AIEAA
ASSOCIAZIONE ITALIANA DI ECONOMIA AGRARIA E APPLICATA

3rd AIEAA Conference

"Feeding the Planet and Greening Agriculture: Challenges and opportunities for the bio-economy"

CAP TOWARDS 2020: GREENING EFFECTS OF THE NEW REFORM IN ITALY

R. Solazzo*, M. Donati, F. Arfini****

***INEA, Italy**

****University of Parma, Italy**

Alghero, 25-27 June 2014

ISTITUTO NAZIONALE DI ECONOMIA AGRARIA

Political setting

- On 16 December 2013 the Council of EU Agriculture Ministers formally adopted the Common Agriculture Policy (CAP) reform package, where direct payments will be subject to regionalisation and convergence rules;
- Direct payments are organised in **basic payments** and **green payments** devoted to the production of public goods;
- The Commission's proposal was followed by the amendments of the European Parliament and the Council, that "eased" the greening requirements. The final Cap agreement established three greening requirements:
  - Crop diversification;
  - Permanent grassland;
  - EFA. Farmers with more than 15ha of eligible arable land must create an Ecological Focus Area, equivalent to 5% of their total eligible arable land.

Political setting

- The new CAP is characterized by a **high level of flexibility** that allows Member States to calibrate CAP measures in relation to their specific objectives.
- MS political choices concern both the criteria of regionalisation-convergence of direct payments and implementation issues for the greening measures.
- Italian Ministry should consider Italy as unique region and the application of the Irish model for the convergence of direct payments. (not ratified agreement)
- In Italy the green payment should be calculated as a proportion of the basic payment;
- With regard to the greening choices (including EFA), Italy will focus mainly on a clear definition **of the potential equivalent practices** for the environmental requirements according to the first package of delegated acts (March 11, 2014) and implementing acts of CAP Reform.

Political setting

- According to delegated acts, Member State shall establish **a list of nitrogen-fixing crops and define rules on where nitrogen-fixing crops qualifying as ecological focus area may be grown**
- Each Member State has to applied the **EFA weighting factors (Ewf)** to different types of EFA selected, also for nitrogen-fixing crops:
  - March 11th 2014, Delegated Acts: one hectare of a nitrogen-fixing crop was equivalent to **0.3 ha of EFA**;
  - April 2nd 2014, Commission College: one hectare of a nitrogen-fixing crop was equivalent to **0.7 ha of EFA;**
  - The justification of this change, as reported in the Commission declaration, is related to the context of the EU's **strong dependence on imports of protein crops.**

Political setting

- The environmental organisations have severely criticized this choice:
  - *"EFAs should have resulted in a modest percentage of every farm being managed for the protection of the resource base farming depends on including wildlife. But this honorable objective has been watered down so that at best, EFAs will deliver next to nothing for the natural environment, and at worst will act as a bizarre form of financial support for protein crop production. If labeling law were to be applied in this case, the word 'ecological' would be deemed false advertising."*
  - *"… gives the unfortunate impression that the Commission has been co-opted into someone's re-election campaign" (European Environmental Bureau and Bird life).*
- In contrast the producer organizations expressed satisfaction for the amendments introduced in the delegated acts:
  - *"I am very pleased that MEPs have managed to increase the value of areas of nitrogen fixing crops so that if a farmer grows 1ha of qualifying crop this would deliver 0.7ha of EFA rather than the 0.3ha originally proposed". (Meurig Raymond, President of The National Farmers' Union of England and Wales)*

Objectives

- Estimating the impact of greening payments of CAP reform in Emilia-Romagna according to different **EFA weighting factor (Ewf)** for areas cultivated **with nitrogen fixing crops;**
- Focus on impact of:
  - Reduction in CAP budget available for Italy;
  - Regionalisation and internal convergence of payments;
  - Introduction of the three environmental measures (greening);
  - Decision on the nitrogen-fixing crops as EFA:
    - 0.3 Ewf, proposed by the Commission in March (Delegated Acts) and 0.7 Ewf, as later amended;
    - Introduction of Nitrogen-fixing crops: are alfalfa, soya, pulses;

Data

FADN DATA (2012)

- Structure and land use, production, quantity and value of production, variable costs and payments
  - Level of detail: single production processes at farm level
- Descriptive features of farm in order to set the greening constraints (e.g. organic farms)

