UNIVERSITÀ DEGLI STUDI SASSARI

nrd Nucleo Ricerca Desertificazione

ILHAM-EC

Participatory workshop

Cairo, 29-30 November 2016

Co-funded by the Erasmus+ Programme of the European Union

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Interuniversity Learning in Higher Education on Advanced land Management

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Sustainable land management

Case study-based learning: integrating hard and soft system approaches

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Case-study base learning

- Framing our learning about Agronomy for sustainable development in the context of Sustainable Land Management (SLM)

  - Learning to addressing **wicked issues** in Agro-ecology

  - Considering **student**'s background

  - Teaching understood as **student learning** facilitation

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Case-study base learning

- Framing our learning about Agronomy for sustainable development

  ➢ **Learning to address wicked issues in agro-ecology**

  ✓ **misleading learning structures**

  ✓ multiple-perspectives and implications

  ❖ deconstructing prejudices

  ❖ getting the best from the diversity of student's background knowledge

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Type 1 approach

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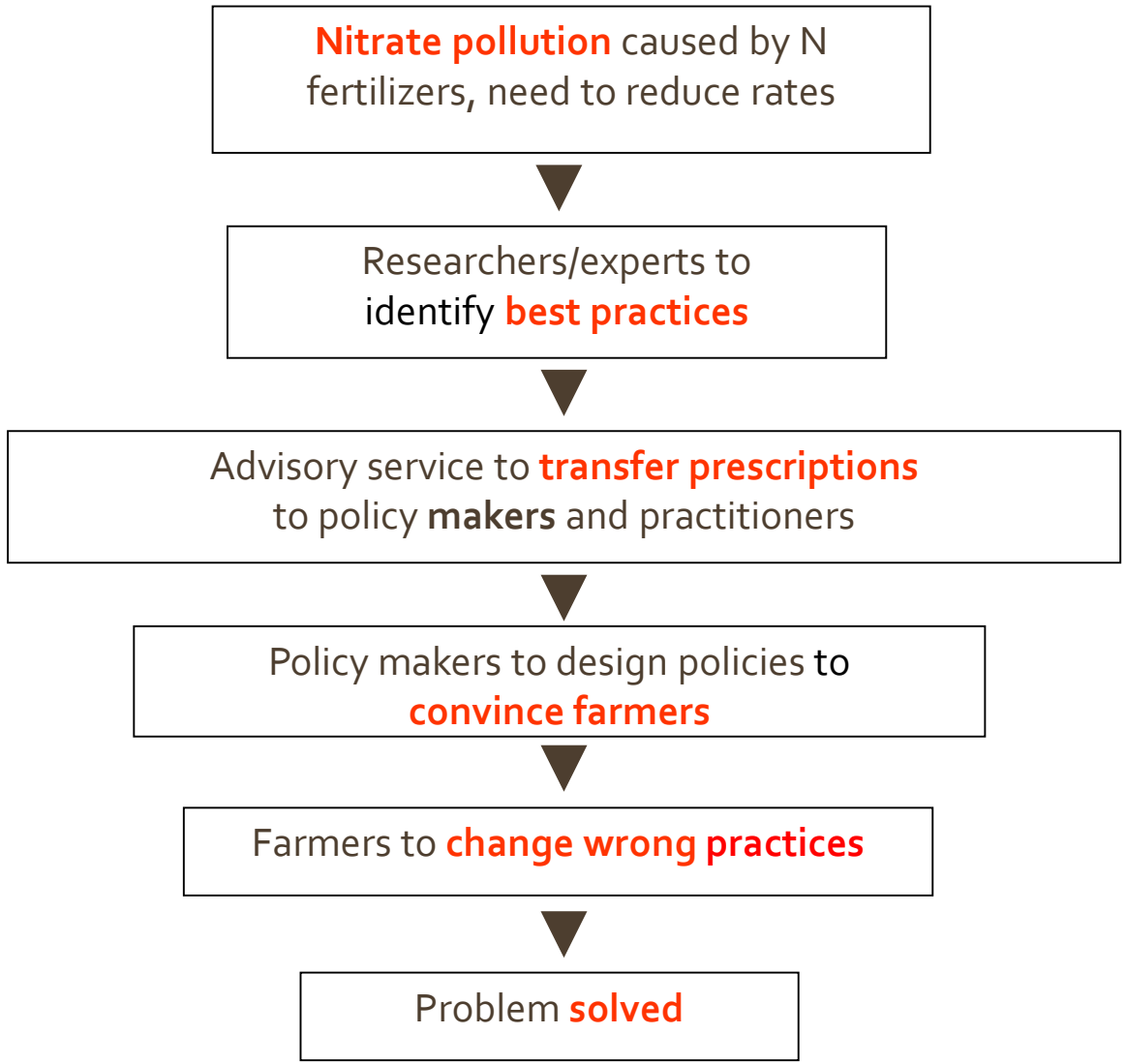

