

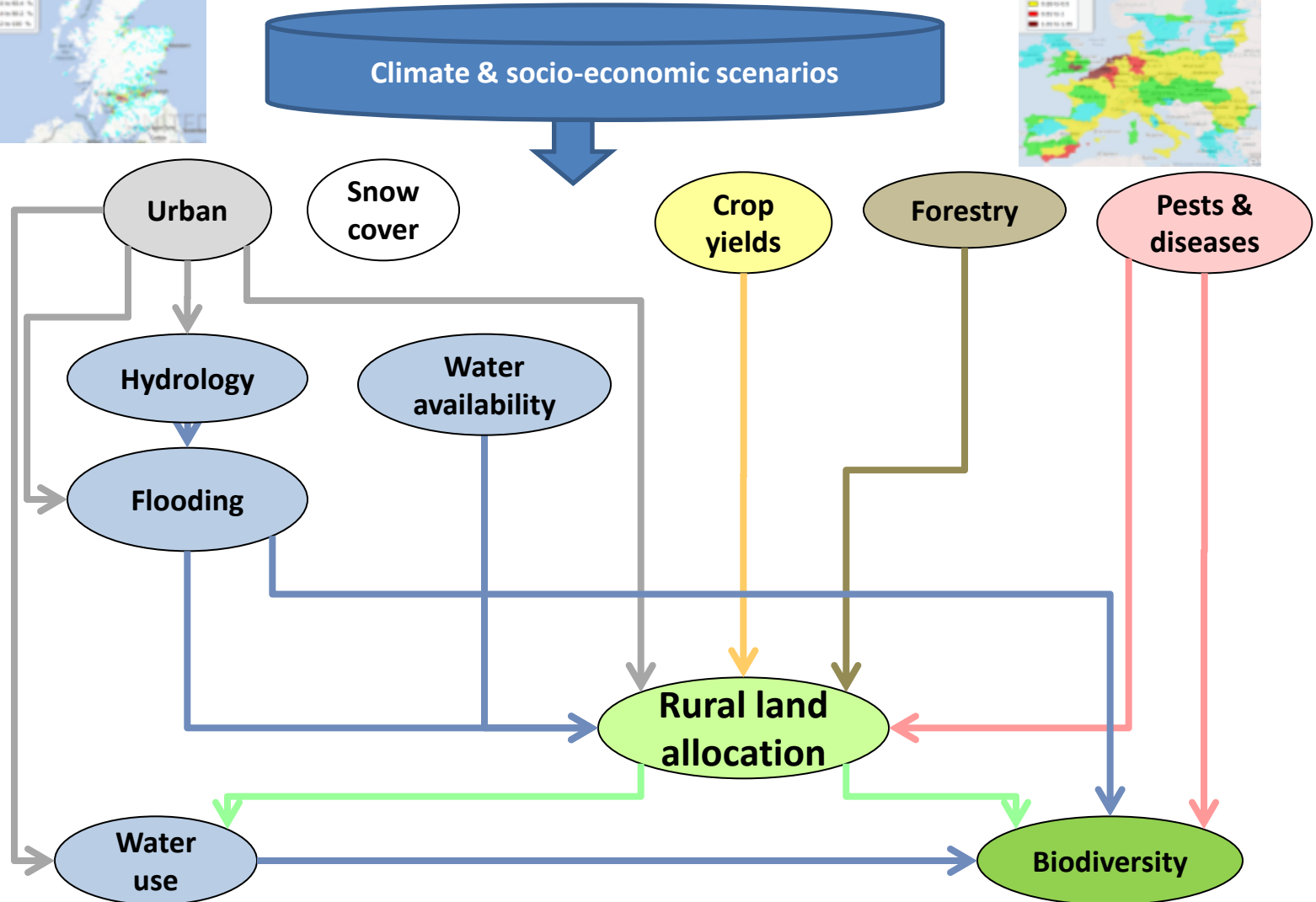
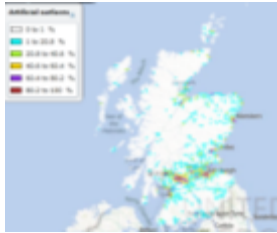
CLIMSAVE MACSUR IMPRESSIONS

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The CLIMSAVE project

Climate Change Integrated Assessment Methodology for Cross-Sectoral Adaptation and Vulnerability in Europe





The CLIMSAVE project

Climate Change Integrated Assessment Methodology for Cross-Sectoral
Adaptation and Vulnerability in Europe

The CLIMSAVE Integrated Assessment Platform (IAP) is a web-based tool to enable you to explore climate change from regional to EU scales

- **Impacts** – simulates how climate and socio-economic change may affect urban, flooding, agriculture (arable and grassland), forest, water resources and biodiversity
- **Vulnerability** – identify ‘hot spots’ in Europe
- **Adaptation** – assess how adaptation can reduce impacts
- **Accessible at www.climsave.eu**



<http://ec.europa.eu/research/fp7/>Funded under the European Commission
Seventh Framework Programme
Contract Number: 244031