ANALYSIS

- Emilia-Romagna region (700 farms)
- All crops in FADN Database, aggregates in 48 crops category
  - 3 nitrogen-fixing crops (soya, alfalfa and pulses) qualified as Ecological Focus Area

Weighting system: The evaluation has been carried out at farm level using the FADN weighting system in order to make the results of simulation more consistent with the production structure of the analysed area

Positive Mathematical Programming (PMP): main features

- Three steps approach;
- Generalized Maximum Entropy;
- Policy setting after calibration;
- Self selection rules;
- Latent information problems (latent crops include the nitrogen-fixing crops).
  - Farms to meet the constraint of EFA may relocate surface at left fallow area, with a cost of land management of 100 €/ha, or allocate the surface to one or more of the three nitrogen-fixing crops.

Distribution of direct payments into the model

- **EXTERNAL CONVERGENCE**
  - Reduction of the ceiling (Italy): -5.5% in 2015 and -10.3% in 2019 compared to the current situation
- **REGIONALISATION AND INTERNAL CONVERGENCE**
  - **Regionalisation: Italy as unique region**
  - the average national unit value in Italy in 2019 **(292.7 €/ha)** was estimated on the entire national FADN database (more than 11,000 farms), applying the FADN weighting system
  - **Convergence of basic payment component (70%)** based on the "Irish model":
    - recovery of 1/3 of the difference from 90% of average national unit value in 2019
    - no payment entitlement with a unit value lower than 60 % of the average unit value
    - maximum decrease of the initial unit value of 30 %
  - **the green payment (30%)** was calculated as a quota of the total value of the farm basic payment entitlements.

The greening into the PMP model (1)

Measure	CAP Reform
1. Diversification (arable land)	**10-30 ha: 2 crops** **> 30 ha: 3 crops**
Limits for crops	2 crops: < 75% (main crop) 3 crops: < 75% (main crop) < 95% (2 main crops)
Exception	- if entirely cultivated with crops under water - if > 75% (eligible agricultural area) is grassland or used for production of grass or other herbaceous forage or cultivated with crops under water and the remaining arable area < 30 ha - if > 75% (arable land) for production of grass or other herbaceous forage, land laying fallow and the remaining arable area < 30 ha
2. Permanent grassland	**Maintenance of permanent grassland and permanent pasture**
Maximum conversion	5% (at farm level)
3. Ecological focus area (arable land)	**5%**
Mandatory	> 15 ha (arable land)
Exception	- if > 75% (eligible agricultural area) is grassland or used for production of grass or other herbaceous forage or cultivated with crops under water and the remaining arable area < 30 ha - if > 75% (arable land) for production of grass or other herbaceous forage, land laying fallow or used for cultivation of leguminous crops and the remaining arable area < 30 ha
EFA	- land left fallow - nitrogen-fixing crops ***(EFA weighting factor 0.3 or 0.7)***
Entitled IPSO FACTO to the greening component	**- organic farms**

The greening into the PMP model (2)

Crop diversification

$$h_{n,s} \leq 0.75 \sum_{s} h_{n,s} \Leftarrow \left\{ \sum_{s} h_{n,s} > 10 \mathrm{V} org_n \neq 1 \mathrm{V} fid1_n \neq 1 \mathrm{V} fid2_n \neq 1 \right\}$$

$$h_{n,s} + h_{n,r} \leq 0.95 \sum_{s,r} h_{n,s} \Leftarrow \left\{ \sum_{s} h_{n,s} > 30 \mathrm{V} org_n \neq 1 \mathrm{V} fid1_n \neq 1 \mathrm{V} fid2_n \neq 1 \right\}$$

Maintenance of permanent grassland

$$h_{n,g} \geq \bar{h}_{n,g}(1 - 0.05) \Leftarrow \{org_n \neq 1\}$$

Ecological Focus Area (EFA)

$$\sum_{j} h_{n,j} + green_n \leq b_n$$

$$green_n \geq \left\{ \left[0.05 \left(\sum_{s} h_{n,s} \right) \right] - \left[\sum_{f} h_{n,f} + \left(\sum_{l} h_{n,l} + \sum_{p} h_{n,p} + \sum_{q} h_{n,q} \right) Ewf \right] \right\} \Leftarrow \left\{ \sum_{s} h_{n,s} > 15 \mathrm{V} org_n \neq 1 \mathrm{V} fid1_n \neq 1 \mathrm{V} fid2_n \neq 1 \right\}$$

Nitrogen-fixing crops

EFA weighting factor

Policy scenarios

- **Reference scenario** (**SIM_1**):

  completion of Health Check (mainly total decoupling and updating of modulation).

