

Funds invested in forest fire prevention in Mediterranean countries: a preliminary analysis of the PREVAIL project

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Outline

- 1) Background
- 2) The PREVAIL project: aim and objectives
- 3) Funds invested in fire prevention: the EU Rural Development Program (RDP)
- 4) Further steps
- 5) Concluding remarks

1. Background

- Extreme weather conditions & fuel-rich rural landscapes = ideal conditions for wildfires to spin out of control
- Fire management organizations are increasingly confronting with fire-line intensities well above the extinction capacity by ground means
- Fireline intensity limit for directly working on flaming fronts is $\sim 4,000 \text{ kWm}^{-1}$.
- Indirect attack limit is $\sim 10,000 \text{ kWm}^{-1}$

Extreme wildfires always exceed these limits!



1. Background



UCPM

When a **forest fire gets too big for a country to extinguish on its own**



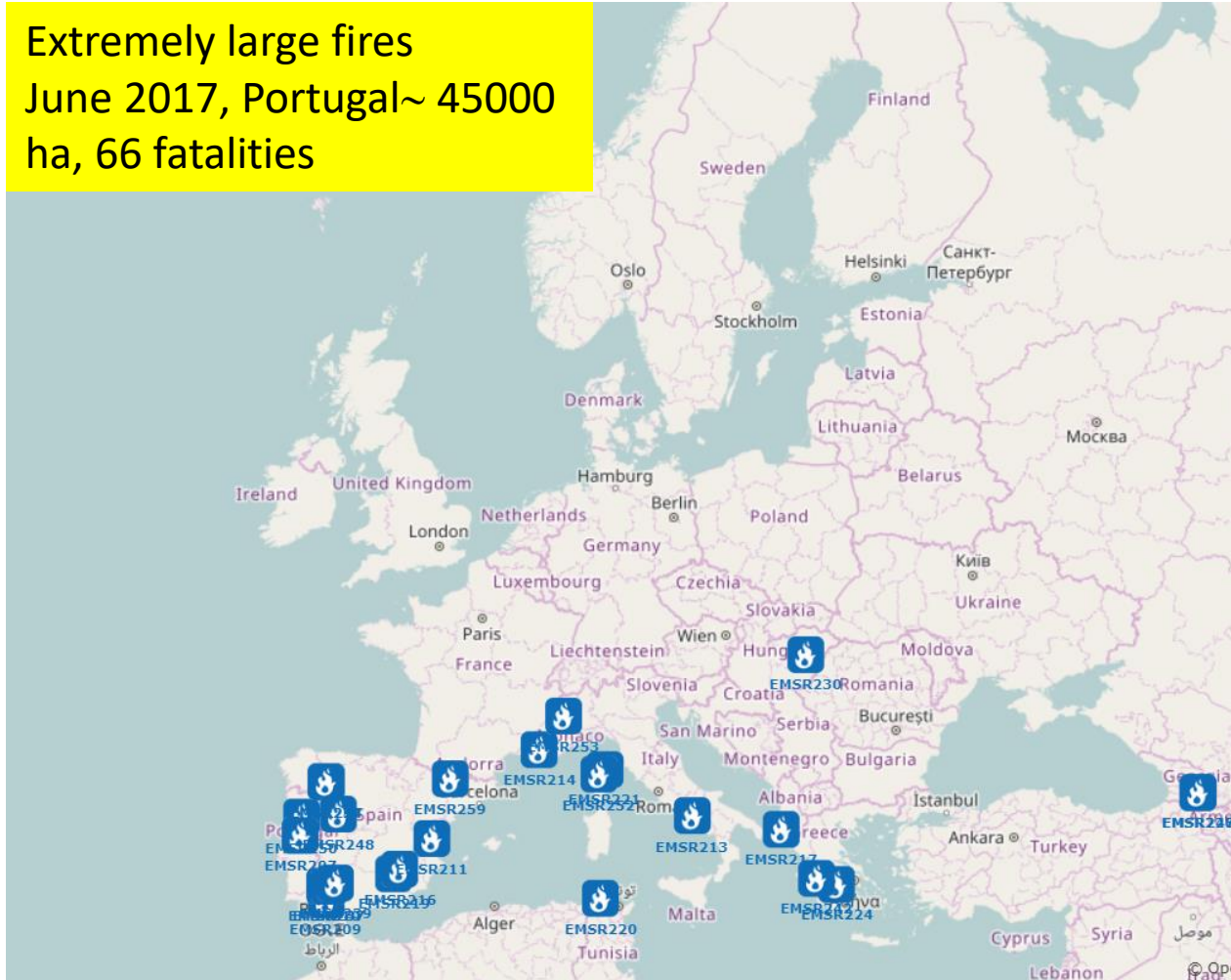
European Union Civil Protection Mechanism (UCPM) can be activated