Problem defined in its nature and boundaries and changes sought

Practitioners play the role of "objective" observers

TOK paradigm: experts inform policy regardless of context

C&C paradigm: farmers are just passive target of top-down policies:

Farmers knowledge/experience neglected

"Tickbox" response expected: problem still there if not worse

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Case-study base learning

- Misleading learning structures

➢Model 1: student's frequent reactions

✓seek for **linear solutions** to "solve" complex issues
✓accept the **few tools** they got as a "panacea" to address many different problems
✓focus on the **exam** as the final scope of their learning
✓graduated ultimately consider **farmers as the target** to deliver of their own "graduated" knowledge
✓**do not learn how** to exploring, listening, reading, reporting, address uncertainty…
✓prefer to **study by topic**, chapters
✓do not learn how to make best use the **variety of knowledge** gained from other disciplines
✓**do not struggle** to address issues in a systemic way

➢Linear thinking does not help in learning how to address complex issues…

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Case-study base learning

- Framing our learning about Agronomy for sustainable development

➢ **Learning to address wicked issues in agro-ecology**

✓frequent misleading learning structures

✓**multiple-perspectives and implications for learning pathways**

❖deconstructing prejudices

❖getting the best from the diversity of student's background knowledge

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The Slim framework (Steyaert & Jiggins 2007)

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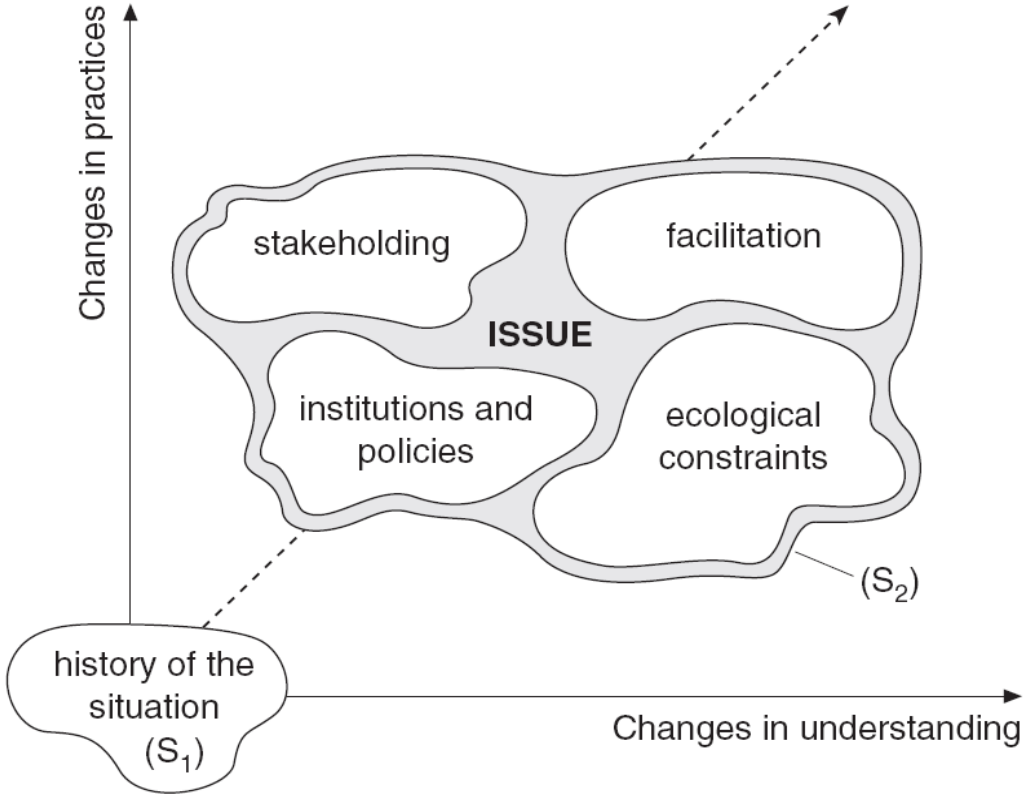