- **SIM_0.3_EC** (CAP Reform with Ewf for nitrogen-fixing crop equal to 0.3):
  - Simulation of greening constrains and convergence of direct payments;
  - the weighting factor for nitrogen-fixing crops as EFA is equal to 0.3 (according to the EC proposal on 11 March 2014).

- **SIM_0.7_fin** (CAP Reform with Ewf for nitrogen-fixing crop equal to 0.7):
  - Simulation of greening constrains and convergence of direct payments;
  - the weighting factor for nitrogen-fixing crops as EFA is equal to 0.7 (according to the EC declaration on 2 April 2014).

Land allocation

	(Ha)			Var. % compared to Sim_1	
Crops	**Sim_1**	**Sim_0.3_EC**	**Sim_0.7_fin**	**Sim_0.3_EC**	**Sim_0.7_fin**
durum wheat	62,471	59,542	60,140	-4.7	-3.7
soft wheat	174,936	166,553	168,627	-4.8	-3.6
barley	22,763	22,770	22,743	0.0	-0.1
maize	132,247	125,080	126,184	-5.4	-4.6
other cereals	37,710	38,277	38,553	1.5	2.2
processing tomato	24,367	24,207	24,249	-0.7	-0.5
other hortic.	30,654	30,568	30,573	-0.3	-0.3
permanent crops	145,871	145,871	145,871	0.0	0.0
sugarbeet	36,989	36,992	36,997	0.0	0.0
pulses*	2,894	2,898	2,951	0.1	2.0
soya*	14,460	16,305	22,883	12.8	58.3
alfalfa*	259,082	265,858	263,153	2.6	1.6
other fodder crops	43,657	44,528	44,383	2.0	1.7
other crops	15,795	15,897	15,889	0.6	0.6
grassland	92,859	92,860	92,829	0.0	0.0
left fallow	7,127	15,674	7,856	119.9	10.2
				(% of UAA)	
EFA required	-	*12,176*	*10,406*	*1.1*	*0.9*
Total UAA	1,103,881	1,103,881	1,103,881		

*** Nitrogen-fixing crops**

- ✓ major impact of the greening requirements on cereal crops:
  - Specialised farms
  - Cereal crops choices as EFA in order to maintain more profitable crops
- ✓ New EFA about 1% of regional UAA (10-12,000 Ha)
- ✓ among the 3 possible nitrogen-fixing crops, farms prefer alfalfa and soya, rather than pulses crops.
- ✓ Implication for cheese-PDO systems

