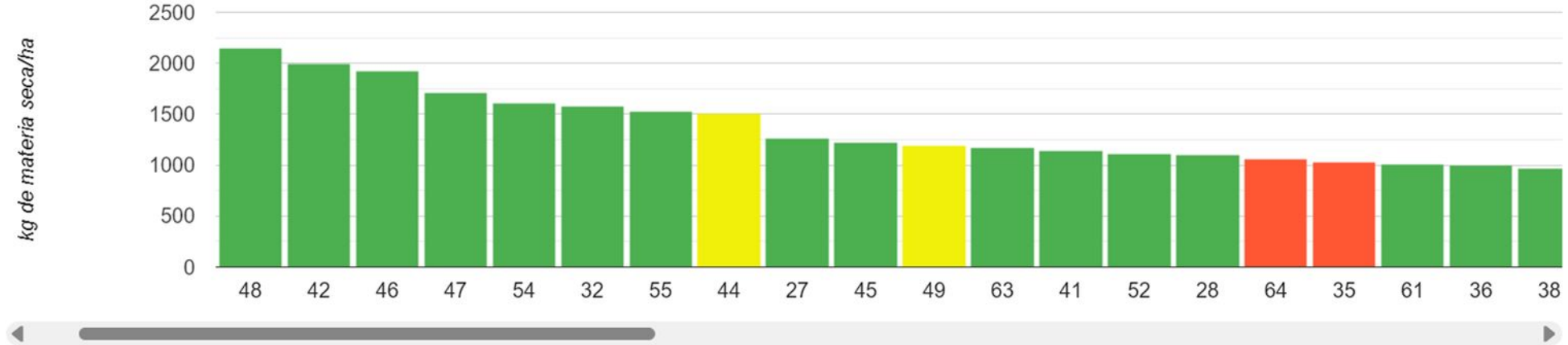


Informe semanal Tambo Estanzuela 02-...
7.9 MB, Adobe Acrobat Document

Open

Save as...