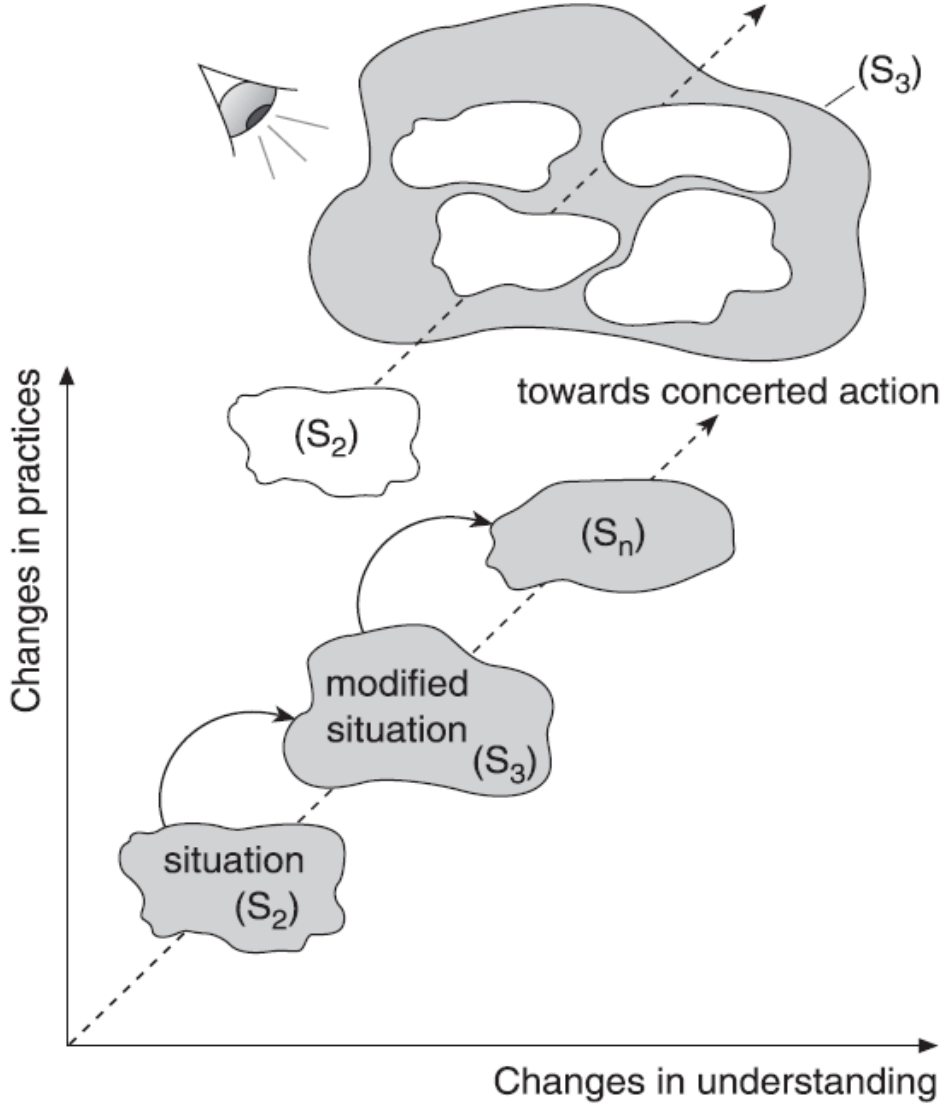

Case-study base learning

- Case studies provide a concrete context-dependent **situation** to appreciate:
  - **interdependencies** between biophysical processes and multiple stakeholders
  - **complexity**: the mix of biophysical (hard) and socio-economic (soft) constraints
  - **uncertainties**: unintended/unexpected consequences of a given action/option adopted
  - **controversies:** emerging between stakeholders on pathways to engage to improve the situations

