

## 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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Santorini, 3 June 2008



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 <sub>VE</sub> , 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:

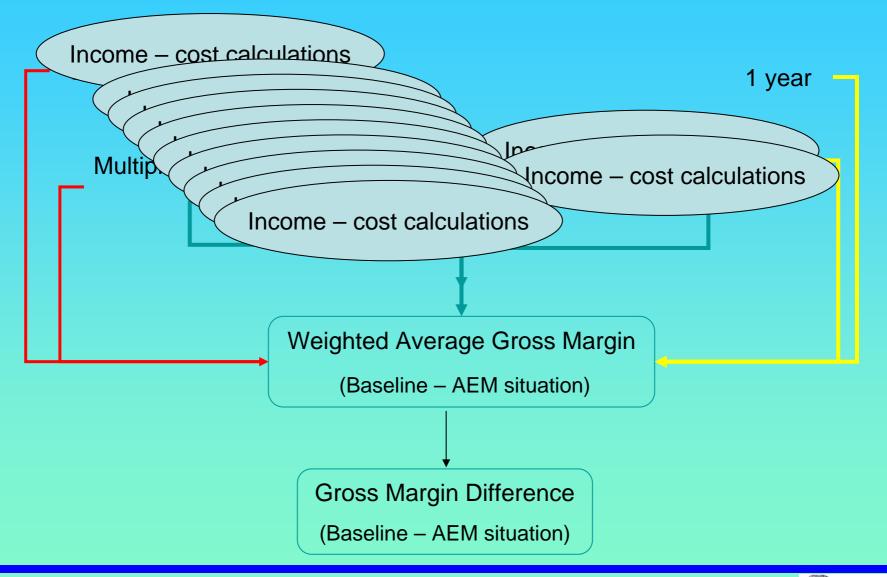
- Sample of farms in Baseline situation
- Sample of farms in AEM situation

**Gross Margin Differences** 













### 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 - cost	s calculations	Meas	ure 214: E	xample Or	ganic far	ming		
level 5								
arable land								
Baseline situation								
year 4	2004							
Total output								
•	Not based on calculation of sub- elements	Based on	calculation of a	vailable sub-e	lements			
	Aggregated amount	Sub-element 1:	Sub-element 2:	Equation	Value			
		crop yield	sale price					
Data source		FADN	FADN					
		E 0050		040*D40	40000 0		_	
K121 Durum wheat		5,9253	3095	=C12*D12	18338,8			
						calculations i to the uper le		
Costs						(level 4)		
costs, saved costs, additional costs	Not based on calculation of sub- elements			on calculation of				
	Aggregated amount	Sub-element 1:	Sub-element 2:	Sub-element 3:	Sub-element 4		Equation	Value
						SE340		
		05005	0.5005	05000		Machinery &		
		SE295- fertilisers	SE285-seeds	SE300-crop	SE356 Other	Ŭ Ŭ		
Data source		FADN	and plants FADN	protection FADN	direct inputs	current costs		
K121 Durum wheat		2400	4400	0470	400	4040	000.	7908,0
		2489	1460	2178	169	1012	=C26++	7908.01







#### Same level of calculations in the case of Germany

Income - co	osts calculatio	Меа	sure 214:	Example	e Organic fai	rming			
level 5	arable land								
Baseline							Sam	e process is	
situation								wed for the AEM	
Total output							situa	ation	
•	Not based on								
	calculation of sub-	Based o	n calculation c	of available s	sub-elements				
	elements								
	Aggregated amount			Equation	Value				
		crop yield	sale price						
Data source		KTBL	KTBL						
winter wheat		71,4		=C12*D12	804	The outcomes			
winter barley		61,5		=C13*D13	601	calculations ar the uper level			
winter rape		31,9		=C14*D14	712	the uper level	(level 4)		
set aside area		0	0	=C15*D15	U				
Costs									
costs, saved	Not based on								
	calculation of sub-			Based	on calculation of	available sub-ei	ements		
costs	elements	Cub class ant 4	Cub class ant O	Culture la resent	Cub class ant 4	Cultural and and Tr	Culture la mare		
	Aggregated amount	Sub-element 1	Sub-element 2	Sub-element		Sub-element 5: SE305 Other		Sub-elemer Equation	n Value
		SE285-seeds	SE295-	SE300-crop	· · · · · · · · · · · · · · · · · · ·	crop specific		Wages	
			fertilisers	protection	costs	costs		paid	
				protection	00010	00010	paid	cost	
Data source		KTBL	KTBL	KTBL	KTBL	KTBL	KTBL	calculation	
								(level 6)	
								<u></u>	
winter wheat		63,0	120	117	132	32	14	118 =C26+ .	596
winter barley		57,0			132	30	12	118 =C27+ .	
winter rape		21,0		99	123	46	13	101 =C28+ .	
set aside areas		18,0		0	44	0	2	<b>38</b> =C29+ .	102







