Rural Development Plan
Agro-Environmental Measures in Emilia Romagna
Agro-Environmental Measures: objectives and actions

- **Improve water quality / Erosion reduction / Sanitary risks reduction (for operators)**
  - Integrated production
  - Organic farming

- **Erosion →**
  - Cover crops
  - Orchards and vineyard total soil green cover
  - Meadow-pasture maintenance

- **Soil fertility →**
  - Increasing soil organic matter

- **Biodiversity and landscape →**
  - Meadow-pasture maintenance
  - Landscape elements restoration (hedgerows, small woods, ponds)
  - Arable crop land withdrawn for wetlands (20 years)

- **Agriculture biodiversity →**
  - Traditional crops and animals
Rules for Integrated farming

- **Fertilization:**
  - limits of the use of N, P e K
  - appraisal requirements based on removals and availability (soil analysis)
  - restriction for seasons and breaking up high doses
  - specific rules for organic fertilizers

- **Phytosanitary protection and control of weeds:**
  - managing activities only if necessary (thresholds, previsional models, etc) and in correct seasons (models, reports, etc)
  - use of the active principles with smaller impact on operators and environment (priority to organic/biotecnol.)
  - control and calibration sprayers
Rules for Integrated farming

• Rotation:
  ▪ sequence of crops: at least 3 crops in 4 years
  ▪ forbidden re-stubble (except for cereals in hills)
  ▪ further obligations (wider rotation or inacceptability of crops)

• Plant growth regulator: generally non admitted

• Soil management:
  ▪ cover/tillage of the soil at risk of erosion/leaching

• Irrigation
  ▪ based on idric balance
  ▪ max volumes

• Obligation to agree for 5 years to all the 60 “regulated” crops
Rules for Organic farming

- Application rules of Reg. (CEE) 2092/91
- Compulsory application of Action 9 (conservation and restoring of natural and seminatural spaces) on at least:
  - 5% UAA in plains (additional prize); optional ones in hill
- Compulsory application of rules as Action 1 (Integrated farming) for:
  - soil management
  - irrigation
  - control and calibration of sprayers
- Compulsory adherence for 5 years on all the crops
Biodiversity and landscaping actions

- Maintaining or creating:
  - Hedgerows
  - Small woods
  - Ponds, small lakes, herbal purification ponds
  - Tree row, traditional tree and vineyard row
  - Isolated trees

- Technical prescriptions:
  - Preserve structure and species of habitats
  - Maintain a buffer strip around ponds
    - Minimum width \( \geq 5 \) m
    - Buffer strip with herbaceous plants, shrubs or trees
  - Pesticides and fertilizers cannot be used
  - Control of plants in the buffer strip: manual or mechanical
  - Species have to be chosen from a list, must belong to...
Biodiversity and landscaping actions

Intervention F1 → habitat for wild fauna and flora

- **Wetlands**
  - Maintenance of an adequate level of water in submerged areas for at least 75% of the entire area
  - Maintenance of a meadow (eventually with shrubs and trees) on the remaining area for at least 25% of the entire area

- **Water meadows**
  - Maintenance of an adequate level of water in submerged areas
    - At least 50% of the entire area for 6 months between October and March
    - At least 10% of the entire area submerged during the breeding season from April to July

- **Scrub - meadow patches habitats**
  - Maintenance of an alternation of scrubs and meadows
  - Small woods have to contain several species → at least 5 of which 3 shrubs
**Biodiversity and landscaping actions**

- **Intervention F2** → Variously structured habitats with linking ecological and landscaping functions
  - Maintenance and management of patchy habitats structured with permanent meadows and
    - Shrubs → isolated and in groups
    - Trees → isolated, in groups and in rows
    - Hedgerows
    - Ponds

- **Intervention F3** → habitats for water systems protection
  - Maintenance and management of habitats with permanent meadows
  - Possibility to use shrubs and trees patches
  - Only in buffer areas for drinking water wells, natural ponds, rivers, water channels
Administrative managing

**Application selection** based on:
- Territorial criteria with priority to
  - Environmentally sensitive areas (especially Natura 2000 and Nitrate directive (91/676/EEC) areas)
  - Agrienvironmental agreements
- Technical criteria with priority to
  - Environmental (biodiversity) actions
- Local priorities: possibility to differentiate priorities at sub-regional level → Provinces (NUTS 3)
  - Environmentally sensitive areas
  - Actions

**Actions integration** → "productive" actions AND specific actions
- Organic farming → the applicant farm must adhere to landscape feature action on 5% of farm UAA
- Possibility to adhere to integrated or organic farming AND cover crops or orchards soil green cover
Compared with regional data (81,000 farms and 1 million ha UAA):

- Measure 2F paid in 7,300 farms (AE contracts for 12.7% of total UAA)
Agro-environmental measures evaluation

• For the Region it is the occasion to study in depth the experience already matured, above all under the profile of the assessment of the environmental impacts.

