EGF Working Group “Grazing”
Grazing in a high-tech world

PISA case study: how an innovation in grazing management can modify all the production system at farm level

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The Brazilian Pampa Biome

PISA is a concept of production system based on sustainable intensification principles.

It is an Extension Project reaching now 1050 small farmers in Southern Brazil.
On average, farmers milk 14 lactating cows, for a total daily milk production of ~150 l. Farms have ~20 ha.

Cows have access to pastures but ~70% of nutrients come from silage + concentrates

Consequences: > cost, > labor (feeding animals), < $ and young abandoning
Science into practice: changing small holders lives...
...by which means? Starting with principles...
Grazing is a time consuming process

We assume that animals do not have enough time to “graze nutrients” due to the classical rationale...
Changing the classical rationale on pastoral systems

Plant growth (primary productivity) → Plant harvest (secondary productivity)

Focus on harvesting efficiency

Courtesy, Sbrissia, A.
Animal oriented guidelines: evaluation process

Phase 1
Scale: bite
Output: sward targets
Main parameter: Intake rate

Phase 2
Scale: tiller
Output: sward dynamics
Main parameter: Efficiency of harvesting

Phase 3
Scale: paddock
Output: sward production
Main parameter: Efficiency of utilization

from reductionism... Spatio-temporal scales ...to production systems

(-) (+)
Grazing behaviour determining pasture targets
Determining pre-grazing targets...

Determining post-grazing targets...

“Rotatinuous” stocking on temperate pastures
“Rotatinuous stocking” on tropical pastures
Stakeholder empowerment

Alexandre Becker
“High-tech” sward stick—home made

Field day PISA Vale do Taquari
Travesseiro, RS, July 2012
Sward growth

Intake rate

Silage & concentrate

Costs & labour

Rotational

C stocks

Milk/ha

Liability & $

Health & milk quality

Soil improvement

Planning short term

Planning long term

Milk/ha

Family & succession

Gross margin

Long term changes:
Farm structure
Diversification
Self confidence
Changing the value of farmers work (father) changes the willingness of young to not leave farms...

...then, high-tech will keep their interest on rural life...
Need for innovation in grazing science...
Thank you!
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Grazing Ecology Research Group:
sharing opportunities in grazing science