## MACSUR

# Regional Pilot Case Study Mostviertel – AT





### **Preliminary results**

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#### Overview

An integrated modelling framework (IMF) is developed to analyse impacts of climate and policy changes on farm welfare and the environment. The IMF is applied on two contrasting grassland (south) and cropland (north) dominated Austrian landscapes (Fig.1).

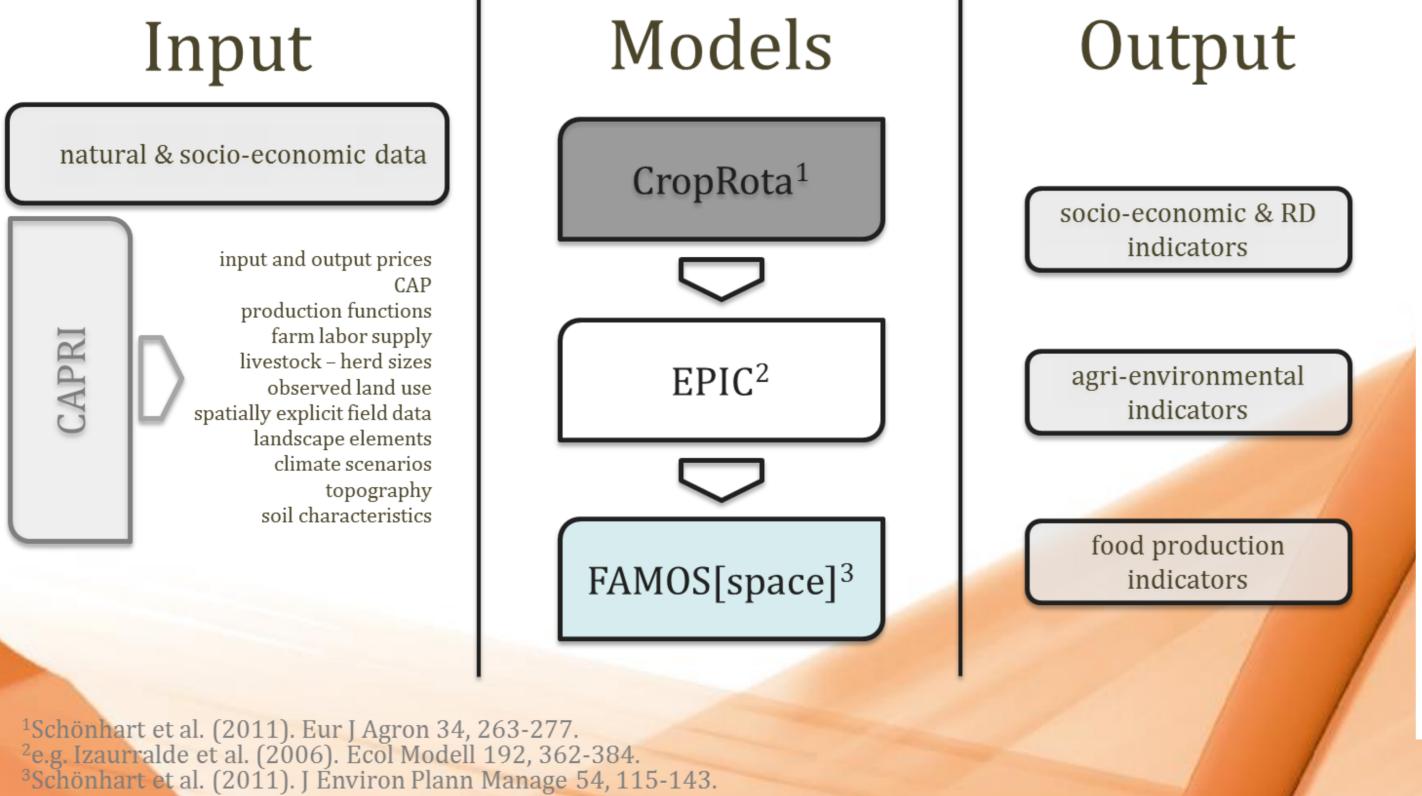


Fig.1: Location of case study landscapes

### **Methods and Data**

Fig.2: IMF Overview

The IMF combines the crop rotation model CropRota, the bio-physical process model EPIC and the bio-economic farm model FAMOS[space] and applies combined climate change and policy scenarios (Fig.2; Tab.1)



**Tab.1: Combined Policy and Climate Scenarios** 

Scenario	AEP	CAP reform	Climate change in 2040	
name			Δ temperature (°C)	$\Delta$ precipitation (%)
REF_2008	no	no	0.0	0%
BAU_2008	yes	no	0.0	0%
REF_2040	no	yes	0.0	0%
BAU_2040	yes	yes	0.0	0%
CS01	yes	yes	+ 1.6	0%
CS05	yes	yes	+ 1.6	+20%
CS09	yes	yes	+ 1.6	-20%

AEP: agri-environmental policy

## **Preliminary Results**

Changing policies reduce farm gross margins by -36% and -5% in the two landscapes respectively. Climate change increases gross margins and farms can reach pre-reform levels on average (Fig.3). Climate induced intensification such as removing of landscape elements and increasing fertilization can be moderated by an agri-environmental program (AEP). However, productivity gains from climate change increase the opportunity costs for AEP participation.

