LIFE AgriAdapt

Sustainable Adaptation of EU Farming Systems to Climate Change

”Measures & recommendation – Southern Region”

La Arquitectura verde de la PAC Post-2020
Profundizando en Eco-Esquemas
29-31 de mayo de 2019. Zafra, Badajoz

With the support of:

SOUTHERN CLIMATE ZONE SWOT

STRENGTHS

- Adaptation options already in place
- Agricultural insurance
- Varieties adapted to CC
- High professionalized crops (horts)
- Diversified crops, extensive agroforestry systems. Agroecology.

WEAKNESSES

- Water: long-term availability? Deficit irrigation necessary
- High dependence on Monoculture
- Insufficient management of Grasslands

OPPORTUNITIES

- Higher productivity in temperature-limited areas if water is ensured
- Increased pasture production in autumn/winter due to increased temperature
- Possibility for new crops through warmer winters

THREATS: limits for some crops

- Heat waves in summer
- Less rainfall in Winter-spring
- Hydric déficit <-300 mm in Spring
- Increase in days with Tª Max>30ºC in April and May and days >35-38ºC in summer

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RECOMMENDATIONS FOR ARABLE CROPS

- Create a varietal bouquet
- Diversify crops and rotations to avoid main climate stress
- Improve soils: OM & structure, no bare soil
- Comfort or Deficit irrigation
- Hedgerow and flower strips plantations

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EXAMPLE CONCRETE MEASURES ARABLE CROPS

1. Crop rotation at plot level
2. Crops diversification at farm level (3-5 crops)
3. Crops diversification > 5 crops at farm level
4. 2 crops harvested on the same plot in one year
5. Balance between 3 periods of sowing for the main crops
6. Adapt date of sowing & variety precocity
7. Varieties adapted to main climate stress
8. Reach a reasonable treshold (ha/variety)
9. Mix of varieties within plots more sensitive to climate stress (cold, drought…).
10. Varietal bouquet at farm level (all plots) to desynchronize sensitives crops stages
11. Population varieties
12. Year to year harvest and sowing of self mix varieties at farm level.
13. Organic fertilization
14. Implement soil winter cover crop between main crops
15. Develop farm level surface for cover crops
16. Implement diversified (species) soil cover crop
17. Cover soil with straw or stubble to avoid bare soils in summer
18. Reduced tillage
19. Terraces conservation
20. Mutlifuntional margins
21. Hedges plantations
22. Fertilzers applied fractioned
23. Maps and analysis of soils
24. Organic agriculture
25. Integrated pest management
26. Fallow lands sown
27. Water ponds to collect rain wáter
28. Better efficiency in irrigation, decision-support tools
29. Drip irrigation systems
30. Better knowledge of water needs specifically for each crop
31. Farm insurance

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EXAMPLE OF CONCRETE MEASURES FOR CROPS

FUNDACIÓN GLOBAL NATURE

ORGANIC FERTILIZATION

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- **Climate Risk Region:** • **Weather event addressed:**

Southern

- **Farming System:** All crops
- **Farm vulnerability component:** Soil Farming practices
- **Description:**

Organic matter wastes from animal or vegetal origin (livestock or sewage treatment plants, or urban wastes, etc.) Nutrient management tools

- **Comments on sustainability:**

Reducing the mineral nitrogen applications reduces GHG. Soil fertility and structure improves, then water infiltration and maintenance improve and reduces soil erosion since runoff is minimized. Yields improve and the expenses on mineral fertilizers decrease. There could be difficulties to get fertilizers in local markets. Advisable to know the real needs of the soils and avoid the fertilization in rainy periods to avoid runoff.

