FAPESPDAY URUGUAY
November, 13-14th 2025

Livestock production: an economic view of farmers willingness to adopt technology.

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PROYECTO ANII

Motivation

- Uruguay’s animal protein production has two large export sectors and two national oriented sectors.
- Main research focus in livestock and dairy farming.
- How to build competitiveness in an export country?
- Efficiency and productivity.
- Technology adoption.

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FAPESP SÃO PAULO RESEARCH FOUNDATION

Economía Agraria Volumen 20-2018

Technical efficiency measurement: an application on dairy farms in Uruguay

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FARM MANAGEMENT SYSTEMS: TECHNICAL EFFICIENCIES DIFFERENCES AND TECHNOLOGY GAP OF URUGUAY'S DAIRY FARMS° °°

LOS SISTEMAS DE GESTION PREDIAL: DIFERENCIAS EN EFICIENCIA TECNICA Y BRECHAS TECNOLOGICAS EN LOS TAMBOS DE URUGUAY

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Rangeland cattle production in Uruguay: Single-output versus multi-output efficiency measures

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Technical efficiency in beef cattle farming in Uruguay: Insights from census data

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RESEARCH ARTICLE

Agribusiness An International Journal WILEY

Technological frontier in Uruguay's beef cattle production: An analysis of technical efficiency and its main drivers

Emilio Aguirre[1] | Federico García Suárez[2] | Gabriela Sicilia[3]

- The cow-calf sector, is a two output sector?
- Cow-calf subsector has historically shown a lower weaning performance indicator (66%) than what the academia show as possible (80%).
- Low-cost technology is available, but what about its opportunity cost?
- The objective of this study is to estimate, through a survey experiment, the perceived cost of two management practices used to improve reproductive performance: condition scoring (BCS) and temporary weaning (TW).

Metodology

- Technology marginal propensity adoption is estimated using a factorial design of four treatments and three dosis in random blocks.
- Treatments 1 and 3 differs in information.
- Treatments 2 and 4 introduce reimbursment levels over previous information.
- What is offered is technical assistance to adopt the technology evaluated.

Variables to be evaluated in the model

	Information level		
	1	2	3
Treatment		Condition scoring	
T1: CS information	No information	General CS information	Benefits from CS measurement
T2: CS technical assistance hiring	0% reimbursement	25% reimbursement	80% reimbursement
		Temprorary weaning	
T3: TW information	No information	General TW information	Benefits from TW measurement
T4: TW technical assistance hiring	0% reimbursement	25% reimbursement	80% reimbursement

Data and empirical model

- We used two information sources to reach ranchers, IPA and EBPMCN.
- From the statistical analysis and considering a Type-I error level of 0.05, a expected treatment effect of 0.2, and a statistical power of 80%, we requiere 35 to 40 surveys per treatment.
- Blocking based on initial databases, randomization of information, and subsidies. Not based on technology or cross-subsidies.
- 216 effective survey were performed, of which136 ranchers did not perform CS, and 109 did not use TW

Treatment results and average treatment effect (ATE) of condition scoring

Treatment	Connected	Do not use the technology	Treatment acceptance	ATE
T1.1	73	48	13	0.271
T1.2	69	51	13	0.255
T1.3	74	37	7	0.189
T2.1	80	50	11	0.220
T2.2	76	44	8	0.182
T2.3	60	42	14	0.333

Treatment results and average treatment effect (ATE) of temporary weaning

Treatment	Connected	Do not use the technology	Treatment acceptance	ATE
T1.1	72	41	7	0.171
T1.2	73	36	4	0.111
T1.3	71	32	11	0.344
T2.1	77	36	10	0.278
T2.2	77	41	5	0.122
T2.3	62	32	7	0.219

- Regression results of information treatment on covariables shows that for CS:
  - producers know the technology and,
  - adding information do not change adoption response.
- For the TW adding economic information (level 3) increases the propensity to adopt the technology.
- Reimbursment treatments show that adoption is independent of the offered amount.
- The overall results indicate that the technology is well understood and that non-adoption is not constrained by financial costs.

- This is a first approach to the problem using this type of methods.
- Results show that reason to non-adoption are related to opportunity cost of learning and management and not by financial costs.
- Future research paths includes survey experiments for deepening knowledge on technology adoption, willigness to accept incentives to adopt technology or engage in conservation as well as climate change related practices.
- It would be very important to have a regional/international dimension in these approaches.

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Thank you!

Questions welcomed.

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