The CLIMSAVE project

Climate Change Integrated Assessment Methodology for Cross-Sectoral Adaptation and Vulnerability in Europe

Save scenario

Load scenario

Sectoral Indicators



Absolute



Relative to Baseline

Help

Export



Map

Scenario selection

Timeslice:

2050s

Sector :

Agriculture

Indicator:

Intensively farmed

Visualise input
meteo data

Emission scenario:

A1

Climate model:

CSMK3

Climate sensitivity:

Middle

Socio-economic scenario:

We are the world

Sea level change = +0.21 m

Socio-economic scenario settings

SESS details ON

Economic (2)

Environmental(1)

Policy
governance

Capitals

Guidance

Social

Technological

Economic (1)

Population change = +5% from current

-26 33

Water savings due to behavioural change = +45% from current

27 70

Change in dietary preference for beef and lamb = -21% from c

-61 58

Change in dietary preference for chicken and pork = -21% from

-61 149

Household externalities preference = 2

1 4

RUN ->

INTEGRATED

Set Legend

Intensively farmed- % of grid

0 to 0.1 %

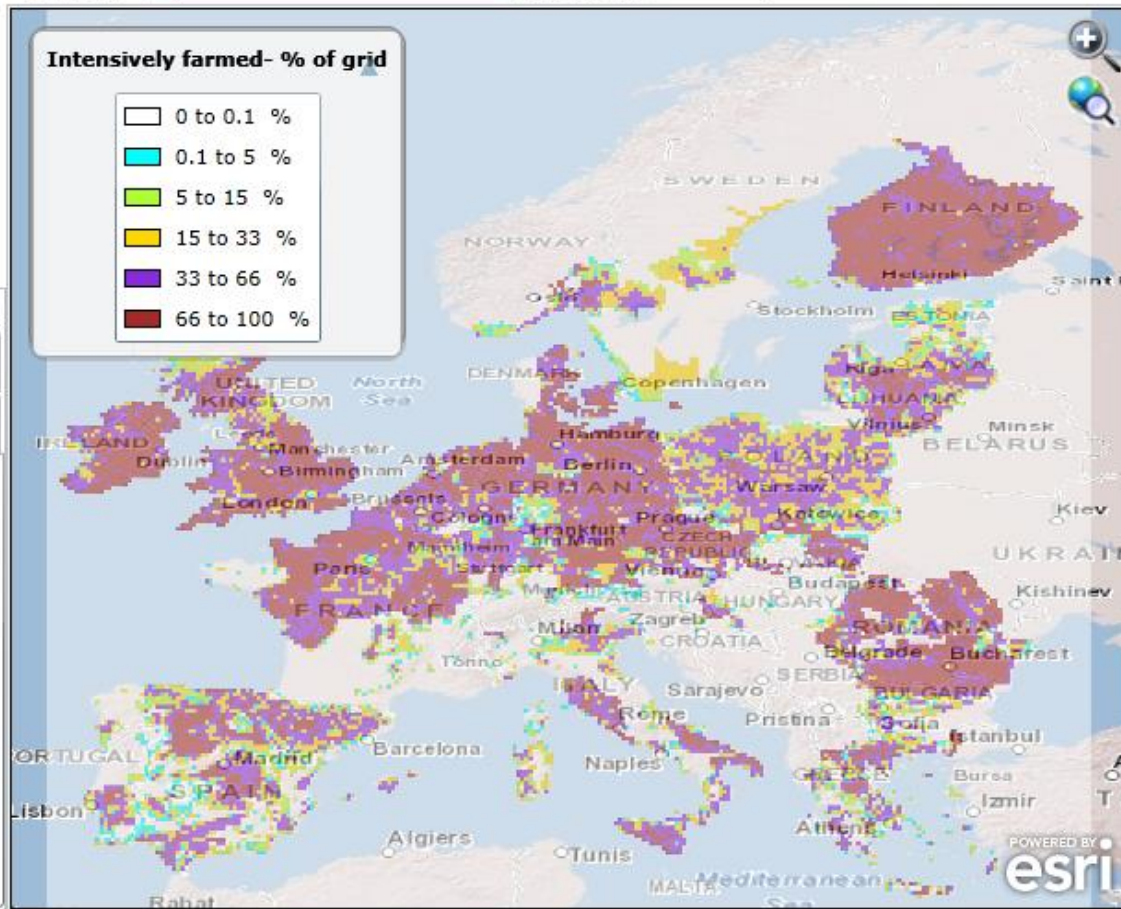
0.1 to 5 %

5 to 15 %

15 to 33 %

33 to 66 %

66 to 100 %



Lat: 64.98, Lon: 17.17 VALUE = 0.0 %

Opacity:

0.5

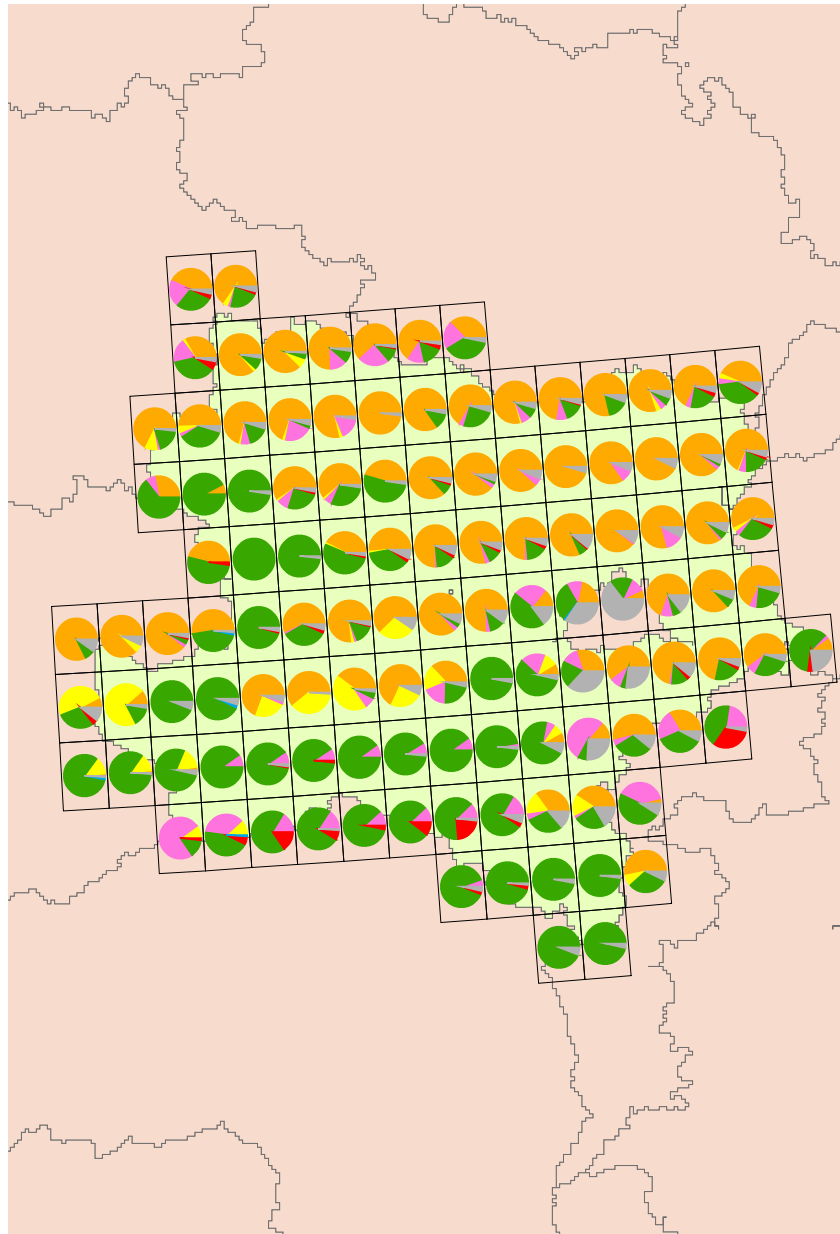
Impact

Vulnerability

Adaptation

Cost effectiveness

Results: AT12 current land use



Land use (% of grid)



Results: Production

Europe

| Scenario | | Total Production (Mt) | | | | | (kMlitre) | % |
|----------|---------|-----------------------|---------|--------|------|------|-----------|-------------------|
| Socio | Climate | Cereal | Oilseed | Potato | Soya | Meat | Milk | Agric Land Change |
| Current | Current | 468 | 55 | 266 | 0.8 | 812 | 48 | 0 |
| | SSP2 | 501 | 59 | 282 | 1.0 | 906 | 49 | -10 |
| | SSP3 | 545 | 58 | 275 | 0.7 | 875 | 65 | -2.5 |
| | | | | | | | | |
| | SSP2 | | | | | | | |
| | IPCM4 | 503 | 59 | 308 | 0.8 | 880 | 46 | -18.1 |
| | HADGEM | 492 | 58 | 285 | 0.8 | 875 | 57 | -15.2 |
| | | | | | | | | |
| | SSP3 | | | | | | | |
| | IPCM4 | 530 | 59 | 296 | 0.8 | 872 | 55 | -12 |
| | HADGEM | 512 | 58 | 287 | 0.8 | 895 | 54 | -10.1 |

Results: Land Change

Austria NUTS2 = AT12

| Scenario | | Land use (kha) | | | |
|----------|---------|----------------|-------------------|--------|-----------|
| Socio | Climate | Intensive | Extensive grazing | Forest | Abandoned |
| Current | Current | 962 | 121 | 701 | |
| SSP2 | | 938 | 50 | 679 | 117 |
| SSP3 | | 975 | 120 | 689 | -1 |
| | | | | | |
| SSP2 | Current | 938 | 50 | 679 | 117 |
| | IPCM4 | 948 | 42 | 539 | 255 |
| | HADGEM | 1121 | 69 | 415 | 178 |
| | | | | | |
| SSP3 | Current | 975 | 120 | 689 | -1 |
| | IPCM4 | 816 | 78 | 585 | 304 |
| | HADGEM | 976 | 81 | 423 | 303 |