Main impacts:

• **soil quality** (reduction of soil erosion and upheaval)
• **surface and deep waters quality**
• **biodiversity impact**
• **landscape effects**
• reduction of the effects related to less favoured areas.
Carried out surveys

**Output indicators:**
Adhesion to the actions: incidence and distribution

Survey on the employment of **agro-chemical input**
- compared with integrated /organic farming vs UABP broken up for kind of products/ toxicological classes / etc.
- survey on economic aspects

Estimate of effects at **local level**
- zoning
- simulation of the releases by model to different scale (null / farm / global)

Further **cases of study**
Estimation of input quantity

Estimation of input quantity and differences between conventional agriculture and low input farming (integrated and organic) is articulated in two main steps:

- **a) quantitative differences** in total unitary quantity of inputs for crop and homogenous area between low input and conventional: survey carried out from 2002 to 2004 in 2330 fields on the entire regional territory.

- **b) territorial level analysis**: results of previous stage and GIS elaborations
  - Zoning “Agronomic Potentially Uniform Areas” (ZAPO)
    - Homogeneous Kind of soil (Regional Pedological map) regards 87 kinds of soils in total
    - Water-Climatic Balance - In the base of regional agro-climatic sharing, plain area has been divided in two zones:
      - Subjection phreatic - the territory under investigation has been divided in 2 zones.
    - Georeferenziation (with GIS) of fields surveyed
    - Comparison with statistical data to extend the data to effective crop and identifying systems of crops (TiZAO)
Efficiency of the Measure 2F on the Nitrate quantity reduction
Efficiency of the Measure on the phytosanitary products release reduction
Results on biodiversity

Animal biodiversity:
- 219 bird species found in financed areas
- 15 “target” (threatened and rare) bird species found in financed areas, some of them were absent for decades from the region
- High difference in bird populations between financed and non financed (counterfactual) areas

Plant biodiversity:
- 29 “target” plant species found in financed areas (wetland species)
- Natural plant colonization: easier for herbaceous in wetlands
Results on landscape

- Positive regional and farm impact due to different actions synergy

  - High specific effect on a limited extension
    1. Landscape elements restoration (highest direct effect)
    2. Arable crop land withdrawn for renaturalization
    3. Meadows and pastures maintenance

  - Low specific effect on a wide extension
    1. Organic farming
    2. Integrated production
Programme impact
Axis 2 – Output and results

MEASURES

211–212 Less favoured areas

2.600 farms
66,486 hectares

214 – Agri-environment payments

8.900 farms
161,000 hectares

221 – First afforestation of agricultural land

1.630 hectares

Area under successful land management contributing to:

- biodiversity and high nature value farming/forestry: 153,000 ha (15.3% UAA)
- water quality: 161,000 ha (16.1% UAA)
- soil quality: 131,000 ha (13.1% UAA)
- mitigating climate change: 158,000 ha (15.7% UAA)
- avoidance of marginalisation and land abandonment: 66,500 – 78,000 ha
Environmental impacts of the programme

- **Inversion of biodiversity decline**, measured on birds populations in farming areas

- **Increasing of “High nature value farmland” areas** → 2,300 - 3,500 ha (+1,42 – 2,4%)

- **Increasing water quality**
  - Reduction of fertilisers quantity in area under contract:
    - Nitrogen → 41-44%
    - Phosphorous → 60-61%
  - Total reduction in the Region
    - Nitrogen → 6.2-7%
    - Phosphorous → 9.2-10%

- **Increasing soil protection** → 10% risk erosion reduction

- **Contribution to reduction of climate change**
  - Increasing bioenergy → + 55,351 TOE
  - Farming emission reduction → -3.9%
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Thanks for your attention

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