coordinated, rapid and effective international response, through a direct link with national civil protection authorities

1. Background

Extremely large fires
 June 2017, Portugal~ 45000
 ha, 66 fatalities

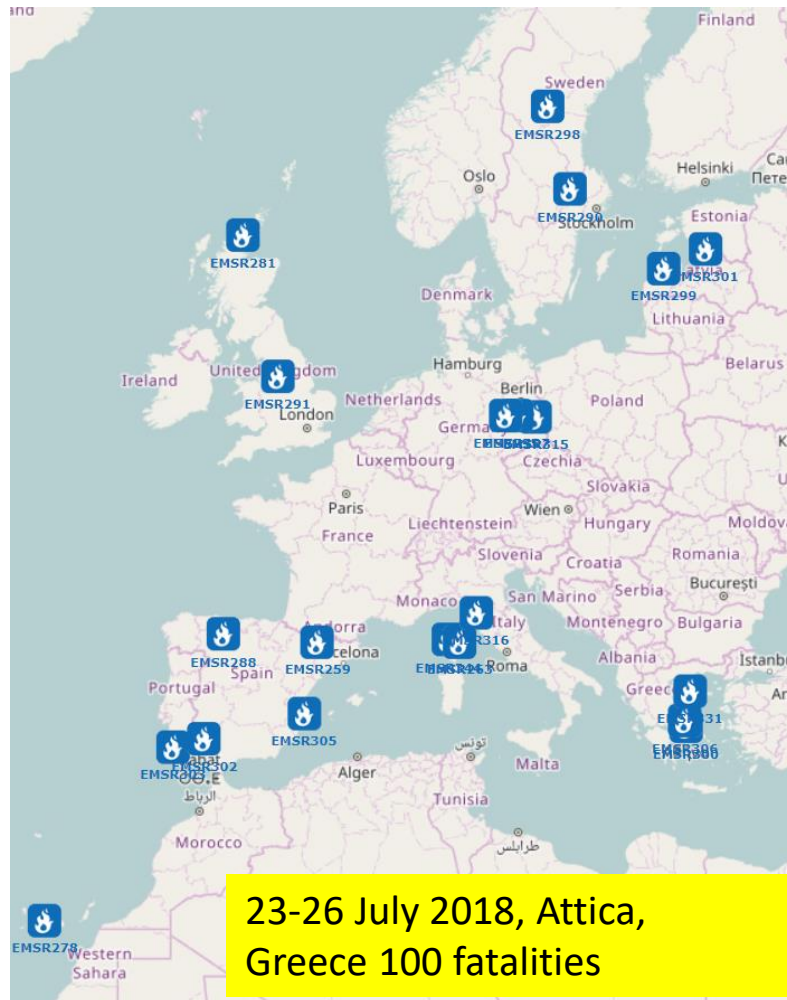


UCPM 2017 wildfires– 26 activations

Act. Code	Title	Event Date	Type	Country/Terr.
EMSR259	Forest Fire in Aragon	2017-12-04	Wildfire	Spain
EMSR254	Forest Fires in Castilla y León region,...	2017-10-15	Wildfire	Spain
EMSR253	Forest fire in Piemonte, Italy	2017-10-27	Wildfire	Italy
EMSR252	Wildfire in Corsica	2017-10-23	Wildfire	France
EMSR250	Forest fire Portugal	2017-10-15	Wildfire	Portugal
EMSR248	Forest Fires in Castilla y León region,...	2017-07-29	Wildfire	Spain
EMSR247	Forest fire in Borjomi area, Georgia	2017-09-22	Wildfire	Georgia
EMSR242	Forest Fire in Western Achaia, Greece	2017-09-11	Wildfire	Greece
EMSR239	Forest fire in Andalusia, Spain	2017-09-09	Wildfire	Spain
EMSR237	Forest fire in Andalusia, Spain	2017-09-09	Wildfire	Spain
EMSR230	Forest Fire in Nagyván, Hungary	2017-08-03	Wildfire	Hungary
EMSR227	Forest fire in Leon, Spain	2017-08-22	Wildfire	Spain
EMSR226	Wildfire in Georgia	2017-08-20	Wildfire	Georgia
EMSR224	Forest fire in Zakynthos Island and North-...	2017-08-11	Wildfire	Greece
EMSR221	Forest fire in Corsica, France	2017-08-11	Wildfire	France
EMSR220	Forest fires in Bizerte, Tunisia	2017-07-31	Wildfire	Tunisia
EMSR219	Wildfire in Jaen	2017-08-03	Wildfire	Spain
EMSR218	Wildfire in Greenland	2017-08-03	Wildfire	Greenland
EMSR217	Forest fire in southern Albania	2017-08-03	Wildfire	Albania
EMSR216	Forest fire in Natural Reserve of Calar	2017-07-27	Wildfire	Spain
EMSR214	Forest Fires in Southern France	2017-07-24	Wildfire	France
EMSR213	Forest Fire in Southern Italy	2017-07-11	Wildfire	Italy
