



AUTOGRASSMILK

Research for the Benefit of Specific Groups (in particular SMEs or SME associations)

Ireland, France, The Netherlands, Belgium,
Sweden, Denmark.

SME-AGs from 6 different countries, and 6 RTD
Performers, 2 SME end users



KNOWLEDGE CENTRE
FOR AGRICULTURE



IRISH GRASSLAND ASSOCIATION



AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY



For quality of life



www.idele.fr



FP7-SME-2012-314879-AUTOGRASSMILK is co-funded by the European Commission

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Objectives

- **1. Develop optimum feeding strategies for dairy cows incorporating grazed grass and AM for various production systems in Europe**
- **2. Optimise the integration of AM with cow grazing using new technologies**
- **3. Increase the sustainability of integrated grazing and AM technologies**
- **4. Develop tools that will allow dairy farmers to optimise economic efficiency when combining grazing with AM systems**
- **5. Continuously disseminate new technology to end-users in a form that is easily accessible and locally adapted to improve farm efficiency**



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Why AMS

Technology that releases farmer from physical labour, more milk per full time labour unit

Technology that contributes to social life (incl.family of farmers)

Milk frequency alligned with yield

Easy data catch and management



Why grazing

A herd of approximately ten black and white cows is grazing in a lush green field. The cows are scattered across the middle ground, some facing left and some right. In the background, there is a dense line of green trees. The sky is overcast with grey clouds. The overall scene is a typical pastoral landscape.

Cheap fodder

Good for cow health and cow welfare

Improved milk quality with fresh grass

Contributes to landscape, biodiversity

What the consumers want

What the farmer wants

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Monitor farms in all countries





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Work packages

WP 1 Optimum feeding strategies for dairy cows incorporating grazed grass with AM for various production systems in Europe

Monitor farms, best practice

Experiments in Denmark, with home grown feed

Different Cow breeds in Ireland and Sweden

Optimising the Irish system with :

- Increased cow number in herd (80) with one robot
- Supplementation in spring and autumn





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Work packages

WP 2 Optimise the integration of AM systems with cow grazing using new technologies.

- A GPS farm mapping tool is being developed and demonstrated on research farms in different countries
- The recording of tracking behavior of dairy cows in AM systems is being evaluated in terms of management decision making
- New automated milking technologies such as the mobile AM systems for fragmented farms and carousel AM systems for larger herd sizes will be evaluated in grazing environments.



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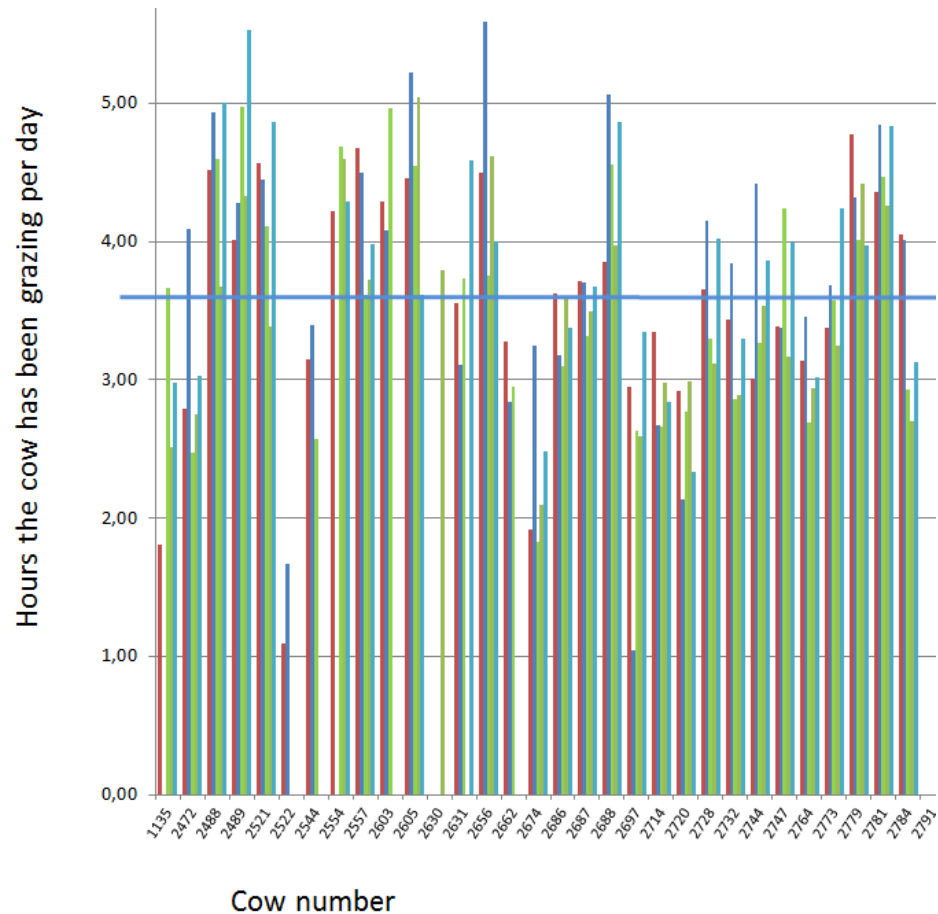
Developed Grasshopper – calibrated automated measure of for grass height