Distribución del stock
24/07/2023

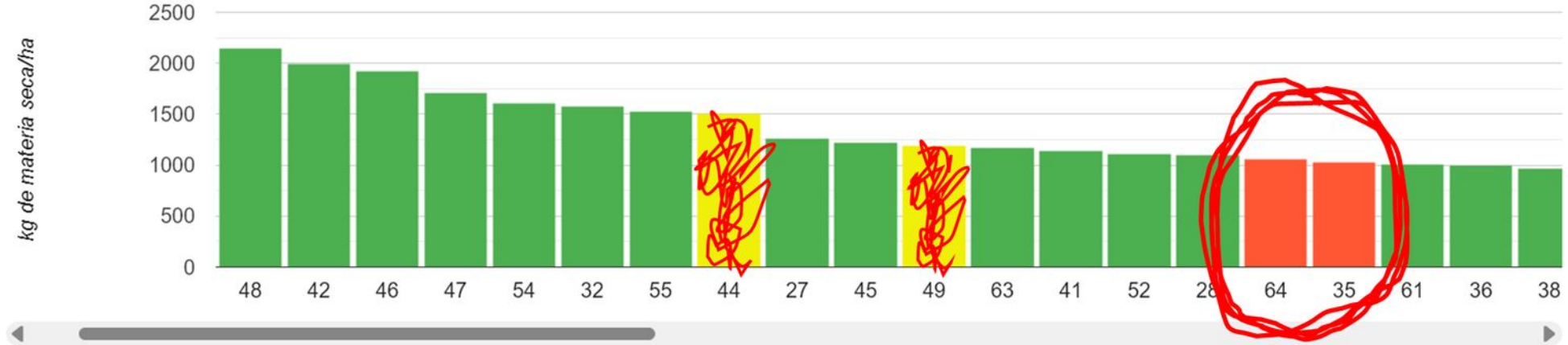


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Consumo de PASTO
previsto

15

Distribución del stock
24/07/2023

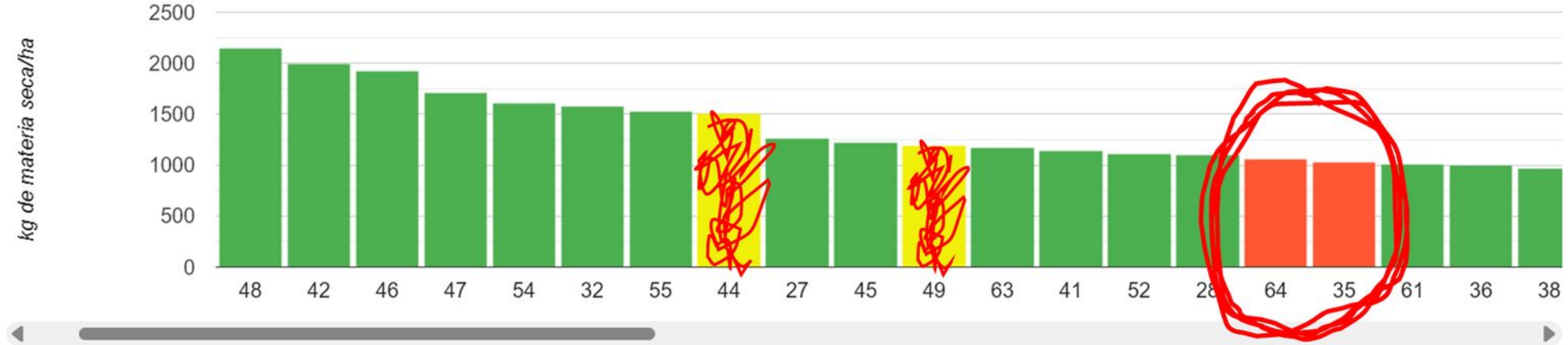


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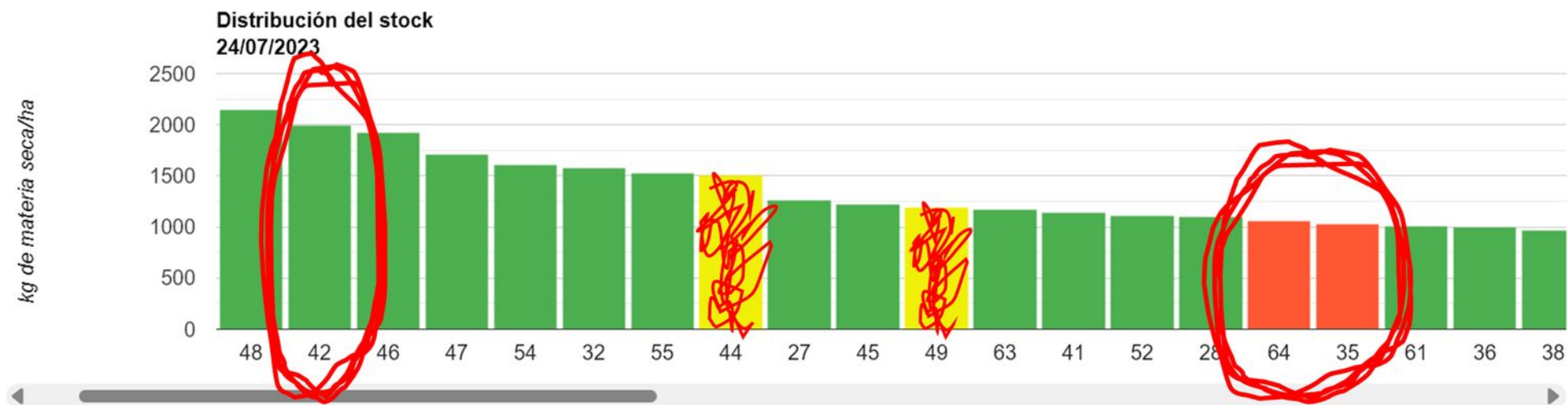
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Consumo de PASTO