Type 2 approach

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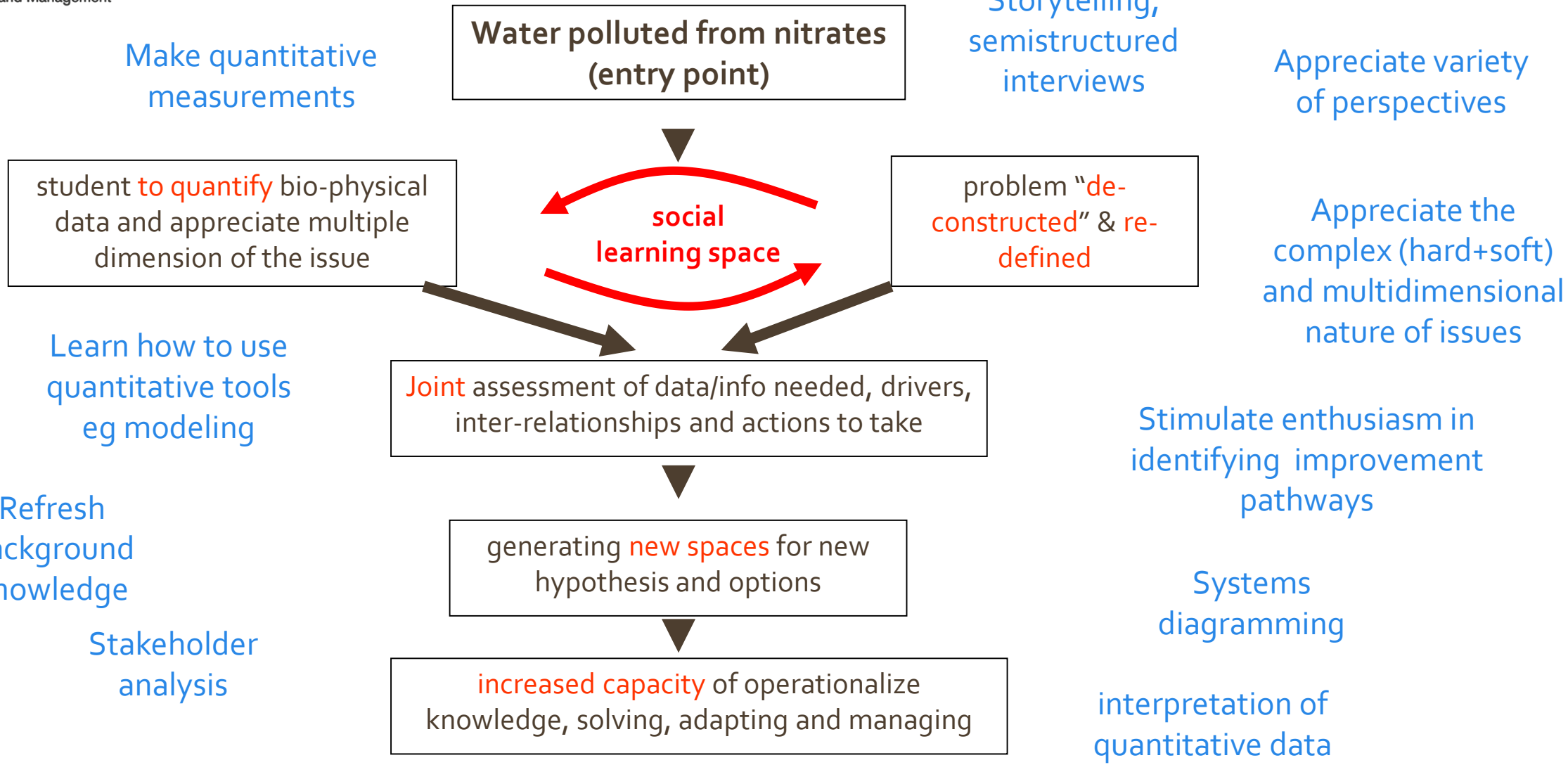

Engage stakeholders, perceive context

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Take quantitative measurements

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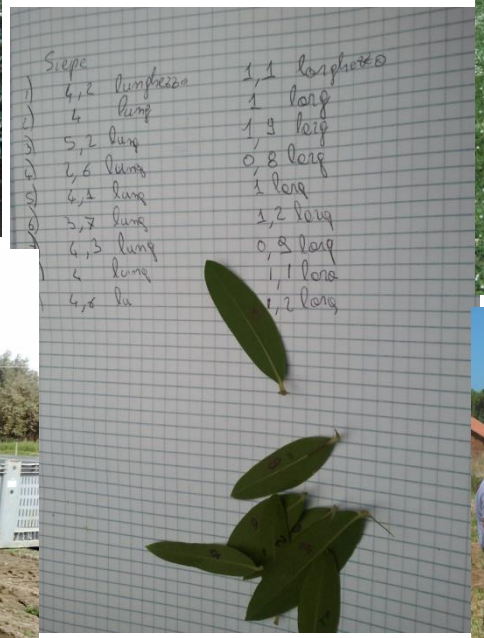

Team work, social learning

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Examples of student's team outcomes