- The results are not just dependent on AT12
- Prices depend largely on
 - EU population
 - Level of yield increases from breeding
 - Level of imports

Results: Land Change

Italy ITG2

| Scenario | | Land use (kha) | | | |
|----------|---------|----------------|-------------------|--------|-----------|
| Socio | Climate | Intensive | Extensive grazing | Forest | Abandoned |
| Current | Current | 1002 | 260 | 362 | |
| SSP2 | | 1227 | 85 | 128 | 183 |
| SSP3 | | 1240 | 230 | 153 | 0 |
| | | | | | |
| SSP2 | Current | 1227 | 85 | 128 | 183 |
| | IPCM4 | 711 | 68 | 132 | 711 |
| | HADGEM | 953 | 83 | 112 | 476 |
| | | | | | |
| SSP3 | Current | 1240 | 230 | 153 | 0 |
| | IPCM4 | 575 | 33 | 107 | 908 |
| | HADGEM | 914 | 51 | 136 | 522 |

- SSP2 is bad for extensive grazing
- Scenarios are good for agriculture (lots of forage maize)
- Climate is bad for agriculture
- IPCM4 is worst

Results: W.Wheat Yield

Italy ITG2

| Scenario | | Yield, % of ... | | |
|----------|---------|-----------------|--------------------|--------------|
| Socio | Climate | ...baseline | ...current climate | Scenario |
| Current | Current | 8.3t/ha | | |
| SSP2 | | 117% | | +22%, less N |
| SSP3 | | 113% | | +12% |
| | | | | |
| SSP2 | IPCM4 | 125% | 107% | |
| | HADGEM | 125% | 107% | |
| | | | | |
| SSP3 | IPCM4 | 116% | 102% | |
| | HADGEM | 122% | 107% | |

- Scenario 22% yield increase tempered by increase in area
- Average is different because of change in amount of land used
 - More land means more poorer land

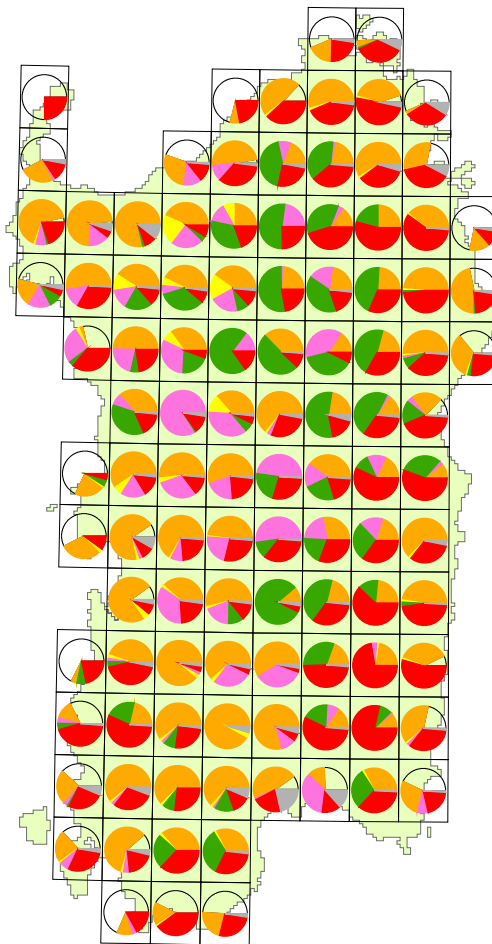
Results: Land Change

Finland FI13

| Scenario | | Land use (kha) | | | |
|----------|---------|----------------|-------------------|--------|-----------|
| Socio | Climate | Intensive | Extensive grazing | Forest | Abandoned |
| Current | Current | 39 | 923 | 5111 | |
| SSP2 | | 19 | 20 | 5111 | 922 |
| SSP3 | | 19 | 20 | 5111 | 922 |
| | | | | | |
| SSP2 | Current | 19 | 20 | 5111 | 922 |
| | IPCM4 | 0 | 20 | 3526 | 2526 |
| | HADGEM | 189 | 6 | 3613 | 2264 |
| | | | | | |
| SSP3 | Current | 19 | 20 | 5111 | 922 |
| | IPCM4 | 1202 | 2 | 2711 | 2157 |
| | HADGEM | 647 | 2 | 3176 | 2248 |

- Scenarios make extensive grazing unprofitable
- Climate makes forest unprofitable (is this the forest model?)
- SSP3 AND climate makes lots of arable cropping profitable