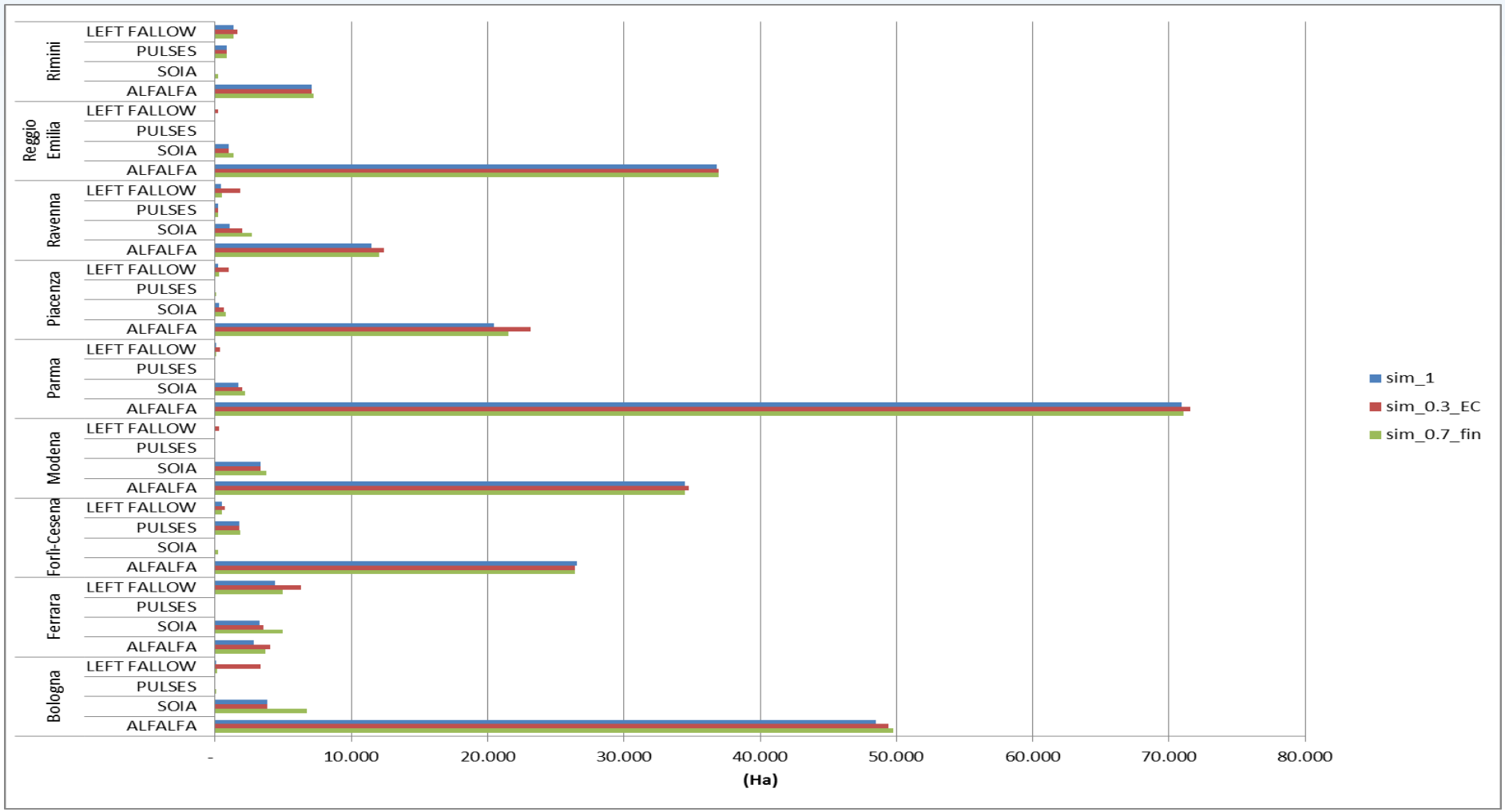
Land allocation

	(Ha)			Var. % compared to Sim_1	
Crops	**Sim_1**	**Sim_0.3_EC**	**Sim_0.7_fin**	**Sim_0.3_EC**	**Sim_0.7_fin**
durum wheat	62,471	59,542	60,140	-4.7	-3.7
soft wheat	174,936	166,553	168,627	-4.8	-3.6
barley	22,763	22,770	22,743	0.0	-0.1
maize	132,247	125,080	126,184	-5.4	-4.6
other cereals	37,710	38,277	38,553	1.5	2.2
processing tomato	24,367	24,207	24,249	-0.7	-0.5
other hortic.	30,654	30,568	30,573	-0.3	-0.3
permanent crops	145,871	145,871	145,871	0.0	0.0
sugarbeet	36,989	36,992	36,997	0.0	0.0
pulses*	2,894	2,898	2,951	0.1	2.0
soya*	14,460	16,305	22,883	12.8	58.3
alfalfa*	259,082	265,858	263,153	2.6	1.6
other fodder crops	43,657	44,528	44,383	2.0	1.7
other crops	15,795	15,897	15,889	0.6	0.6
grassland	92,859	92,860	92,829	0.0	0.0
left fallow	7,127	15,674	7,856	119.9	10.2
				(% of UAA)	
EFA required	-	*12,176*	*10,406*	*1.1*	*0.9*
Total UAA	1,103,881	1,103,881	1,103,881		