EMSR211	Forest Fires in Castellón Province	2017-06-28	Wildfire	Spain
EMSR210	Forest Fires in Rio Tinto, Huelva Province	2017-07-03	Wildfire	Spain
EMSR209	Forest Fires in Doñana, Huelva Province	2017-06-24	Wildfire	Spain
EMSR207	Forest fires in Leiria District, Portugal	2017-06-17	Wildfire	Portugal

<https://emergency.copernicus.eu/mapping/>

1. Background



UCPM 2018 wildfires – 19 activations

Northern countries also affected
biggest share (35%) of requests for assistance
per type of emergency

Act. Code	Title	Event Date	Type	Country/Terr.	Feed
EMSR331	Forest Fire in Sithonia, Greece	2018-10-25	Wildfire	Greece	
EMSR316	Forest Fire in Tuscany, Italy	2018-09-24	Wildfire	Italy	
EMSR315	Fire in Brandenburg, Germany	2018-09-21	Wildfire	Germany	
EMSR307	Forest Fire in Jüterborg, Germany	2018-08-23	Wildfire	Germany	
EMSR306	Forest Fire in Evia Island, Greece	2018-08-12	Wildfire	Greece	
EMSR305	Forest Fire in Valencia, Spain	2018-08-06	Wildfire	Spain	
EMSR303	Forest Fire in Faro, Portugal	2018-08-03	Wildfire	Portugal	
EMSR302	Wildfire in Andalucia, Spain	2018-08-02	Wildfire	Spain	
EMSR301	Forest Fire in Latvia	2018-08-01	Wildfire	Latvia	
EMSR300	Forest Fires in Attika, Greece	2018-07-23	Wildfire	Greece	
EMSR299	Forest Fire in Latvia	2018-07-18	Wildfire	Latvia	
EMSR298	Forest Fire in Central Sweden	2018-07-16	Wildfire	Sweden	
EMSR295	Forest fire in Saxony-Anhalt, Germany	2018-07-04	Wildfire	Germany	
EMSR291	Wildfire in England	2018-06-24	Wildfire	United Kingdom	
EMSR290	Forest fire in Sweden	2018-06-03	Wildfire	Sweden	
EMSR288	Forest fire NW Spain	2018-05-12	Wildfire	Spain	
EMSR281	Wildfires in Northern Scotland	2018-04-15	Wildfire	United Kingdom	
EMSR278	Forest Fire in Tenerife, Spain	2018-04-08	Wildfire	Spain	
EMSR263	Forest fire in Corsica, France	2018-01-04	Wildfire	France	

