



AGRIGRID

SSPE-CT-2006-044403

Workshop 3

Progress in the measure specific grid development

WP 2

Grid application: Agri-environment measures

Some preliminary results

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Agri-environmental measures during the 2007 –2013 programming period

The project:

9 Member States represented

186 different schemes

Choice of case studies

- Two case studies
 - Organic farming (Common all over EU)
 - Protection of Nitrate Vulnerable Zones (the specific case for Greece)
- Representative of two approaches

Approach	Case study
FADN approach	Organic farming (IT _{VE} , CZ, GR, DE)
Production Process approach	Protection of NVZ (GR)



FADN Approach

- When enough information derived from Farm Accountancy Data Network
- We compare on and off policy situations.

Production Process Approach

- When not enough information from the statistical data bases
- Break down each AEM to its components (e.g. practices supported)
- Measure the corresponding economic outcomes (income – cost changes)



Steps

- Define the baseline situation (e.g. common practice in the case of Organic Farming)
- Selection of differentiation categories for the payments and attribution to the appropriate level of analysis.
- Identification of relevant cost and income elements.
- Choice between FADN, Production process or Hybrid Approach



FADN approach

The basis:

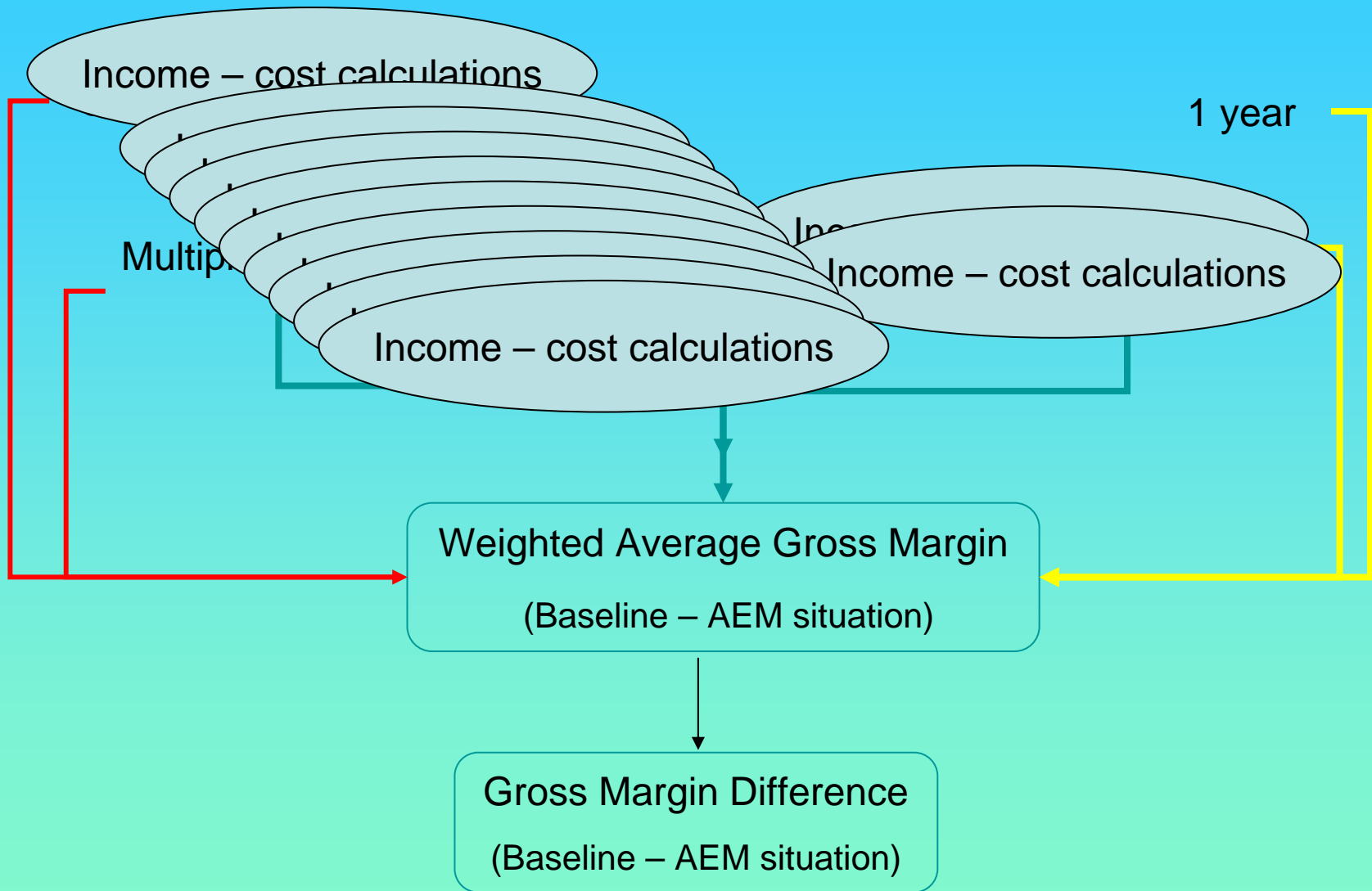
Calculation of Gross Margin for:

- Sample of farms in Baseline situation
- Sample of farms in AEM situation



Gross Margin Differences

For each product/year



Example

- Czech Republic example used
- German, Greek methodology elements used
- Model was modified to fit all three MS
- Next step:
To modify the model in order to fit more countries' methodologies

To be done

- Elaborate Production Process approach
- Integrate both approaches at the higher level possible
- Complete logic diagramme
- Make it more user friendly

Example Organic Farming in the case of Czech Republic

lowest level of calculations (level 5)

Income - costs calculations		Measure 214: Example Organic farming							
level 5									
arable land									
Baseline situation									
year 4		2004							
Total output									
	Not based on calculation of sub-elements	Based on calculation of available sub-elements							
	Aggregated amount	Sub-element 1:	Sub-element 2:	Equation	Value				
		crop yield	sale price						
Data source		FADN	FADN						
K121 Durum wheat		5,9253	3095	=C12*D12	18338,8				
Costs									
	costs, saved costs, additional costs	Based on calculation of available sub-elements							
	Aggregated amount	Sub-element 1:	Sub-element 2:	Sub-element 3:	Sub-element 4:	Sub-element 5:	Equation	Value	
		SE295-fertilisers	SE285-seeds and plants	SE300-crop protection	SE356 Other direct inputs	SE340 Machinery & building current costs			
Data source		FADN	FADN	FADN	FADN	FADN			
K121 Durum wheat		2489	1460	2178	169	1612	=C26+ ...+	7908,0	

The outcome of the calculations is going to the upper level (level 4)

Same level of calculations in the case of Germany

Income - costs calculation		Measure 214: Example Organic farming								
level 5	arable land									
Baseline situation										
Total output										
	Not based on calculation of sub-elements	Based on calculation of available sub-elements								
	Aggregated amount	Sub-element 1	Sub-element 2	Equation	Value					
		crop yield	sale price							
Data source		KTBL	KTBL							
winter wheat		71,4	11,3	=C12*D12	804					
winter barley		61,5	9,8	=C13*D13	601					
winter rape		31,9	22,3	=C14*D14	712					
set aside area		0	0	=C15*D15	0					
Costs										
costs, saved	Not based on calculation of sub-elements	Based on calculation of available sub-elements								
costs, additional costs										
	Aggregated amount	Sub-element 1	Sub-element 2	Sub-element 3	Sub-element 4:	Sub-element 5:	Sub-element 6:	Sub-element 7:	Equation	Value
		SE285-seeds and plants	SE295-fertilisers	SE300-crop protection	SE340 Machinery & building current costs	SE305 Other crop specific costs	SE380 Interest paid	SE370 Wages paid		
Data source		KTBL	KTBL	KTBL	KTBL	KTBL	KTBL	<u>cost calculation (level 6)</u>		
winter wheat		63,0	120	117	132	32	14	118	=C26+ ...	596
winter barley		57,0	96	101	132	30	12	118	=C27+ ...	546
winter rape		21,0	142	99	123	46	13	101	=C28+ ...	545
set aside areas		18,0	0	0	44	0	2	38	=C29+ ...	102

Same process is followed for the AEM situation

The outcomes of the calculations are going to the upper level (level 4)