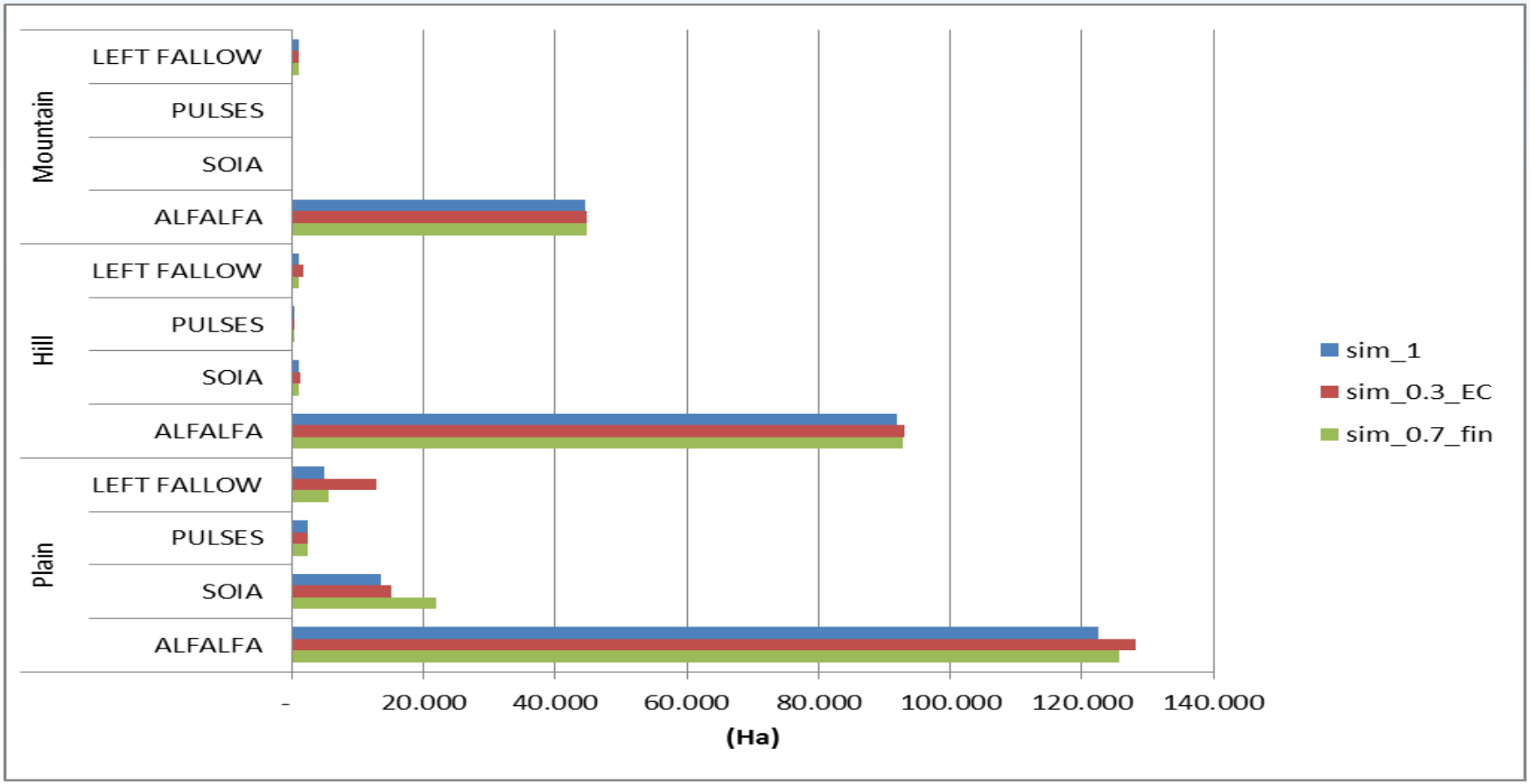
*** Nitrogen-fixing crops**

- ✓ major impact of the greening requirements on cereal crops:
  - Specialised farms
  - Cereal crops choices as EFA in order to maintain more profitable crops
- ✓ New EFA about 1% of regional UAA (10-12,000 Ha)
- ✓ among the 3 possible nitrogen-fixing crops, farms prefer alfalfa and soya, rather than pulses crops.
- ✓ Implication for cheese-PDO systems