<https://emergency.copernicus.eu/mapping/>

1. Background

Fuel management

can contain the risk of fires developing into large and uncontrollable events, by controlling some of the factors that affect the dimensions of the forest fire (fuel load and type, fuel spatial pattern and continuity)

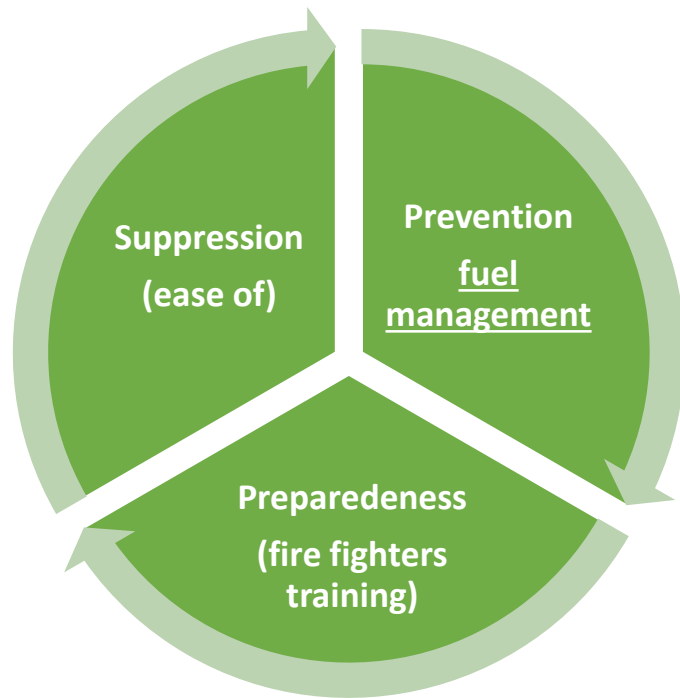
But wildfire prevention is regarded
not cost-effective, because of high technical costs and lack of resource optimization



2. The PREVAIL project



PREvention Action Increases Large fire response preparedness



**fire prevention can make
large fire suppression more
effective and less costly**



2. The PREVAIL project: aim and objectives

- To review past and current **prevention, preparedness and suppression measures/funds invested** to counteract large fires
- To provide an economic evaluation of current wildfire management efficacy, based on **costs of large fires suppression**
- To identify the contribution of **landscape patterns**, and forest fuel determinants on large fire development and control
- To assess best strategies to integrate prevention and preparedness to large-fire events, by sharing and spreading **“smart” solutions**, implemented locally in partners’ countries, by trans-national training
- To develop a tool (**Decision Support System**) to plan and optimize smart solutions at the water catchment scale

3. Funds invested in fire prevention

Active prevention



Passive prevention



3. The Rural Development Program

Drivers	Landscape patterns	Fire hazard
Decrease of farming activities	Forests ↑ Shrublands ↑ Agricultural areas ↓	↑
Decrease of pastoral activities	Forests ↑ Shrublands ↑ Grasslands and pastures ↓	↑
Population ageing and decline/ Emigration	Forests ↑ Shrublands ↑ Agricultural areas ↓	↑
Afforestation/reforestation	Forests ↑	↑
Decreased exploitation of timber and wood resources	Forests ↑ Shrublands ↑	↑
Increase of urban, tourist and industrial developments	Forests ↓ Shrublands ↓ Urbanized areas ↑	↓↑
Increase of farming activities	Forests ↓ Shrublands ↓ Agricultural areas ↑	↓
Increase of pastoral activities	Forests ↓ Shrublands ↓ Grasslands and pastures ↑	↓↑
Population increase/Immigration	Forests ↓ Shrublands ↓ Agricultural areas ↑ Urbanized areas ↑	↓↑