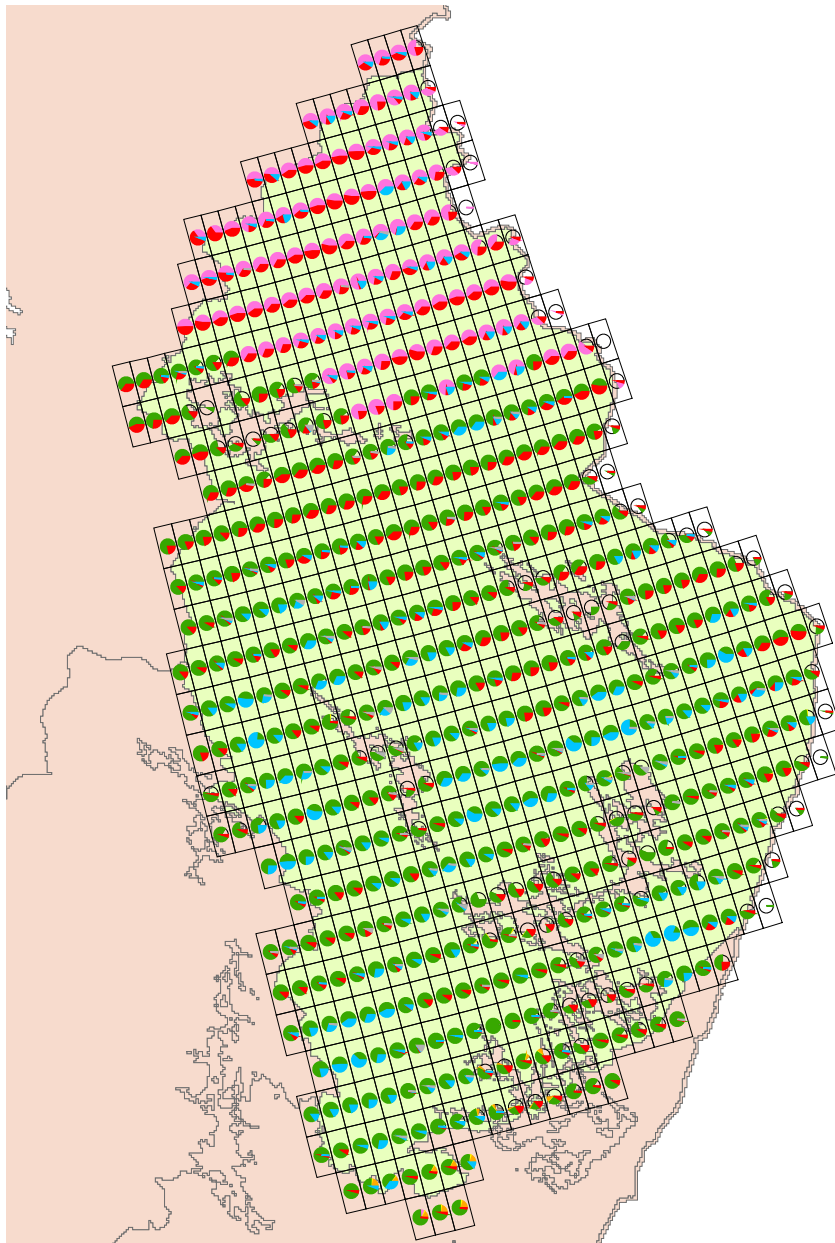
Results: ITG2 current land use



Land use (% of grid)



Results: FI13 current land use



Land use (% of grid)