Level 4: Czech Republic

FADN Gross Margin		Measure 214: Example Organic farming						
level 4								
Arable land								
year 3	2004							
Gross Margin in Baseline Situation (Weighted Average)								
	Not based on calculation of sub-elements	Based on calculation of available sub-elements						
	Aggregated amount	Sub-element	Sub-element	Equation	Value		Equation	Value
		Income in Baseline Situation	Costs in Baseline Situation		Gross Margin	ratio on agricultural area (%)		
Data source	FADN / VUZE	$\frac{\text{Income} - \text{costs}}{\text{(level 5)}}$	$\frac{\text{Income} - \text{costs}}{\text{(level 5)}}$			SCO		
K121 Durum wheat		18339	7908	=C12 - D12	10431	56,68	=F12*G12%	5912
K123 Barley	11329			=C13 - D13	11329	24,98	=F13*G13%	2830
K132-331 Oilseed rape	11096			=C14 - D14	11096	18,34	=F14*G14%	2035
Weighted Average Gross Margin							=I12+I13+I14	10777

same process is followed for the AEM situation

The outcome of the calculation goes to level 3

Level 4: Germany

FADN Gross Margin		Measure 214: Example Organic farming							
level 4	Arable land / Introduction								
Gross Margin in Baseline Situation (Weighted Average)									
	Not based on calculation of sub-elements	Based on calculation of available sub-elements							
	Aggregated amount	Sub-element 1:	Sub-element 2:	Equation	Value		Equation	Value	
		Income in Baseline Situation	Costs in Baseline Situation			ratio on agricultural area (%)			
Data source		<u>income - costs (level 5)</u>	<u>income - costs (level 5)</u>						
winter wheat		804	596	=C12 - D12	209	30	=F12*G12%	63	
winter barley		601	546	=C13 - D13	56	40	=F13*G13%	22	
winter rape		712	545	=C14 - D14	167	20	=F14*G14%	33	
set aside area		0	102	=C15 - D15	-102	10	=F15*G15%	-10	
Weighted Average Gross Margin								108	
Gross Margin in AEM Situation (Weighted Average)									
	Not based on calculation of sub-elements	Based on calculation of available sub-elements							
	Aggregated amount	Sub-element 1:	Sub-element 2:	Equation	Value		Equation	Value	
		Income in AEM Situation	Costs in AEM Situation			ratio (%)			
Data source		<u>income - costs (level 5)</u>	<u>income - costs (level 5)</u>						
winter wheat		962	818	= C26 - D26	144	22	=F26*G26%	32	
winter barley		674	740	= C27 - D27	-66	43	=F27*G27%	-28	
K129-360 Peas, field beans...		466	559	= C28 - D28	-93	15	=F28*G28%	-14	
set aside areas		0	155	= C29 - D29	-155	20	=F29*G29%	-31	
Weighted Average Gross Margin								-42	

The outcome of the calculation goes to level 3

Level 3: Czech Republic

Gross Margin in Baseline Situation (Weighted Average)							
	Not based on calculation of sub-elements	Based on calculation of available sub-elements					
	Aggregated amount	Sub-element 1:	Sub-element 2:	Sub-element 3:	Equation	Value	
		G.M. in year 1	G.M. in year 2	G.M. in year 4			
Data source		<u>FADN G.M. Average (level 4)</u>	<u>FADN G.M. Average (level 4)</u>	<u>FADN G.M. Average (level 4)</u>			
Gross margin (W.A)		9277	6195	10777	=(C12+D12+....)	8749,82	
Weighted Average Gross Margin							8750
Gross Margin in AEM Situation (Weighted Average)							
	Not based on calculation of sub-elements	Based on calculation of available sub-elements					
	Aggregated amount	Sub-element 1:	Sub-element 2:	Sub-element 3:	Sub-element 4:	Equation	Value
		G.M. in year 1	G.M. in year 2	G.M. in year 3	G.M. in year 4		
Data source		<u>FADN G.M. Average (level 4)</u>	FADN/ (CSO - shares)	FADN/ (CSO - shares)	FADN/ (CSO - shares)		
Gross margin (W.A)		5147	4976	3398	8103	=(C23+D23+...)/n	5406,034
Weighted Average Gross Margin							5406

The outcome of the calculation goes to level 2

Level 3: Germany

FADN Gross Margin (Time dimension)		Measure 214: Example Organic farming				
level 3						
Arable land / Introduction						
Gross Margin in Baseline Situation (Weighted Average)						
	Not based on calculation of sub-elements	Based on calculation of available sub-elements				
	Aggregated amount	Sub-element 1:	Sub-element 2:	Sub-element 3:	Equation	Value
		G.M. in year 1				
Data source		FADN GM (level 4)				
Gross margin (W.A)		108			$=(C12+D12+....)/n$	108,06
Weighted Average Gross Margin						108
Gross Margin in AEM Situation (Weighted Average)						
	Not based on calculation of sub-elements	Based on calculation of available sub-elements				
	Aggregated amount	Sub-element 1:	Sub-element 2:	Sub-element 3:	Equation	Value
		G.M. in year 1				
Data source		FADN GM (level 4)				
Gross margin (W.A)		-42			$=(C12+D12+....)/n$	-41,72
Weighted Average Gross Margin						-42