#### Level 4: Czech Republic

FADN Gross Margin		Measure 214: Example Org						
level 4								
Arable land				_				
year 3	2004		same proce					
			situation					
Gross Margin in Baseline Situation	n (Weighted Averag	e)						
	Not based on							
	calculation of sub-							
	elements		Base	ed on calcula	tion of avai	lable sub-ele	ments	
	Aggregated amount	Sub-eleme	Sub-elemer	Equation	Value		Equation	Value
		Income in	Costs in		Gross	ratio on		
		Baseline	Baseline		Margin	agricultural		
		Situation	Situation		warym	area (%)		
		Income -	Income -					
	FADN / VUZE	<u>costs</u>	costs			SCO		
Data source		<u>(level 5)</u>	<u>(level 5)</u>					
K121 Durum wheat		18339	7908	=C12 - D12	10431		=F12*G12%	5912
K123 Barley	11329			=C13 - D13	11329	•	=F13*G13%	2830
K132-331 Oilseed rape	11096			=C14 - D14	11096	18,34	=F14*G14%	2035
Weighted Average Gross Margin							=112+113+114	10777
								1
							utcome of 🎽	
							alculation	
						goes	to level 3	







#### Level 4: Germany

FADN Gros	ss Margin	Measur	e 214: Exam	ple Orga	nic farn	ning				
level 4	Arable land / Introduction									
Gross I	Margin in Baseline Situa	tion (Weighted	Average)							
	Not based on calculation									
	of sub-elements		Based on cal	culation of av	vailable su	b-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 (%)				
		income - costs	income - costs							
Data source		<u>(level 5)</u>	<u>(level 5)</u>							
				040 540						
winter wheat		804		=C12 - D12	209	1	=F12*G12%	63		
winter barley		601		=C13 - D13	56		=F13*G13%	22		
winter rape set aside area		712		=C14 - D14 =C15 - D15	167 -102		=F14*G14% =F15*G15%	33 -10		
	age Gross Margin	0	102	=015 - 015	-102	10	=F15 G15%	-10		
	Ĩ.				-	outcome of		100		
Gros	s Margin in AEM Situation	on (Weighted Av	verage)		calculati	on goes to	level 3			
	Not based on calculation of sub-elements	Not based on calculation								
			Based on cal	culation of av		b-elements				
	Aggregated amount		Sub-element 2:	culation of av	<b>vailable su</b> Value	b-elements	Equation	Value		
		Sub-element 1: Income in AEM Situation				b-elements ratio (%)	Equation	Value		
Data source		Income in AEM Situation income - costs	Sub-element 2: Costs in AEM Situation income - costs				Equation	Value		
Data source		Income in AEM Situation	Sub-element 2: Costs in AEM Situation				Equation	Value		
		Income in AEM Situation income - costs (level 5)	Sub-element 2: Costs in AEM Situation income - costs (level 5)	Equation	Value	ratio (%)				
winter wheat		Income in AEM Situation income - costs (level 5) 962	Sub-element 2: Costs in AEM Situation income - costs (level 5) 818	Equation = C26 - D26	Value 144	ratio (%) 22	=F26*G26%	32		
	Aggregated amount	Income in AEM Situation income - costs (level 5)	Sub-element 2: Costs in AEM Situation income - costs (level 5) 818 740	Equation	Value	ratio (%) 22 43				
winter wheat winter barley	Aggregated amount	Income in AEM Situation income - costs (level 5) 962 674	Sub-element 2: Costs in AEM Situation income - costs (level 5) 818 740 559	Equation = C26 - D26 = C27 - D27	Value 144 -66	ratio (%) 22 43 15	=F26*G26% =F27*G27%	32 -28		
winter wheat winter barley K129-360 Peas,	Aggregated amount	Income in AEM Situation income - costs (level 5) 962 962 674 466	Sub-element 2: Costs in AEM Situation income - costs (level 5) 818 740 559	Equation = C26 - D26 = C27 - D27 = C28 - D28	Value 144 -66 -93	ratio (%) 22 43 15	=F26*G26% =F27*G27% =F28*G28%	32 -28 -14		