Not land



Intensive arable



Dairy



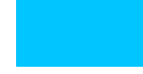
Extensive



Forest



Abandoned

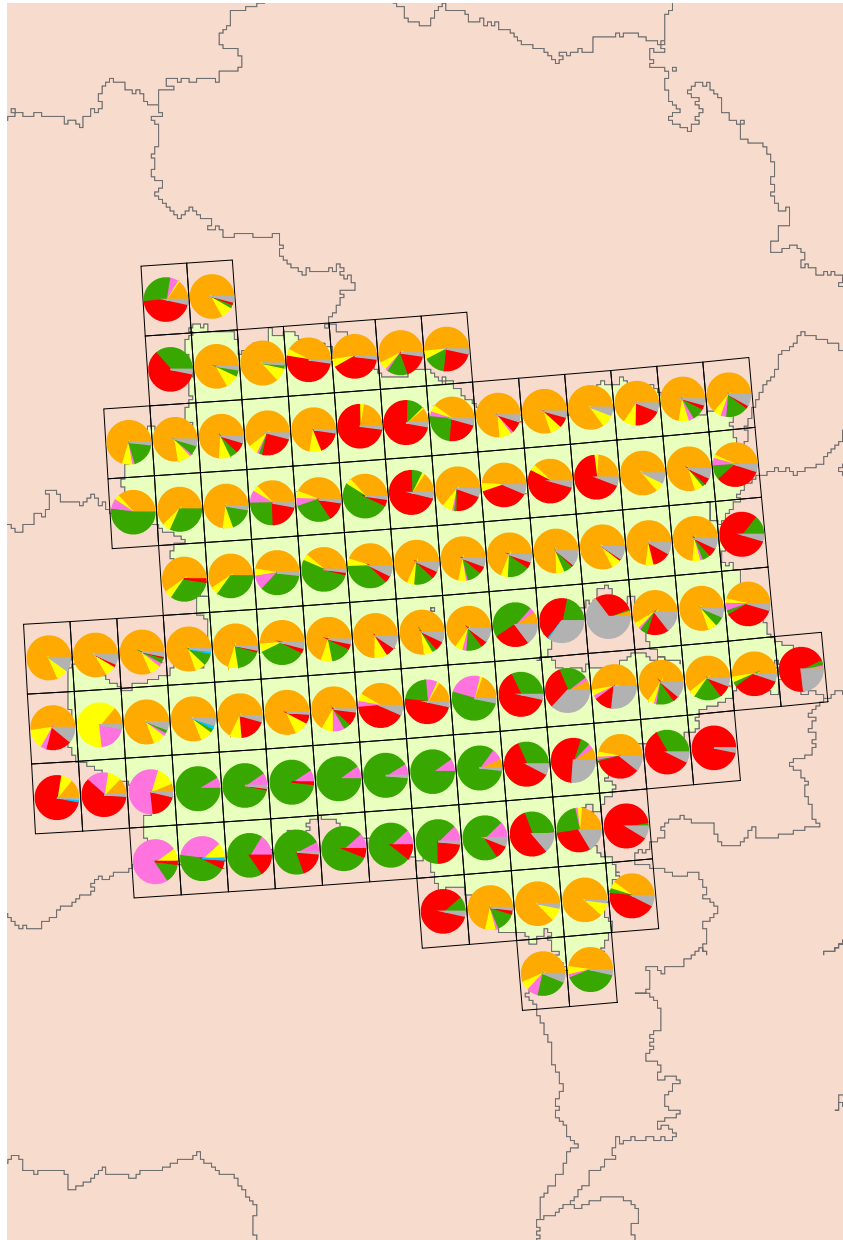


Flood



Urban

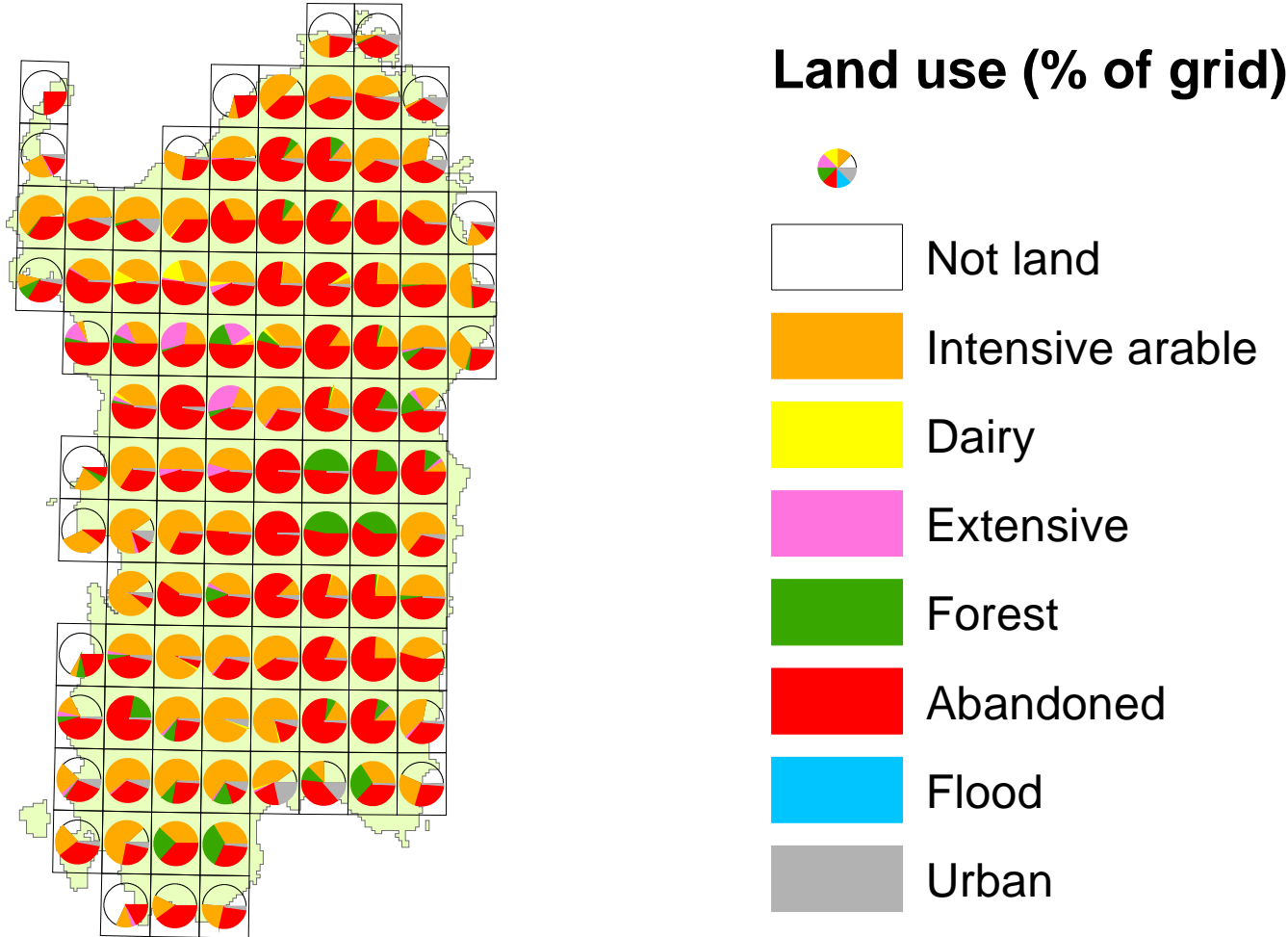
Results: AT12 SSP3 HADGEM land use



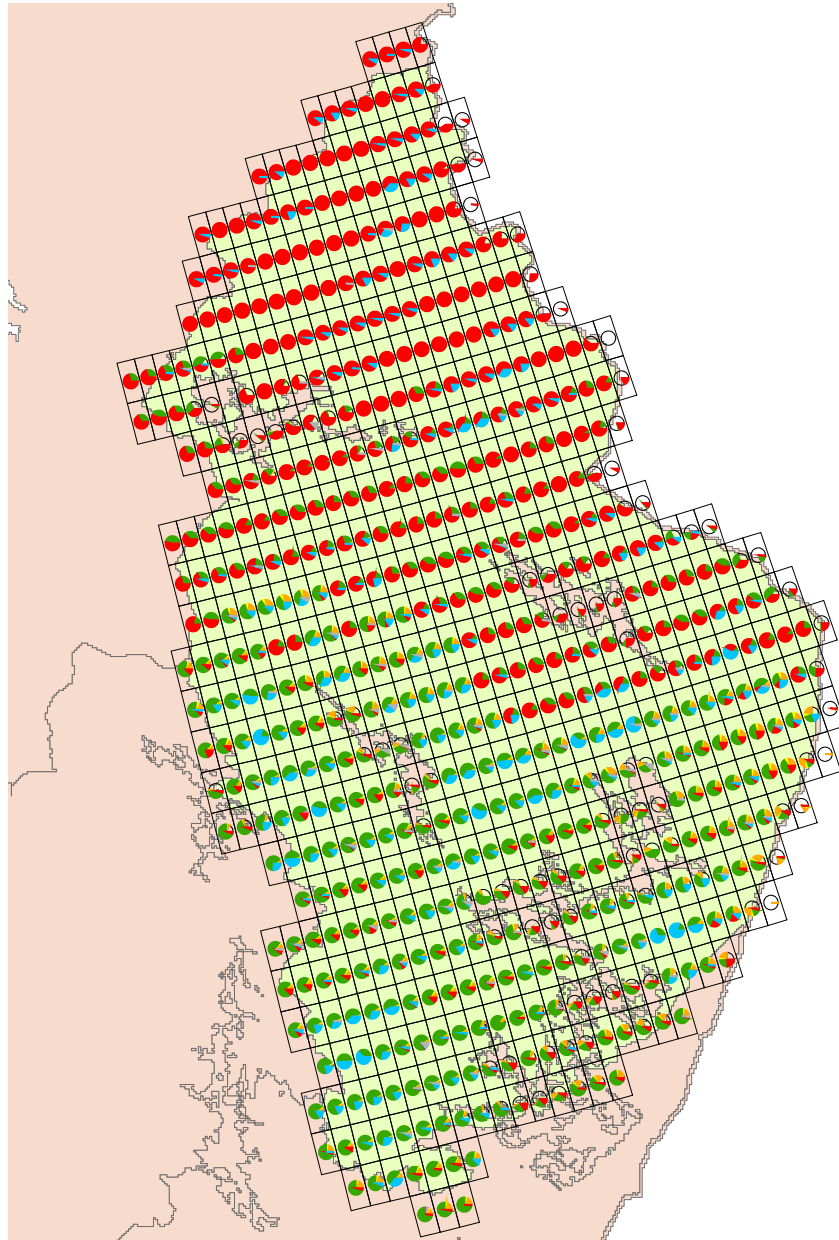
Land use (% of grid)



Results: ITG2 SSP3 HADGEM land use



Results: FI13 SSP3 HADGEM land use



Land use (% of grid)



Not land



Intensive arable



Dairy



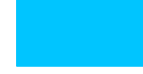
Extensive



Forest



Abandoned



Flood



Urban



High End scenarios and Transient land change

Save scenario Load scenario Sectoral Indicators Absolute Relative to Baseline Help Export Map

Scenario selection Timeslice: Baseline Sector : Agriculture Indicator: Intensively farmed