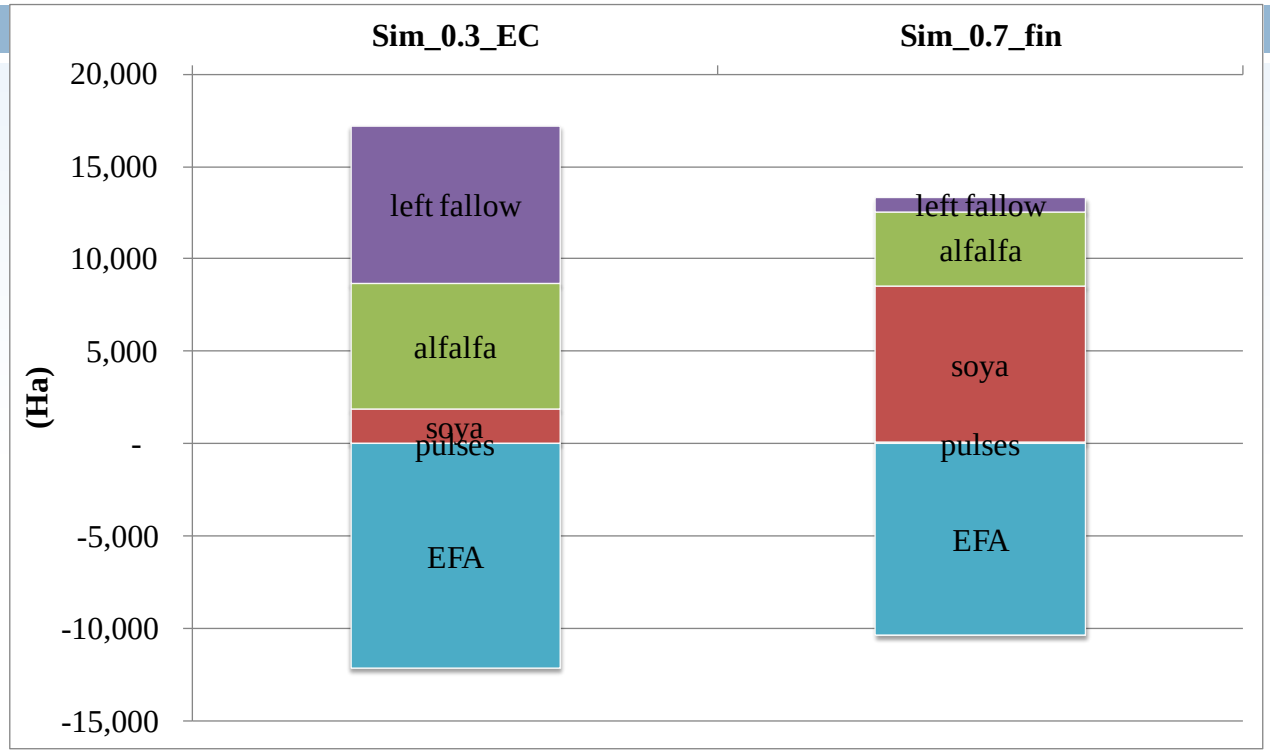
Land allocation by province



Land allocation by altitude



EFA allocation



✓with lower Ewf (0.3), farms allocate EFA to:

- ✓laying fallow area (rather than replacing, for 1 ha of EFA, over 3 hectares of current crops with nitrogen-fixing crops)
- ✓or nitrogen-fixing crop already grown in the farm (Alfalfa)

✓with the higher Ewf (0.7) almost all new EFA allocated to nitrogen-fixing crops, mainly soya, due to the higher profitability

Economic outcomes

	Sim_1	Sim_0.3_EC	Sim_0.7_fin	Sim_0.3_EC	Sim_0.7_fin
	(Euro/ha)	(Euro/ha)		Var. % compared to Baseline	
Gross salable prod.	3,354	3,336	3,344	-0.5 %	-0.3 %
Variable costs	1,269	1,260	1,265	-0.7 %	-0.3 %
GM I level (greening)	***2,086***	***2,076***	***2,080***	***-0.5% (-10 €/ha)***	***-0.3% (-6 €/ha)***
Payments	318.0	283.5	283.5	-10.8 %	-10.8 %
GM II level (green.+ payments)	***2,404***	***2,359***	***2,363***	***-1.8% (-44 €/ha)***	***-1.7% (-40 €/ha)***

Greening

✓Greening requirements seems not really affect the farms income in both scenarios