Moreira et al., 2011

Classes and sub-classes	Definition and examples	Equivalence
ACTIVE PREVENTION (A)	Action directly related with fire prevention as: firebreaks, water points, fuel management in strategic points, etc. <i>Example of measure in the 2007-2013 RDP: 226 - Restoring forestry potential and introducing prevention actions</i>	DIRECT MEASURES OF FIRE PREVENTION
PASSIVE PREVENTION	Actions involving fuel removal, through the maintenance of forestry and agriculture activities on the territory, which indirectly affects fuel loads distribution at landscape level.	INDIRECT MEASURES OF FIRE PREVENTION
Forestry production (B1)	Actions related with forest management and forest products mobilisation (wood and non-wood forest products – except grasslands, see below): selective and commercial thinning, clear cuttings, cork exploitation, roads constructions for wood mobilisation, etc. <i>Example of measure in the 2007-2013 RDP: 122 - Improvement of the economic value of forests, 123 - Adding value to agricultural and forestry products, 226 too.</i>	
Maintaining mosaic landscape and grazing (B2)	Actions related with the crop lands and mosaic landscape maintenance, and the related farming and grazing activities (including both: grasslands and complementary grazing in the forest understory). <i>Example of measure in the 2007-2013 RDP: 126 - Restoring agricultural production potential, 222 - First establishment of agroforestry systems on agricultural land</i>	
Other societal and structural support to rural development (B3)	Actions of support to rural development: training, extension services, support for business, basic services for the economy and rural population, etc. <i>Example of measure in the 2007-2013 RDP: 112 - Setting up of young farmers, 341 - Skills-acquisition and animation measure with a view to preparing and implementing a local development strategy</i>	

Prevail, 2019

3. The Rural Development Program: Two Italian case studies



Tuscany

Active	A	2
Passive (Forest production)	B1	4
Passive (Maintaining mosaic landscape and grazing)	B2	6
Passive (Other societal and structural support to rural development)	B3	11
No effect	D	3

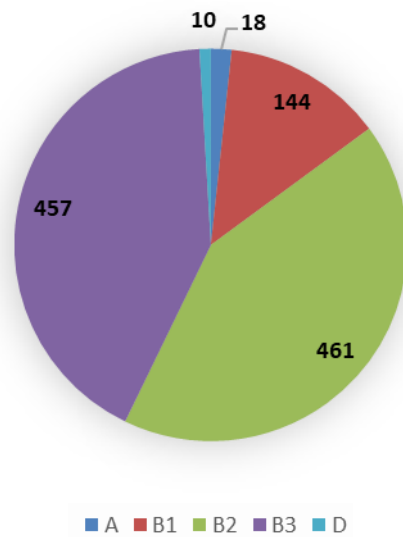
Sardinia

Active	A	1
Passive (Forest production)	B1	4
Passive (Maintaining mosaic landscape and grazing)	B2	2
Passive (Other societal and structural support to rural development)	B3	9
No effect	D	5

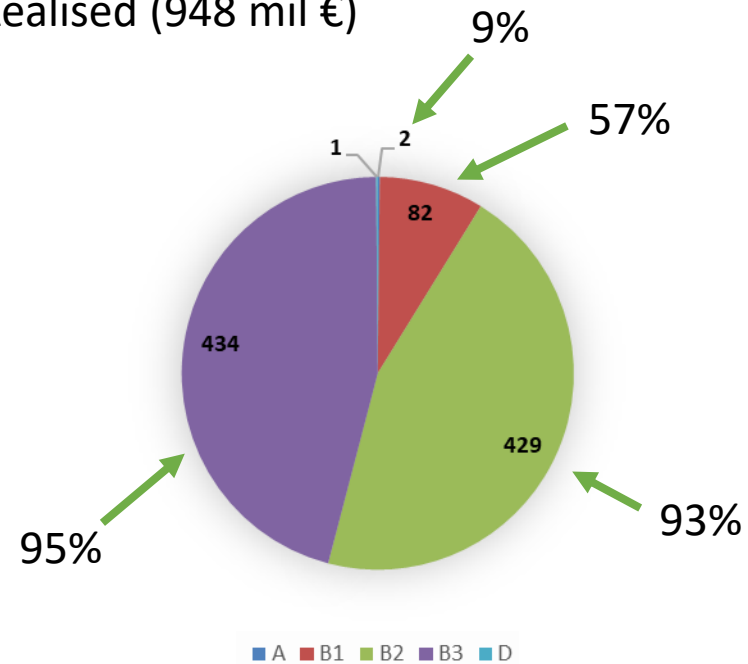
3. The Rural Development Program: Sardinia