Implementation · MIDTERM

SUSTAINABILITY COMPONENTS

- \+ GHG emissions
- \+ Air quality
- \+ Soil
- \+ Water
- \+ Biodiversity
- = Animal Welfare
- \+ Economic
- = Social
- = Technical Feasibility

Targeted indicators

R12 - Adaptation to climate change
R14 - Carbon storage in soils and biomass
R18 - Improving soils
R21 - Sustainable nutrient management
R27 - Preserving habitats and species

Measurable indicator for control

Nutrient requirements are met through organic amendments (manure or compost, among others). Evidence in the Farm Register Book.

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EXAMPLE OF CONCRETE MEASURES FOR CROPS

FUNDACIÓN GLOBAL NATURE

MULTIFUNTIONAL MARGINS

Targeted indicators

R12 - Adaptation to climate change
R14 - Carbon storage in soils and biomass
R18 - Improving soils
R20 - Protecting water quality
R27 - Preserving habitats and species
R37 - Sustainable pesticide use

Measurable indicator for control

Field margins with native vegetation (natural regeneration or newly sown) at least 3 m wide are implemented in at least 25% of the perimeter of the plot. Pictures that can provide evidence.. GIS

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RECCOMENDATIONS FOR VINEYARDS

- Use traditional varieties
- Focus on Quality (wine production) and not quantity
- Prune in green to balance leaf surface and number of bunches
- Improve soils: OM, Structure, no bare soils

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AMPLE: CONCRETE MEASURES FOR PERMANENT CROPS

FUNDACIÓN GLOBAL NATURE

COVER CROPS

Targeted indicators

R12 - Adaptation to climate change
R14 - Carbon storage in soils and biomass
R18 - Improving soils
R20 - Protecting water quality
R21 - Sustainable nutrient management
R27 - Preserving habitats and species
R37 - Sustainable pesticide use

Measurable indicator for control

Cover crops are implemented in permanent crops during the fall, winter and early spring. Pictures providing evidence and information in the Farm register Book.

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RECOMMENDATIONS FOR ANIMALS

- DAIRY:
  - Fodder autonomy and diversification.
  - Balance farmland surface and number of animals.
  - Infrastructures designed to ensure passive ventilation
  - Active ventilation systems.
  - Appropriate density of animals in buildings
- EXTENSIVE BEEF (DEHESAS)
  - Grazing management plans to increase quantity and quality of pasture
  - Native seeds sowing for pasture improvement
  - Keyline design to maximize beneficial use of water resources

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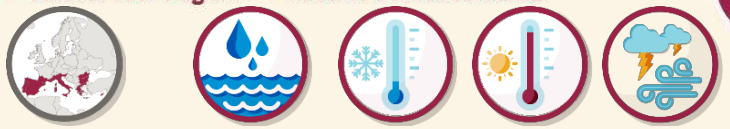
AMPLE: CONCRETE MEASURES EXTENSIVE LIVESTOCK

ROTATIONAL GRAZING MANAGEMENT PLAN

- **Climate Risk Region:** Southern
- **Weather event addressed:**



- **Farming System:** Livesctock — Extensive livestock systems
- **Farm vulnerability component:** Herd management
- **Description:**

Design of rotational management plan based on recovery time of grasslands.

- **Comments on sustainability:**

Rotational grazing management plans in semiarid context have been demonstrated very positive because it impacts on soil and grassland production. Even though, it is a "new" grazing management technique for most of farmers. Because of this, the main constraint for its implementation is the lack of knowledge at farm level and the scarcity of farms which are already implementing.

Implementation · LONG TERM

SUSTAINABILITY COMPONENTS

- GHG emissions
- Air quality
- Soil
- Water
- Biodiversity
- Animal Welfare
- Economic
- Social
- Technical Feasibility

Targeted indicators

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Measurable indicator for control

Farmer implements Rotational grazing management plan Information in the Farm Register Book and evidence of the operations (pictures)

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Some conclusions

Stop looking at the sky to look at the soil

- Adaptation is efficient at farm level. Eco-schemes an usefull tool.
- The agrarian practices related to the soil are a key for adaptation at all the crops and all the regions.
- Conditionality could have a ke roll for its implementation