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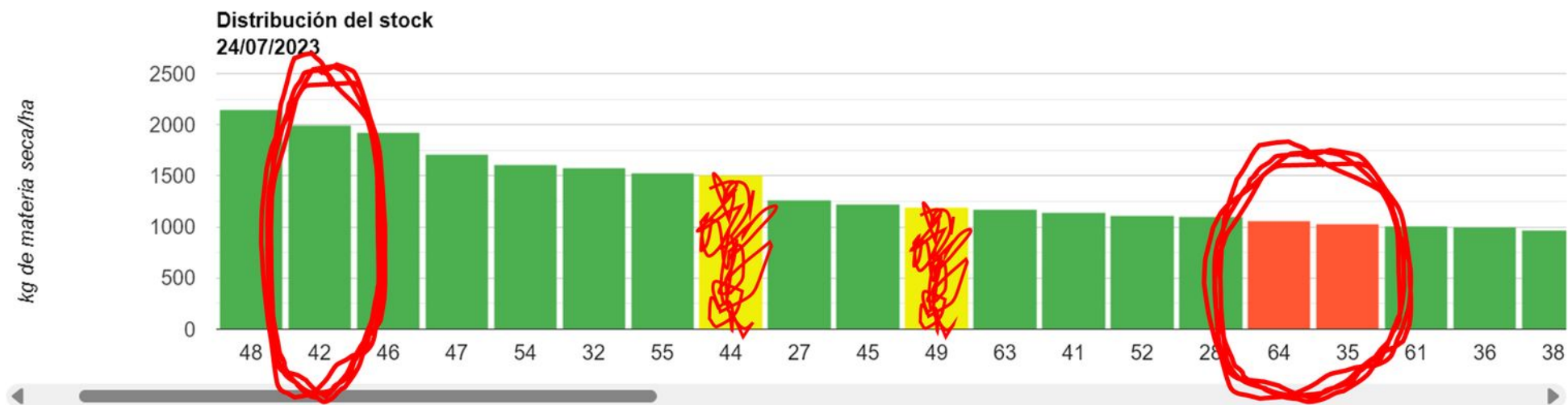
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Consumo de PASTO
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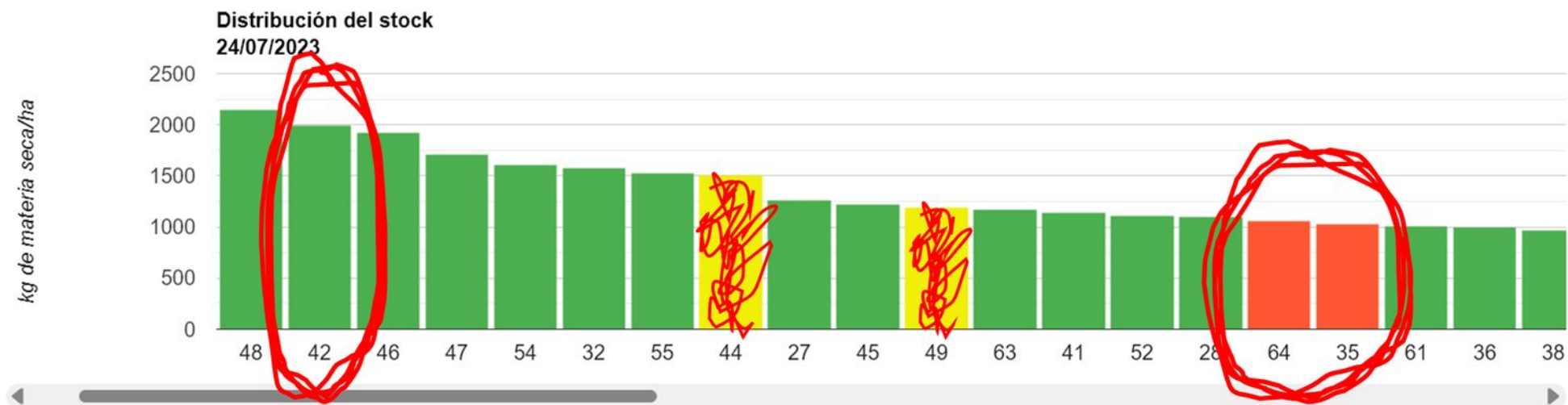
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Consumo de PASTO
previsto