Review of **OFFICIAL EU DATA**: amount of **EU funds** (e.g. **Rural Development Program 2007-2013**) invested (https://ec.europa.eu/agriculture/rural-development-2007-2013_en)

Programmed (1090 mil €)



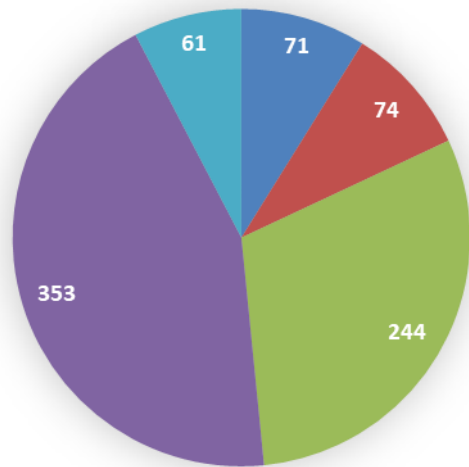
Realised (948 mil €)



3. The Rural Development Program: Tuscany

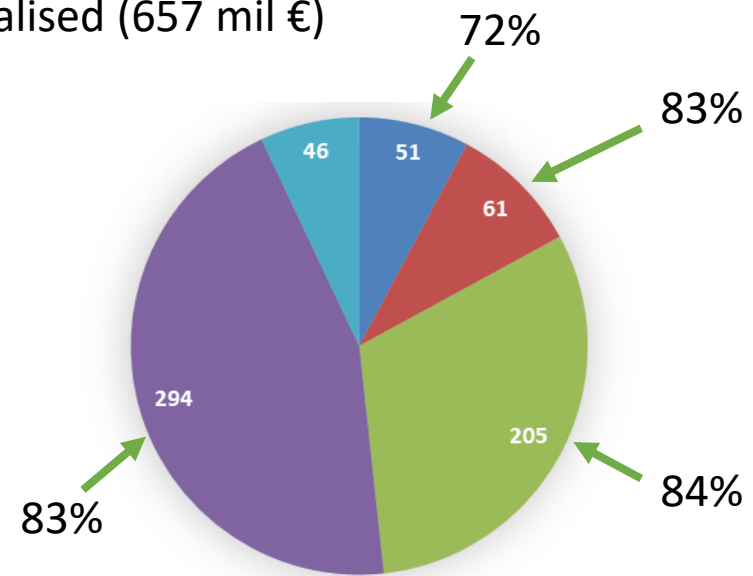
Review of **OFFICIAL EU DATA**: amount of **EU funds** (e.g. **Rural Development Program 2007-2013**) invested (https://ec.europa.eu/agriculture/rural-development-2007-2013_en)

Programmed (804 mil €)