Annual Temperature changed = +8.0 °C
0 °C 8 °C

Winter Precipitation ch. = +50% Summer Precipitation ch. = -50%
-50 50 -50 50

CO2 concentration = 700 ppm Sea level change = 0 m
350 700 0 3

Socio-economic scenario settings SESS details ON

Economic (2) Environmental(1) Policy governance Capitals

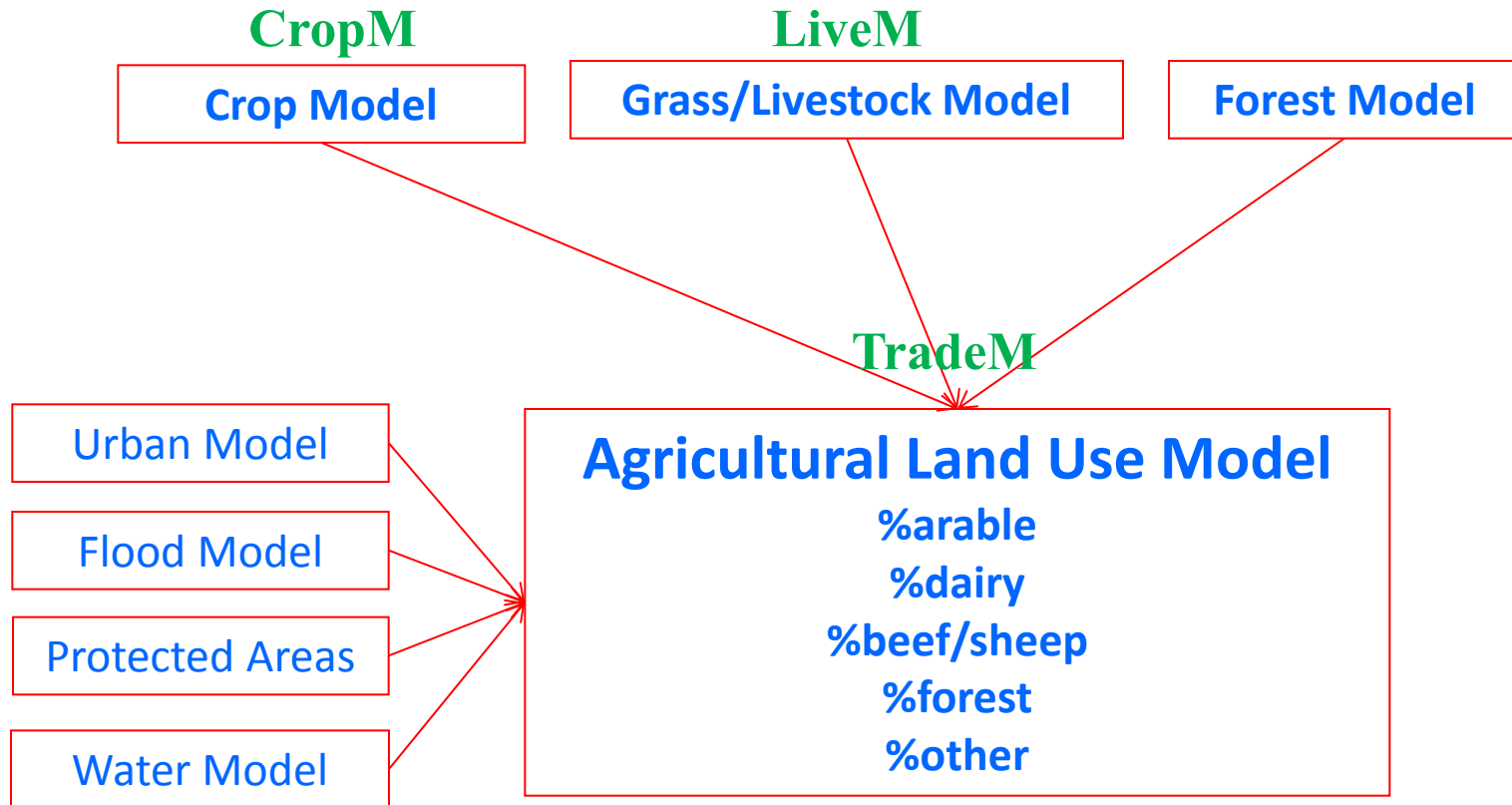
Guidance Social Technological Economic (1)

The sliders and buttons on these tabs determine the scenario setting used by the models to determine impacts. You can change them to:

- Carry out a Sensitivity Analysis - under the baseline / current climate, investigate the response of the indicators to changes in the settings
- Explore the effects of uncertainty within a socio-economic scenario - the CLIMSAVE socio-economic scenarios have been developed by stakeholders, assisted by the CLIMSAVE team. They represent contrasting alternative futures within which to explore the potential impacts of future change. They are not predictions of the future. You can explore the effects of uncertainty within a scenario by moving the sliders within the green range. These values are

RUN Set Legend

Lat: 37.00, Lon: 0.57 Opacity: [Slider]



Have crop, livestock and trade models