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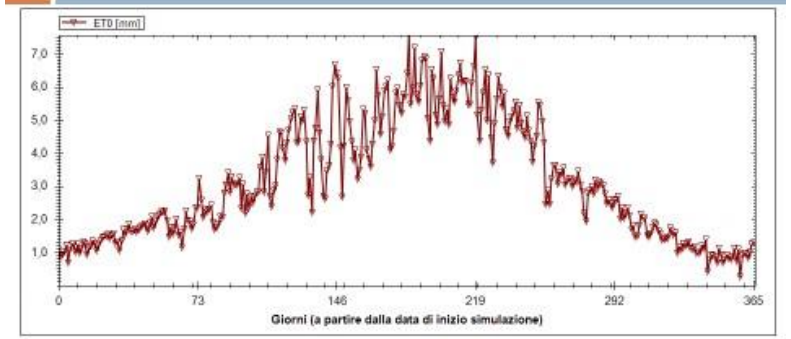

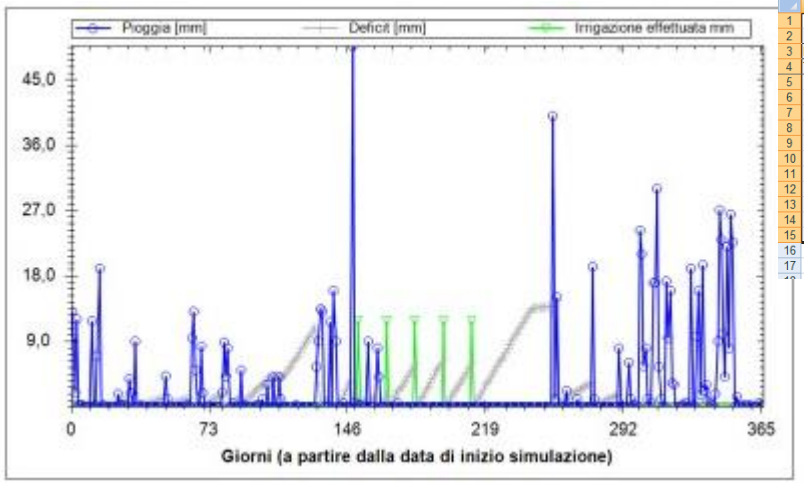

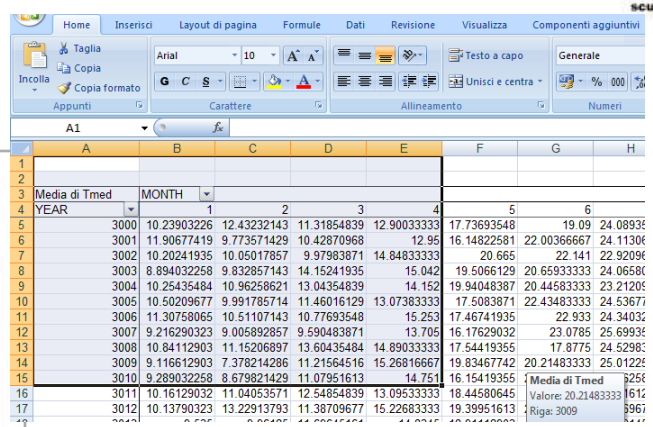

Analisi SWOT lavorazioni

Helpful	Harmful
•Contenimento delle infestanti •Aumento della velocità di infiltrazione dell'acqua •Interramento concimi •Conservazione delle piogge invernali e primaverili	•Incremento dell'erosione idrica ed eolica, soprattutto su suoli in pendenza e sabbiosi •Formazione della suola di lavorazione •Approfondimento forzato delle radici •Alto costo lavorazioni •Perdita nutrienti per dilavamento •Accelerazione processo mineralizzazione
•Gestione degli oliveti asciutti •Alternanza con altre tecniche nei sistemi di gestione complessa	•Rischio ritardi nelle operazioni di raccolta •Possibili danni diretti e indiretti (ingresso patogeni) a causa di ferite sulle radici

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Case-study based learning

- Framing our learning about Agronomy for sustainable development

➢ **Student's background required**

✓Basic science needed (eg chemistry, statistics, agronomy…)

✓Technical requirements and facilities (PC sw, videocamera, specific measuring equipment)

➢ **Teaching = learning facilitation**

✓provide information (eg on UN conventions, updated trends in science…)

✓enable the use of self-learning tools (eg models,

✓enable the use of assessment tools, both qualitative and quantitative

➢ **Constraints**

✓not easy (but maybe not impossible) to deliver this by e-learning only

✓no. of students per classroom

✓access to mobility funding