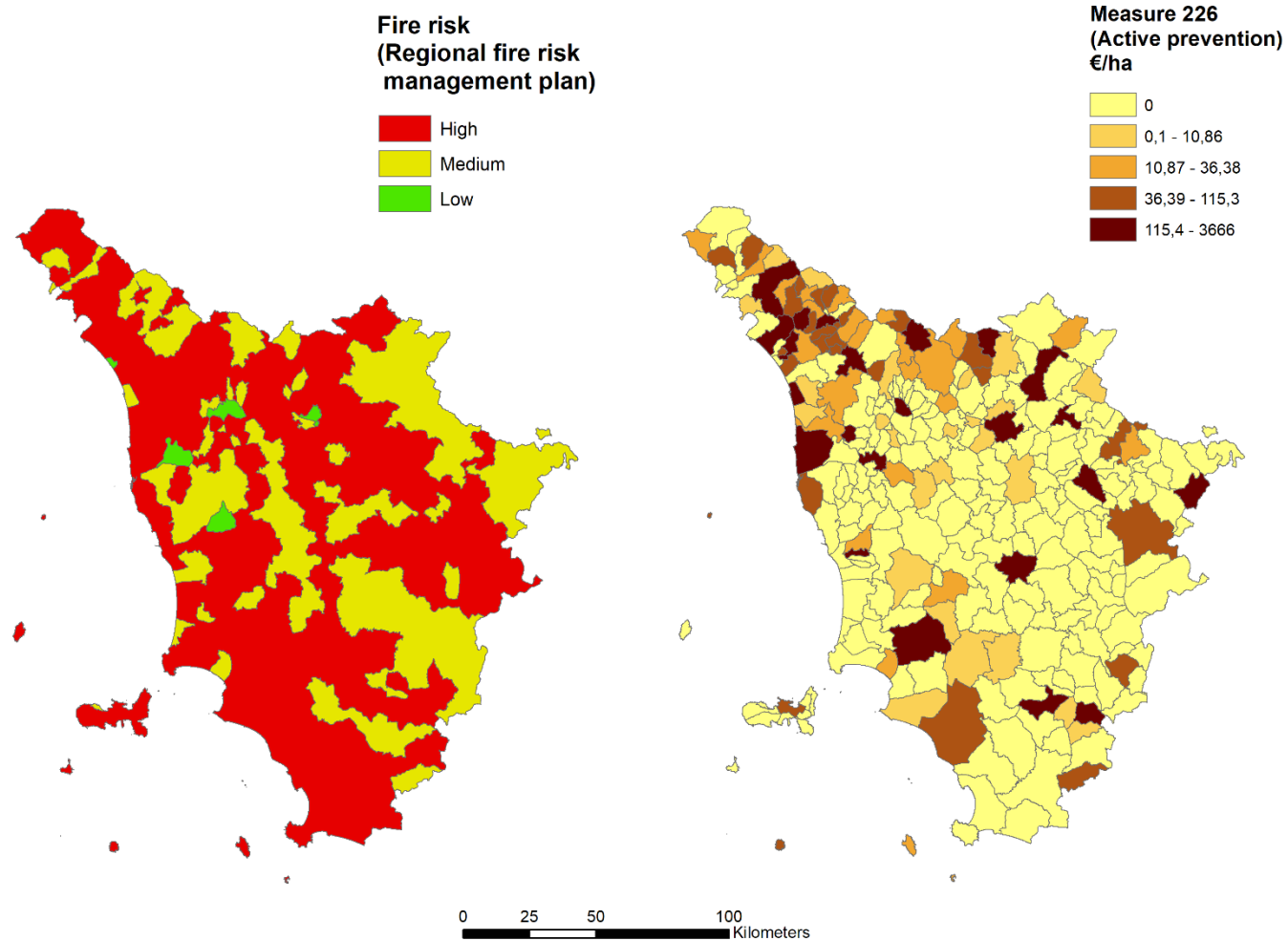
■ A ■ B1 ■ B2 ■ B3 ■ D

Realised (657 mil €)