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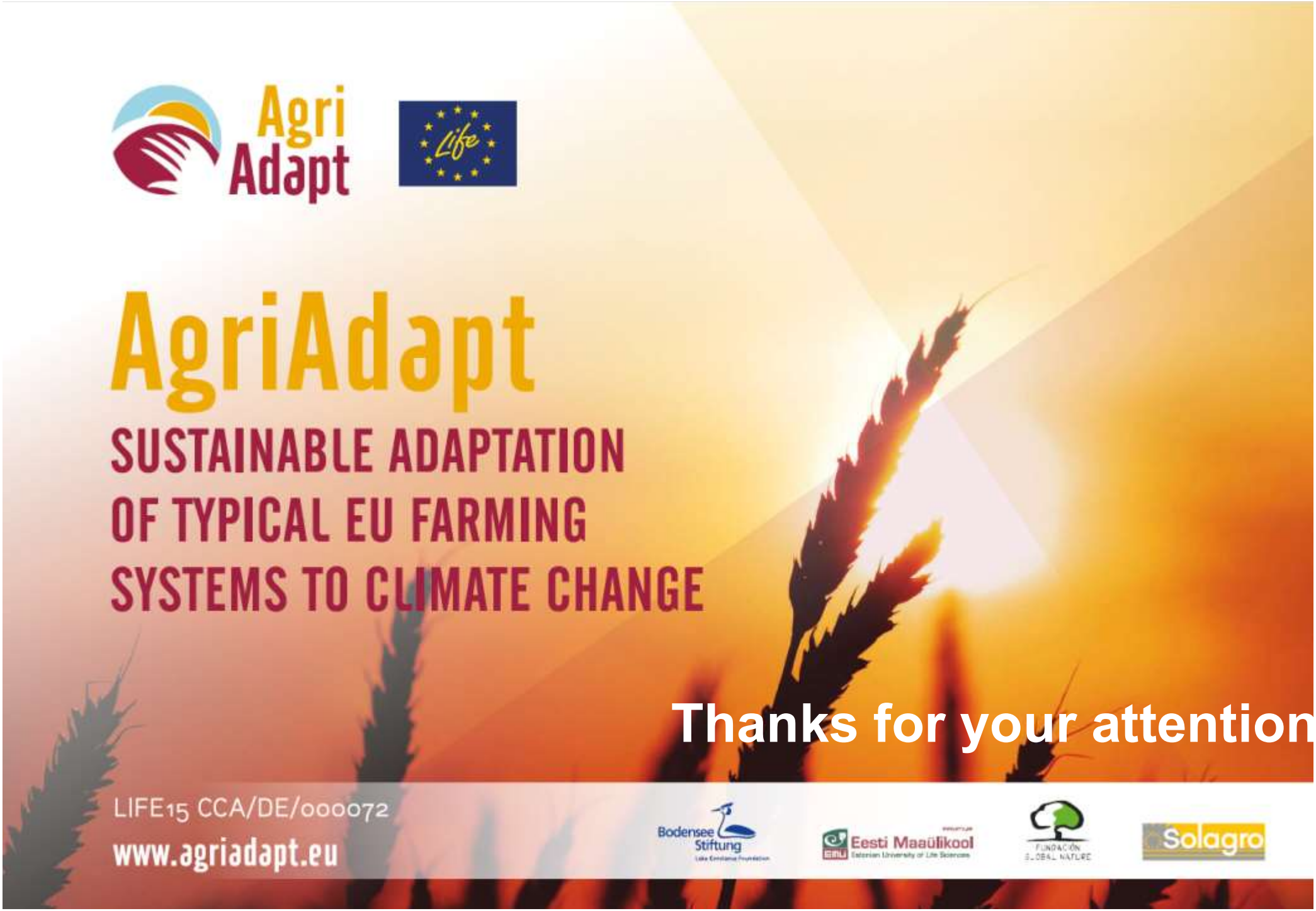
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