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Sensor registration of grazing time

	maj-18	maj-19
	mark 1	
grass height (mm)	102,43	96,51
dayly growtht (kg DM/ha)	40	35
Yield (kg DM/ha)	1551	1772
Yield in kg DM/mm	15,14	18,36
cløver %	23,75	17,5
average	20,6	20,6
outside time (t:min)	07:15	07:25
outside time (digital)	7,25	7,41
eating time grazing (timer)	3,64	3,87
eating time /outside time	0,50	0,52
grass intake (kg DM/cow/day)	10,6	10,6
kg DM intakeper hour of grazing	2,91	2,74
temperature kl. 11:00 (°C)	10,6	7,7
rain (mm)	14	5



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Mobile automatic milking

Trevarez and Liège and Haderslev





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Work Package 3

Increase the sustainability of an integrated AM and cow grazing milk production system

- develop a template for sustainability assessment of AM and grazing
- Monitor farms will provide data for analysis
- Develop a sustainability assessment tool developed for farmers



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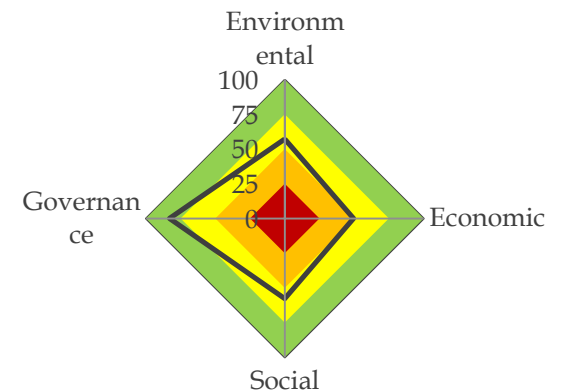
Participatory Sustainability assessment

Interesting indicators identified

Indicators

- Economic Farm profitability
- Economic Debt
- Economic Stability in income - Resilience
- Economic Production costs
- Economic Labour
- Economic Investments
- Economic Production level
- Environmental N and P Balance
- Environmental Biodiversity
- Environmental GHG
- Environmental Chemical usage
- Environmental Energy use
- Environmental Water use
- Environmental Atmosphere
- Environmental Soil
- Environmental Landscape quality
- Social Animal welfare
- Social Working hours
- Social Farm continuity
- Social Work - life balance
- Social Product Quality
- Social Image and participation
- Social Work quality
- Social Role in the region
- Governance Relation and cooperation farmers
- Governance Relation and participation in community
- Governance Use of consultancy and advice
- Governance Education and skilled staff
- Governance Diversification and openness farm
- Governance CSR
- Governance Economic autonomy