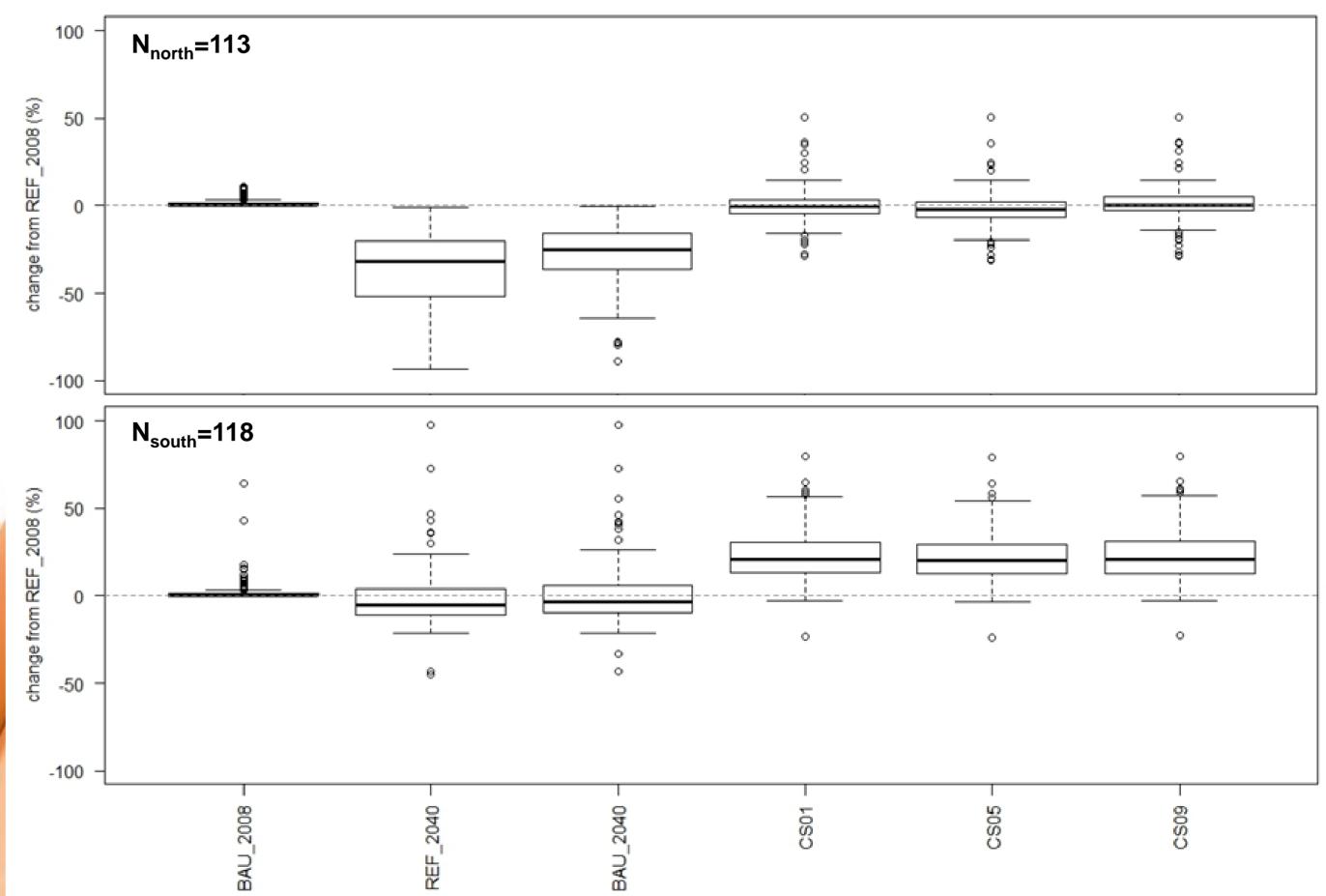


Fig.3: Changes in total gross margin from REF\_2008

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