#### Level 3: Czech Republic

Gross Margin in Ba	aseline Situation (W	<b>Weighted Aver</b>							
	Not based on calculation of sub- elements		Based on calculation of available sub-elements						
	Aggregated amount	Sub-element 1:			Equation	Value			
		G.M. in year 1	G.M. in year 2	G.M. in year 4					
		FADN G.M.	FADN G.M. Average (level	FADN G.M.					
Data source		Average (level 4)	<u>4)</u>	Average (level 4)					
Gross margin (W.A)		9277	6195	10777	=(C12+D12+)	8749,82			
		5211	0150	10///	-(01210121	0140,02			
Weighted Average Gro	ss Margin					8750			
Gross Margin in Al	EM Situation (Weig	hted Average)		The outcor calculation go					
	Not based on			calculation go					
	calculation of sub- elements		Based on	calculation of a	available sub-el	ements			
	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				
		FADN G.M.	FADN/ (CSO -	FADN/ (CSO -	FADN/ (CSO -				
Data source		Average (level 4)	shares)	shares)	shares)				
		F 4 4 7	(070		0400		E 400.00		
Gross margin (W.A)		5147	4976	3398	8103	=(C23+D23+)/n	5406,034		
Weighted Average Gro	ss Margin						5406		







#### Level 3: Germany

FADN Gross Mar	gin (Time dimensio	Меа	sure 214:	Example Orga	nic farming	
level 3						
Arable land / Introductio	n					
Gross Margin in Bas	seline Situation (Weight	ed Average)				
	Not based on calculation of sub-elements	В	ased on calcu	lation of available su	ıb-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	s Margin					108
Gross Margin in AEI	M Situation (Weighted A	verage)		The outcome calculation goes		
	Not based on calculation of sub-elements	B	ased on calcu	lation of available su		
	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	s Margin					-42







#### FADN approach (level 2): Czech Republic

#### FADN approach (Gross Margin Differences)

		Measur	e 214: Exan	np	ole Org	ianic '	farming		
Gross Margin Differences									
	Not based on			•					
	calculation of sub-		Based on o	calc	culation of	of availa	able sub-elemen	ts	
	elements			_					
	Aggregated amount	Sub-element 1:	Sub-element 2:	Eq	quation	Value	Sub-element 3:	Equation	Value
		Weighted							
		Average GM in	Weighted						
		Baseline	Average GM in				transformation		reculculatio
		situation	AEM situation				coefficient		n
Data source		FADN G.M.	FADN G.M.						
Differentiation categories		<u>(level 3)</u>	<u>(level 3)</u>						
Arable land		8750	5406	=0	C11-D11	3344	1.00	=G11*H11	3344
Pastures		12557			C12-D12	4410		=G12*H12	2646
Permanent crops		88170			C13-D13	40783		=G13*H13	40783
Horticulture		90527			C14-D14	30466		=G14*H14	30466
							,		
							comes of the goes to level	1	







#### FADN approach (level 2): Germany

FADN approach	n ( Gross I	Margin [	Differen	ces)					
level 2		Measu	re 214: Exa	mple O	rganic fa	arming			
				•					
Gross Margin Differences									
	Not based on		Deced or		n of oveileb	le cub clement			
	calculation of sub-	b- Based on calculation of available sub-elements							
	elements								
	Aggregated amount		Sub-element 2:	Equation	Value	Sub-element 3:	Equation	Value	
		Weighted Average GM in	Weighted Average GM in		GM	Transformation		GM difference	
		baseline situation	AEM situation		difference	coefficient		(Euro per ha)	
		FADN GM (level	FADN GM (level						
Data source		<u>3)</u>	<u>3)</u>						
categories of diffirensiation									
Horticulture / Introduction		<u>2883</u>	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**

<b>Overall results</b>	5	Ме	asure 214	I: Example	e Organic	;		
level 1			f					
Calculated pay	ments accordir			h				
Differentiation category	Laı	nd use/ Typ	e of farming					
Differentiation element	Arable land	Pastures						
		FADN	FADN	FADN				
	FADN approach	approach	approach	approach				
Data source	<u>(level 2)</u>	<u>(level 2)</u>	<u>(level 2)</u>	<u>(level 2)</u>				
Gross Margin Differences	3344	2646	40783	30466				
Calculated payments								
according to FADN approach	3344	2646	40783	30466				
Calculated payments				oproach				
Differentiation category	Laı	nd use/ Typ	e of farming					
Differentiation element	Arable land	Pastures	Permanent crops	Horticulture				
	PP approach							
Data source	<u>(level 2)</u>							
growing of catch crops	349							
increased application of	926							
	920							
Calculated payments								
according to Production								
Process approach	1275	0	0	0				
	Transaction	cost						
Differentiation category	Lai	nd use/ Typ	e of farming					