The outcome of the calculation goes to level 2

FADN approach (level 2): Czech Republic

FADN approach (Gross Margin Differences)								
level 2		Measure 214: Example Organic farming						
Gross Margin Differences								
	Not based on calculation of sub-elements	Based on calculation of available sub-elements						
	Aggregated amount	Sub-element 1:	Sub-element 2:	Equation	Value	Sub-element 3:	Equation	Value
		Weighted Average GM in Baseline situation	Weighted Average GM in AEM situation			transformation coefficient		recalculation
Data source		FADN G.M. (level 3)	FADN G.M. (level 3)					
Differentiation categories								
Arable land		8750	5406	=C11-D11	3344	1,00	=G11*H11	3344
Pastures		12557	8147	=C12-D12	4410	0,60	=G12*H12	2646
Permanent crops		88170	47387	=C13-D13	40783	1,00	=G13*H13	40783
Horticulture		90527	60061	=C14-D14	30466	1,00	=G14*H14	30466

The outcomes of the calculations goes to level 1

FADN approach (level 2): Germany

FADN approach (Gross Margin Differences)

level 2

Measure 214: Example Organic farming

Gross Margin Differences

	Not based on calculation of sub-elements	Based on calculation of available sub-elements						
	Aggregated amount	Sub-element 1:	Sub-element 2:	Equation	Value	Sub-element 3:	Equation	Value
		Weighted Average GM in baseline situation	Weighted Average GM in AEM situation		GM difference	Transformation coefficient		GM difference (Euro per ha)
Data source		<u>FADN GM (level 3)</u>	<u>FADN GM (level 3)</u>					
categories of diffirensiation								
Horticulture / Introduction		2883	2443	=C11-D11	440	1,00	=G11*H11	440
Horticulture / Maintenance		2306	2035	=C12-D12	271	1,00	=G12*H12	271
Arable land / Introduction		108	-42	=C13-D13	150	1,00	=G13*H13	150
Arable land / Maintenance		108	-2	=C14-D14	110	1,00	=G14*H14	110
Permanent crops / Introduction	846			=C15-D15	846	1,00	=G15*H15	846

The outcomes of the calculations goes to level 1

Overall results: Czech Republic

Overall results		Measure 214: Example Organic farming		
level 1				
Calculated payments according to FADN approach				
Differentiation category	Land use/ Type of farming			
Differentiation element	Arable land	Pastures	Permanent crops	Horticulture
Data source	FADN approach (level 2)	FADN approach (level 2)	FADN approach (level 2)	FADN approach (level 2)
Gross Margin Differences	3344	2646	40783	30466
Calculated payments according to FADN approach	3344	2646	40783	30466
Calculated payments according to Production Process approach				
Differentiation category	Land use/ Type of farming			
Differentiation element	Arable land	Pastures	Permanent crops	Horticulture
Data source	PP approach (level 2)			
growing of catch crops	349			
increased application of ..	926			
Calculated payments according to Production Process approach	1275	0	0	0
Transaction cost				
Differentiation category	Land use/ Type of farming			



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Overall results: Germany

Overall results

Measure 214: Example Organic farming

level 1

Calculated payments according to FADN approach

Differentiation category	Land use					
Differentiation element	horticulture		arable land		permanent crops	
Differentiation category	Type of beneficiary					
Differentiation element	Introduction RDP commitment	Maintaining previous RDP commitments	Introduction RDP commitment	Maintaining previous RDP commitments	Introduction RDP commitment	Maintaining previous RDP commitments
Data source	FADN approach (level 2)	FADN approach (level 2)	FADN approach (level 2)	FADN approach (level 2)	FADN approach (level 2)	FADN approach (level 2)
Gross Margin Differences	440	271	150	110	846	1014
Calculated payments according to FADN approach	440	271	150	110	846	1014

Calculated payments according to Production Process approach

Differentiation category	Land use					
Differentiation element	horticulture		arable land		permanent crops	
Differentiation category	Type of beneficiary					
Differentiation element	Introduction RDP commitment	Maintaining previous RDP commitments	Introduction RDP commitment	Maintaining previous RDP commitments	Introduction RDP commitment	Maintaining previous RDP commitments
Data source						
Calculated payments according to Production Process approach	0	0	0	0	0	0