Domain	ASAP weight	Event	Expert weight	Sub-Index	Reference Value	Score	Weight	Value	Score	Value	Score
Economic	36	Business	25	Business - Revenue per cow	100	100	100	100	100	100	100
			25	Business - Variable costs per cow	100	100	100	100	100	100	100
			25	Business - Net profit per cow	100	100	100	100	100	100	100
			25	Business - Financial position	100	100	100	100	100	100	100
			25	Business - Investment per cow	100	100	100	100	100	100	100
	36	Biodiversity	14	Business - Energy efficiency	100	100	100	100	100	100	100
			14	Business - Water efficiency	100	100	100	100	100	100	
			14	Business - Fertilizer efficiency	100	100	100	100	100	100	
			14	Business - Pesticide efficiency	100	100	100	100	100	100	
			14	Business - Labour efficiency	100	100	100	100	100	100	
Economic	36	Energy use	100	Energy - Energy per cow	100	100	100	100	100	100	100
			100	Energy - Energy per cow	100	100	100	100	100	100	
			100	Energy - Energy per cow	100	100	100	100	100	100	
			100	Energy - Energy per cow	100	100	100	100	100	100	
			100	Energy - Energy per cow	100	100	100	100	100	100	
	6	Investments	100	Investment - Investment per cow	100	100	100	100	100	100	100
			100	Investment - Investment per cow	100	100	100	100	100	100	
			100	Investment - Investment per cow	100	100	100	100	100	100	
			100	Investment - Investment per cow	100	100	100	100	100	100	
			100	Investment - Investment per cow	100	100	100	100	100	100	
Social	36	Animal welfare	25	Animal - Animal welfare	100	100	100	100	100	100	100
			25	Animal - Animal welfare	100	100	100	100	100	100	
			25	Animal - Animal welfare	100	100	100	100	100	100	
			25	Animal - Animal welfare	100	100	100	100	100	100	
			25	Animal - Animal welfare	100	100	100	100	100	100	
	36	Working hours	100	Working - Working hours	100	100	100	100	100	100	100
			100	Working - Working hours	100	100	100	100	100	100	
			100	Working - Working hours	100	100	100	100	100	100	
			100	Working - Working hours	100	100	100	100	100	100	
			100	Working - Working hours	100	100	100	100	100	100	
36	Work quality	100	Work - Work quality	100	100	100	100	100	100	100	
		100	Work - Work quality	100	100	100	100	100	100		
		100	Work - Work quality	100	100	100	100	100	100		
		100	Work - Work quality	100	100	100	100	100	100		
		100	Work - Work quality	100	100	100	100	100	100		
36	Farm continuity	100	Farm - Farm continuity	100	100	100	100	100	100	100	
		100	Farm - Farm continuity	100	100	100	100	100	100		
		100	Farm - Farm continuity	100	100	100	100	100	100		
		100	Farm - Farm continuity	100	100	100	100	100	100		
		100	Farm - Farm continuity	100	100	100	100	100	100		
36	Work - life balance	100	Work - Work - life balance	100	100	100	100	100	100	100	
		100	Work - Work - life balance	100	100	100	100	100	100		
		100	Work - Work - life balance	100	100	100	100	100	100		
		100	Work - Work - life balance	100	100	100	100	100	100		
		100	Work - Work - life balance	100	100	100	100	100	100		
7	Product Quality	100	Product - Product Quality	100	100	100	100	100	100	100	
		100	Product - Product Quality	100	100	100	100	100	100		
		100	Product - Product Quality	100	100	100	100	100	100		
		100	Product - Product Quality	100	100	100	100	100	100		
		100	Product - Product Quality	100	100	100	100	100	100		
36	Relation and participation in community	100	Relation - Relation and participation in community	100	100	100	100	100	100	100	
		100	Relation - Relation and participation in community	100	100	100	100	100	100		
		100	Relation - Relation and participation in community	100	100	100	100	100	100		
		100	Relation - Relation and participation in community	100	100	100	100	100	100		
		100	Relation - Relation and participation in community	100	100	100	100	100	100		
36	Use of consultancy and advice	100	Use of consultancy and advice	100	100	100	100	100	100	100	
		100	Use of consultancy and advice	100	100	100	100	100	100		
		100	Use of consultancy and advice	100	100	100	100	100	100		
		100	Use of consultancy and advice	100	100	100	100	100	100		
		100	Use of consultancy and advice	100	100	100	100	100	100		
36	Education and skilled staff	100	Education - Education and skilled staff	100	100	100	100	100	100	100	
		100	Education - Education and skilled staff	100	100	100	100	100	100		
		100	Education - Education and skilled staff	100	100	100	100	100	100		
		100	Education - Education and skilled staff	100	100	100	100	100	100		
		100	Education - Education and skilled staff	100	100	100	100	100	100		
36	Diversification and openness farm	100	Diversification - Diversification and openness farm	100	100	100	100	100	100	100	
		100	Diversification - Diversification and openness farm	100	100	100	100	100	100		
		100	Diversification - Diversification and openness farm	100	100	100	100	100	100		
		100	Diversification - Diversification and openness farm	100	100	100	100	100	100		
		100	Diversification - Diversification and openness farm	100	100	100	100	100	100		
36	CSR	100	CSR - CSR	100	100	100	100	100	100	100	
		100	CSR - CSR	100	100	100	100	100	100		
		100	CSR - CSR	100	100	100	100	100	100		
		100	CSR - CSR	100	100	100	100	100	100		
		100	CSR - CSR	100	100	100	100	100	100		
36	Economic autonomy	100	Economic - Economic autonomy	100	100	100	100	100	100	100	
		100	Economic - Economic autonomy	100	100	100	100	100	100		
		100	Economic - Economic autonomy	100	100	100	100	100	100		
		100	Economic - Economic autonomy	100	100	100	100	100	100		
		100	Economic - Economic autonomy	100	100	100	100	100	100		





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Work Package 4

Economic assessment of integrated grazing and AM technologies

- An economic comparison of AM on dairy farms where cow grazing is practiced and where not has been performed in F,NL, and DK
- The financial interaction between capital investment, labour requirements and running costs for integrated grazing and different AM technologies is being determined based on data from research farms and monitor farms using the most appropriate bio economic farm model
- A web based decision support tool is being developed to assist EU farmers to optimize their farm production system.





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Work Package 5

Dissemination.

- From the RTDs to the SME-AGs
- Between the individual SME-AGs and their direct members (SME) and stakeholders within each country;
- From the RTD's to the scientific community internationally as well as to extension personnel in the respective countries;
- To the wide group of dairy farmers within the EU;
- To relevant Government Departments, policymakers and legislators within the different countries and the EU.