#### **Overall results: Germany**

#### **Overall results**

#### Measure 214: Example Organic farming

level 1

	Calculate	d payments ac	cording to FAD	N approach		
Differentiation category			Land	d use		
Differentiation element	hortic	ulture	arabl	e land	permane	ent crops
Differentiation category			Type of b	eneficiary		
Differentiation element	Introduction RDP commitment		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

					<u> </u>					
0	<b>Calculated paym</b>	ents according	to Production	<b>Process approa</b>	ach					
Differentiation category			Land	d use						
Differentiation element	hortic	horticulture arable land permanent crops								
Differentiation category			Type of b	eneficiary						
		Maintaining Introduction Maintaining Introduction Maintaining								
Differentiation element	Introduction	previous RDP	RDP	previous RDP	RDP	previous RDP				
	<b>RDP commitment</b>	commitments	commitment	commitments	commitment	commitments				
Data source										
Calculated payments according										
to Production Process approach	0	0	0	0	C	0 0				
	Transaction cost									
Differentiation category			Land	d use						







#### Final payment: Czech Republic

final payment		nic farming			
Differentiation category					
Differentiation element	Arable land	Pastures	pe of farming 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		40783	30466	
Calculated payments according to Production Process approach	1275	0		00400	
Transaction cost	0	0	0	0	
Total financial support	4618	2646	40783	30466	
RDR maximum payments	4010	2040	40763	30400	
Other posible 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/ Ty	pe of farming		
Differentiation element	Arable land	Pastures	Permanent crops	Horticulture	
Total eligible support (Euro/ha)	155,12	70,51	848,95	563,73	







#### Final payment: Germany

#### final payment

#### Measure 214: Example Organic farming

Differentiation category	Land use									
Differentiation element	horti	culture	arable	land	permanent crops					
Differentiation category	Type of beneficiary									
	Introduction	Maintaining	Introduction	Maintaining	Introduction	Maintaining				
Differentiation element	RDP	previous RDP	RDP	previous RDP	RDP	previous RDP				
	commitment	commitments	commitment	commitments	commitment	commitments				
	Overall results	Overall results	Overall results	Overall results	Overall results	Overall results				
	<u>(level 1)</u>	<u>(level 1)</u>	<u>(level 1)</u>	<u>(level 1)</u>	<u>(level 1)</u>	<u>(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 posible 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								
	Introduction	Maintaining	Introduction	Maintaining	Introduction	Maintaining				
Differentiation element	RDP	previous RDP	RDP	previous RDP	RDP	previous RDP				
	commitment	commitments	commitment	commitments	commitment	commitments				
Total eligible support	440	271	178	137	846	1014				







#### Level 6 : Germany

cost calculation	Measure 214: Example Organic farming						
level 6 arable land		Fo	For all products in both				
Baseline situation	Winter wheat	Ba	Baseline and AEM situations				
Costs							
Wages paid for Winter Wheat in baseline situation	Not based on calculation of sub-elements	Based	Based on calculation of available sub-elements				
	Aggregated amount	Sub-element 1:	Sub-element 2:	Sub-element 3:	Equation	Value	
		labour requirments (manhours per ha)	Euro per man hours				
Data source							
SE370 Wages paid		9,40	12,5		=C12*C13	118	
SESTO Wages paid		9,40	12,5		-012 013	110	







#### Transaction cost (in the case of Greece)

Transac	tion cost		М	easure 214	I: Example	e Organic fa	arming			
level 2										
			For all o	differentiatio	on categori	es				
K154-281 Tab	ole olives				in categori					
Transactio										
	Not based on calculation of sub-									
	elements									
	Aggregated am	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 transac	ction cost							4,2		







#### Production Process approach (in the case of Czech Republic)

Production Process approach			Measure 214: Example Organic farming				
level 2							
arable land							
Calculated pa	yments accordir	ng to Product	ion Process a	pproach			
growing of catch crops	Not based on calculation of sub- elements		Based or	n calculation of a	available sub-eli	ements	
0,000		Sub-element 1:				Equation	Value
		cost for seeds	cost for sowing	cost for removal of catch crops	%		Value
Data source		norms+ surveys	norms+ surveys	norms+ surveys	survey		
growing of catch crops		966	1575	560	11,25	=(C24+D24+E24)*F24%	5 <b>349</b>
growing of catch crops							349