Transaction cost

Differentiation category	Land use					
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Final payment: Czech Republic

final payment	Measure 214: Example Organic farming			
Differentiation category	Land use/ Type of farming			
Differentiation element	Arable land	Pastures	Permanent crops	Horticulture
	Overall results (level 1)	Overall results (level 1)	Overall results (level 1)	Overall results (level 1)
Calculated payments according to FADN approach	3344	2646	40783	30466
Calculated payments according to Production Process approach	1275	0	0	0
Transaction cost	0	0	0	0
Total financial support	4618	2646	40783	30466
RDR maximum payments				
Other possible adjustments	4620	2100	25285	16790
Exchange rate	29,784	29,784	29,784	29,784
Total eligible support	155,12	70,51	848,95	563,73
Differentiation category	Land use/ Type of farming			
Differentiation element	Arable land	Pastures	Permanent crops	Horticulture
Total eligible support (Euro/ha)	155,12	70,51	848,95	563,73



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Final payment: Germany

final payment

Measure 214: Example Organic farming

Differentiation category	Land use					
Differentiation element	horticulture		arable land		permanent crops	
Differentiation category	Type of beneficiary					
Differentiation element	Introduction RDP commitment	Maintaining previous RDP commitments	Introduction RDP commitment	Maintaining previous RDP commitments	Introduction RDP commitment	Maintaining previous RDP commitments
	<u>Overall results (level 1)</u>	<u>Overall results (level 1)</u>	<u>Overall results (level 1)</u>	<u>Overall results (level 1)</u>	<u>Overall results (level 1)</u>	<u>Overall results (level 1)</u>
Calculated payments according to FADN approach	440	271	150	110	846	1014
Calculated payments according to Production Process approach	0	0	0	0	0	0
Transaction cost	0	0	0	0	0	0
Total financial support	440	271	150	110	846	1014
RDR maximum payments						
Other possible adjustments			178	137		
Total eligible support	440	271	178	137	846	1014

Differentiation category	Land use					
Differentiation element	horticulture		arable land		permanent crops	
Differentiation category	Type of beneficiary					
Differentiation element	Introduction RDP commitment	Maintaining previous RDP commitments	Introduction RDP commitment	Maintaining previous RDP commitments	Introduction RDP commitment	Maintaining previous RDP commitments
Total eligible support	440	271	178	137	846	1014



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Level 6 : Germany

cost calculation		Measure 214: Example Organic farming				
level 6		For all products in both Baseline and AEM situations				
arable land						
Baseline situation	Winter wheat					
Costs						
Wages paid for Winter Wheat in baseline situation	Not based on calculation of sub-elements	Based on calculation of available sub-elements				
	Aggregated amount	Sub-element 1:	Sub-element 2:	Sub-element 3:	Equation	Value
		labour requirements (manhours per ha)	Euro per man hours			
Data source						
SE370 Wages paid		9,40	12,5		=C12*C13	118



Transaction cost (in the case of Greece)

Transaction cost		Measure 214: Example Organic farming						
level 2								
K154-281 Table olives								
Transaction cost								
	Not based on calculation of sub-elements	Based on calculation of available sub-elements						
	Aggregated amount	Sub-element 1:	Sub-element 2:	Sub-element 3:	Sub-element 4:	Sub-element 5:	Equation	Value
		SE370 Wages paid	days of work	legal fees	years of contract	average hectares per farm		
Data source		FADN	FADN	FADN		FADN		
Transaction cost		30	3	60	5	7,1	=[(C12*D12)+E12]/F12/G12	4,23
Total transaction cost								4,2

For all differentiation categories



Production Process approach (in the case of Czech Republic)

Production Process approach		Measure 214: Example Organic farming					
level 2							
arable land							
Calculated payments according to Production Process approach							
growing of catch crops	Not based on calculation of sub-elements	Based on calculation of available sub-elements					
	Aggregated amount	Sub-element 1:	Sub-element 2:	Sub-element 3:	Sub-element 4:	Equation	Value
		cost for seeds	cost for sowing	cost for removal of catch crops	%		
Data source		norms+ surveys	norms+ surveys	norms+ surveys	survey		
growing of catch crops		966	1575	560	11,25	$=(C24+D24+E24)*F24\%$	349
growing of catch crops							349

