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Survey of genetic selection on pasture-based dairy farms in the USA and Romania

European Association of Animal Production

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Introduction

- ❑ **Two strategies have been utilized by US dairy farmers to increase profitability:**
 - **Increased production with high input (confinement and stored feeds)**
 - **Decreased costs with low input (pasture and intensive grazing)**
- ❑ **These two systems may demand slightly different types of animals**
- ❑ **US graziers feel disenfranchised because records and genetic indexes are based largely on non-grazing herds**

Overall objectives

The objectives of this study were:

- ❑ To collect data from pasture-based dairy farms throughout the US**
- ❑ To develop a selection index based on genetic selection preferences from the collected responses that would inform refinement of a selection index for pasture-based production systems.**

Opportunity to include Romanian herds

USA

- Medium herd size
- ~2% grazing, 13% combination
- Most common in SE, NE and West Coast
- Milk yield per cow 9193 kg/cow (2007)



Romania

- Small average herd size
- Many farms practice extensive grazing
- Common throughout country
- Milk yield per cow 3883 kg/cow (2007)



Materials

- Survey mailed to graziers across US & northern Romania
- Mailing addresses obtained from:
 - Extension cooperators in US
 - Coauthor at University of Agricultural Sciences and Veterinary Medicine, Iasi, Romania
- Respondents included:
 - 80 farmers in 23 US states
 - 23 farmers in 7 Romanian counties

USA



Romania



Methodology

- Survey topics included:**
 - production history
 - breeding practices/goals
 - feeding programs
 - herd health

- Producers asked to rank traits available for selection**

- Traits ranked from -5 (selection strongly for) to +5 (selection strongly against)**

- Rankings compiled and averaged across farms for each trait**

Methodology

- Responses for SCS and body size were determined to be negative regardless of producer indication for US, based on responses to other questions.
- Fat and protein % and yield scores were averaged to create an overall value for each
- Scores converted to a relative percentage ranking by dividing by the total of the absolute value of the scores for each trait

Results—Herd demographics

<u>Trait</u>	<u>USA</u>			<u>Romania</u>		
	<u>Mean</u>	<u>SD</u>	<u>Median</u>	<u>Mean</u>	<u>SD</u>	<u>Median</u>
Years Grazing	19	19	15	12	10	10
Grazing d/yr.	232	61	210	167	24	178
Cows no.	133	133	85	53	75	20
Heifers < 1yr (n)	49	49	30	17	26	7
Heifers > 1yr (n)	51	51	30	16	24	5
Cull rate (%)	18	8	20	11	7	10
Lame Cows (5)	6	12	3	6	10	2
Cows needing hoof trim¹ (n)	17	27	5	34	37	15
Herds crossbreeding² %	72.5			87.0		
Herds seasonal calving³ %	47.5			52.2		

¹Includes farms that trimmed all regardless of necessity.

²Defined as 75% of cows calving in 3 month window.

³Greater than 10% of herd is crossbred.

Results—Feeding

<u>Feedstuff</u>	<u>USA</u>	<u>Romania</u>
% of farms using forage in winter		
Pasture	28.8	0.0
Hay	92.4	100.0
Haylage/baleage	43.9	8.7
Corn silage	33.3	60.9
Mean concentrate fed in summer (kg/d as fed)		
Corn	3.16	1.32
Soybeans	0.16	0.23
Other¹	4.27	2.32
Mean concentrate fed in winter (kg/d as fed)		
Corn	3.60	3.00
Soybeans	0.61	0.34
Other¹	3.89	3.50

¹Common concentrates include: (US) Barley, bypass protein, cottonseed, DDGS, kelp, oats, wheat midgs; (Romania) wheat bran, sunflower meal.

Results—B reed usage Common US

<u>Breed</u>	<u>Natural Service</u>		<u>AI</u>	
	<u>USA</u>	<u>Romania</u>	<u>USA</u>	<u>Romania</u>
% of farms using:				
Ayrshire	8.75	0.00	20.00	4.76
Brown Swiss	1.25	25.00	10.00	52.38
Guernsey	0.00	0.00	2.50	0.00
Holstein	36.25	8.33	60.00	47.62
Jersey	33.75	16.67	57.50	9.52
Milking Shorthorn	5.00	0.00	17.50	0.00
Red & White	5.00	8.75	0.00	0.00
Other¹	3.75	8.75	0.00	0.00

¹Other includes German Red Angler, Hereford, Lineback, Meuse-Rhine-Yssel, and Red Angus.

Results—B reed usage Common Euro

<u>Breed</u>	<u>Natural Service</u>		<u>AI</u>	
	<u>US</u>	<u>Romania</u>	<u>US</u>	<u>Romania</u>
% of farms using:				
Belgian Blue	0.00	0.00	0.00	14.29
Scand. Red	0.00	0.00	18.75	0.00
Dutch Belted	1.25	0.00	8.70	4.76
Flekvieh	0.00	0.00	0.00	23.81
Limousin	0.00	0.00	0.00	9.52
Montbeliarde	0.00	0.00	5.00	23.81
Normande	2.50	0.00	7.50	0.00
Pinzgaur	0.00	25.00	0.00	14.29
Romanian	0.00	8.33	0.00	0.00
Simmental	0.00	33.33	0.00	61.90
Crossbred	15.00	66.67	8.75	4.76

Results—Ranking of trait

<u>Trait</u>	<u>Mean Rank¹</u>	
	<u>USA</u>	<u>Romania</u>
Milk	2.23	4.24
Fat	2.88	3.66
Protein	2.67	3.34
Productive life	3.83	4.14
Somatic cell score	-3.18	-2.90
Udder composite	3.56	4.08
Body size	-2.66	3.00
Feet & leg composite	3.16	3.27
Calving ability	2.97	3.86
Daughter pregnancy rate	2.95	4.11

Results—Ranking of trait

<u>Trait</u>	<u>Economic Index \$</u>			<u>Relative Weights %</u>		
	<u>US NM\$</u>	<u>US Grz</u>	<u>Ro Grz</u>	<u>US NM\$</u>	<u>US Grz</u>	<u>Ro Grz</u>
Milk	0.00	0.04	0.06	0	7	12
Fat	2.89	1.44	1.50	19	10	10
Protein	3.41	1.90	2.00	16	9	9
Productive life	35.00	20.86	18.34	22	13	11
Somatic cell score	-182.00	-186.57	-139.99	-10	-11	-8
Udder composite	32.00	53.55	50.19	7	12	11
Body size	-23.00	-34.91	32.29	-6	-9	8
Feet & leg composite	15.00	41.54	35.22	4	11	9
Calving ability	1.00	2.01	26.81	5	10	11
Daughter preg. rate	27.00	23.45	21.40	11	10	11

Summary

- ❑ **Differences noted between grazing herds in US and Romania**
 - **US reported longer grazing season**
 - **US reported larger herds**
 - **Romania reported fewer heifers on hand and less culling**

- ❑ **Breeds of choice were very different for the two countries**

- ❑ **Relative economic weights derived from survey rankings indicated a desire for a more balanced index compared to US Net Merit\$**

- ❑ **Results may be used to inform selection index development, but should not be used without careful derivation of true economic values of traits**

Questions?

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