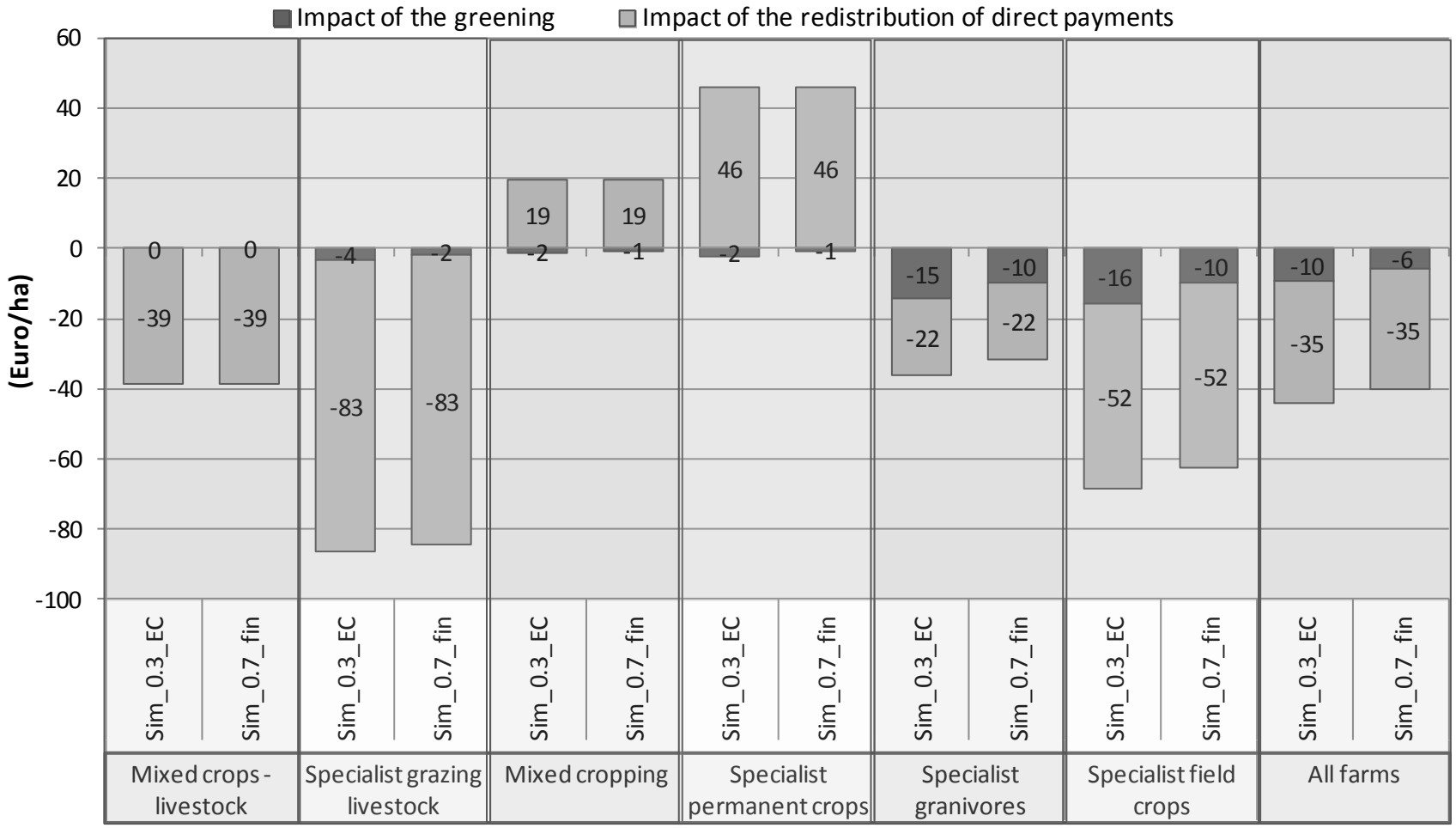
✓The "cost of the greening" would not exceed 10 €/ha at regional level. Less than 0.5% of GM I level

Regionalisation/convergence

✓At regional level, average direct payments reduction of 10.8%

✓At farm level: the greening measures and, above all, the convergence of direct payments would lead to a reduction of about 2% of the GM II level

Economic outcomes



Farms specialised in grazing livestock and field crops: significant reduction in II level GM
Farms spec. in permanent crops, increase in GM (at the base line low or no Direct Payments)

Final remarks

- European Parliament and Council have substantially emptied the environmental force of the CAP's greening
- The increased Ewf for nitrogen-fixing crops as EFA in the Delegated Acts, further confirms this statement
- The "cost of the greening", with nitrogen-fixing crops qualified as EFA, would not exceed 10 €/ha at regional level
- More significant impact of direct payments redistribution, compared to greening requirements (average reduction in GM II level about -2% at regional level)
- The Italian convergence criterion of direct payments is "conservative", ensuring also in 2020 a significant link with farm historical payments