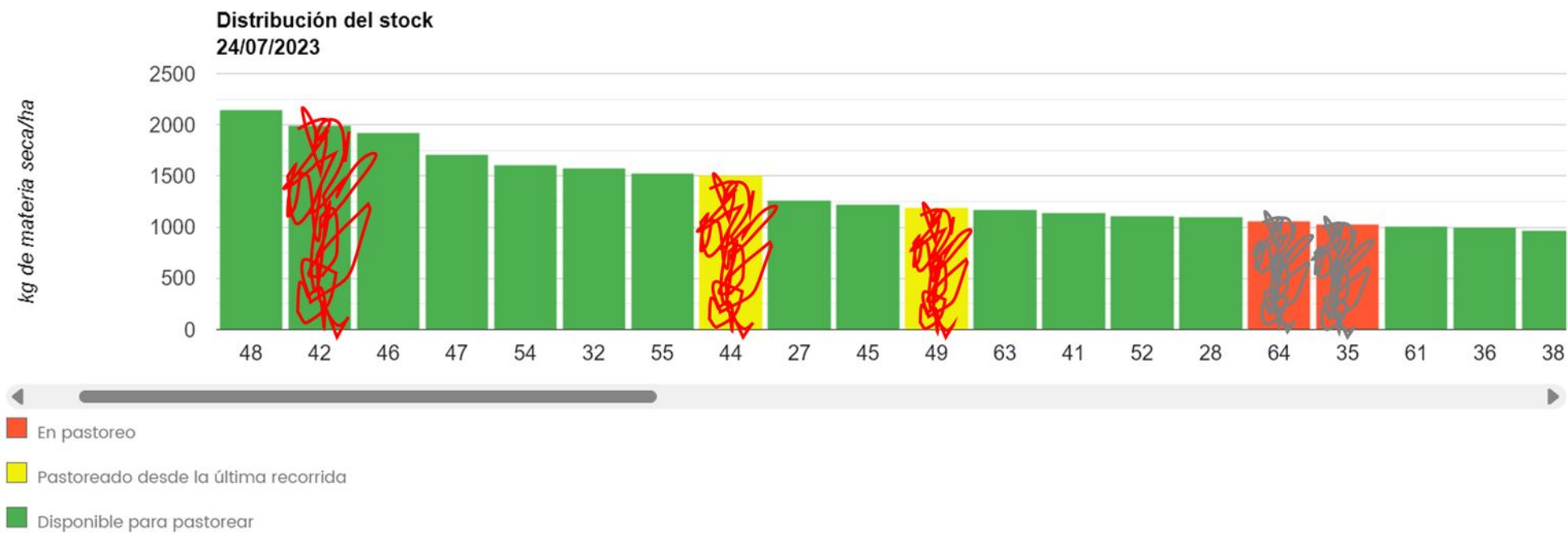
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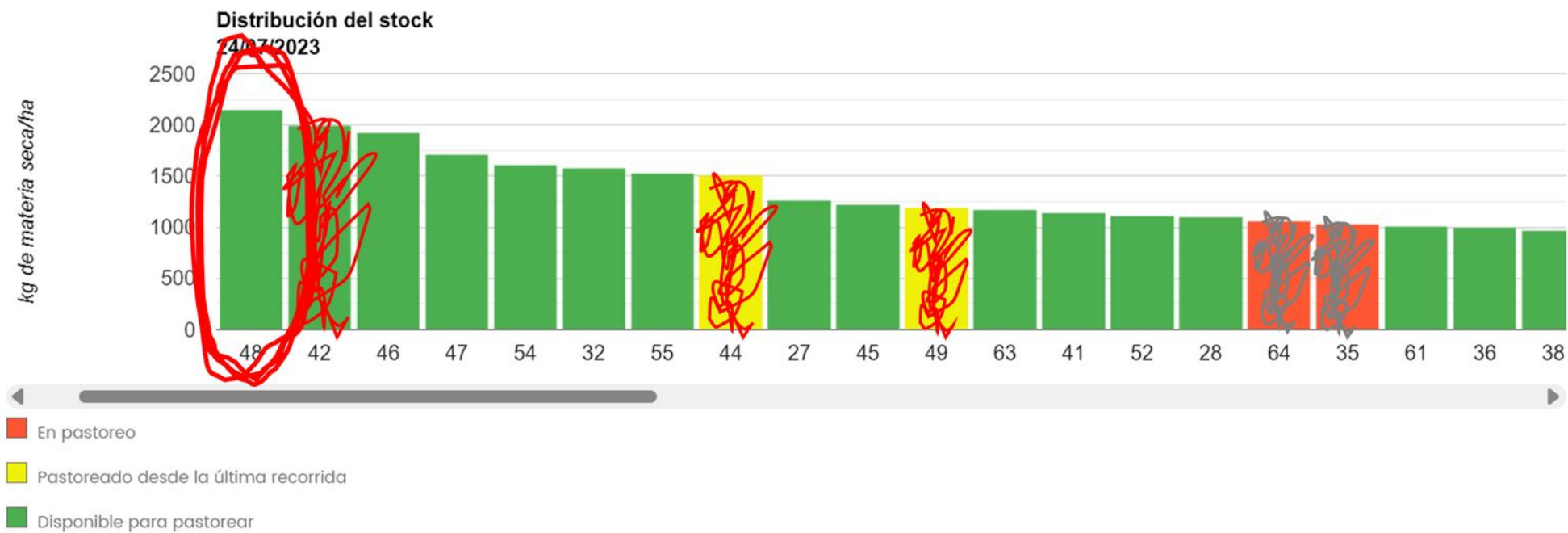
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Consumo de PASTO
previsto

15



Confección de
reservas



Confección de
reservas

AJUSTE DE CARGA - Decisión basada en STOCK

Qué decisiones puedo tomar para ajustar la carga?

AJUSTE DE CARGA - Decisión basada en STOCK

Confección de reservas forrajeras (sobra pasto)

Confección de diferimientos en pie

Suplementación (falta pasto)
(pastoreo restringido)

Ajuste de Ganancia de Peso Vivo esperada
(REMANENTE & FRECUENCIA)

*Qué decisiones puedo
tomar para ajustar la carga?*