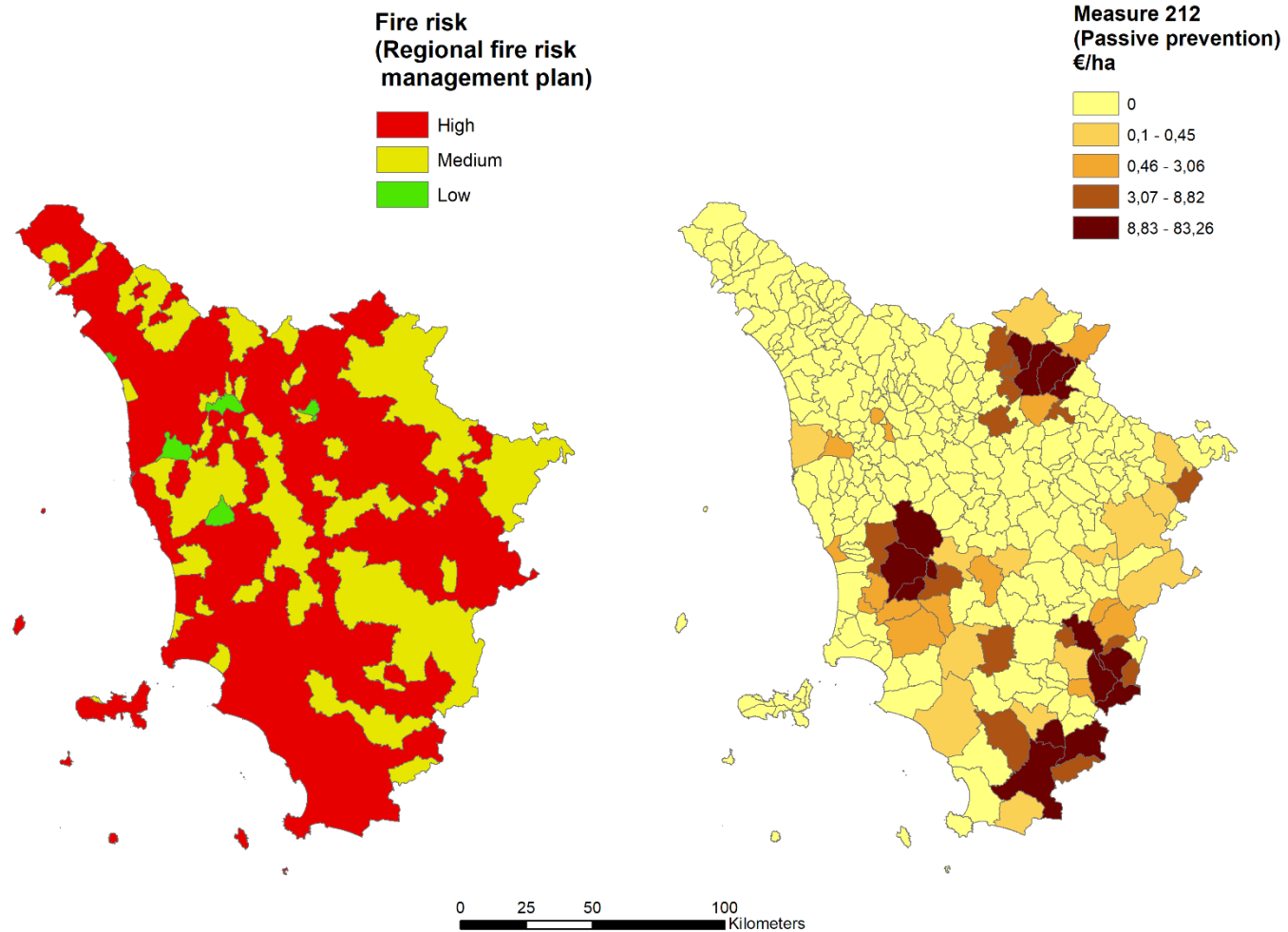


■ A ■ B1 ■ B2 ■ B3 ■ D

3. The Rural Development Program: Tuscany



3. The Rural Development Program: Tuscany



4. Further steps

- To consider also the landscape structure (e.g. land use/cover) when providing statistics about RDP implementation
- To extend the analysis at National level to other regions (included those in the Alpine region, e.g. Piedmont)
- To analyze and compare the RDPs in the other project partners' Countries/Regions (Greece, Portugal, Catalunya)
- To validate the results in a specific workshop in autumn (Florence)



5. Concluding remarks

- Investments on fire prevention are very variable depending on the local application at regional level
- Investments on active prevention has been lower than expected also in areas with very high risk of wildfire
- Fire risk is not reduced only by active prevention, but mostly by passive prevention (positive externalities)
- Quantitative indicators that consider such synergies can be used for evaluation of RDP
- Facilitating access to funds for those measures that reduce indirectly fire risk
- Providing funding for marketing of products realized with “smart solutions” for risk management

Categories



RECEPTES
Rostit de xai amb escuma de meló



RECEPTES
Crema de pastanaga amb iogurt d'ovella



RECEPTES
Caldereta de xai amb patates



<https://www.ramatsdefoc.org/ca/>



<https://www.prevailforestfires.eu/>



Thank you for your kind attention!

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