The “problem situation” in agronomic advisory

WP2 – Experiment the transfer - Outcome n°04

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in collaboration with all partners in the project

LEONARDO DA VINCI TRANSFER OF INNOVATION
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P02 Federacion EFA Galicia – Spain

P03 Teagasc Agricultural and Food Development – Ireland

P04 Bayerische Bauernverband LandSiedlung bbv-LandSiedlung – Germany

P05 Hushallningssällskapet Väst – Sweden

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IMPORTANT MENTION

SUMMARY OF THE DOCUMENT

English

The Directive 2009/128/EC and the national action plans aim at reducing the use of pesticides in agriculture. This reduction requires both technological innovations and socio-cultural developments. To contribute effectively, advisers and trainers in agronomy must broaden their methodological portfolio.

The New Advisers Leonardo project is focused on testing three tools that are able to be transferred between partner countries: “Clear vision”, “Problem-based learning” and “Discussion group”.

In this paper, conditions for an implementation of these three tools are analysed using a very operational-focused concept: the "problem situation". Thinking through "problem situations", advisers, trainers and farmers themselves can acquire greater collaborative, holistic and heuristic capacity, to develop innovative solutions.

French

La Directive 2009/128/EC et les plans d’action nationaux visent à réduire l’usage des pesticides agricoles. Cette réduction passe à la fois par des innovations technologiques, et par des évolutions socio-culturelles. Pour y contribuer efficacement, conseillers et formateurs en agronomie doivent élargir leur portefeuille méthodologique.

Le projet Leonardo New Advisers est centré sur le test de 3 outils susceptibles d’être transférés entre les pays partenaires : l’entretien ‘Y voir clair’, l’apprentissage par problèmes et le groupe de discussion.

Dans le présent document, les conditions de mise en œuvre de ces 3 outils sont analysées à l’aide d’un concept à visée très opérationnelle : la « situation-problème ». En pensant « situation-problème », les conseillers, les formateurs et les agriculteurs eux-mêmes acquièrent une plus grande capacité collaborative, holistique et heuristique, pour développer des solutions innovantes.

German

Die Richtlinie 2009/128/EG und die nationalen Aktionspläne haben das Ziel, den Einsatz von Pestiziden in der Landwirtschaft zu reduzieren. Diese Reduktion erfordert technologische Innovationen und sozio-kulturellen Entwicklungen. Um effektiv dazu beitrage zu können, müssen landwirtschaftliche Berater und Ausbilder ihr methodisches Portfolio erweitern.

Das New Advisers Leonardo Projekt testete drei Werkzeuge, die in einem der Partnerländer bereits in der Beratung angewendet werden: “Clear vision”, “Problem-based learning” und “Discussion group” (*).

In diesem Dokument wird analysiert, unter welchen Bedingungen diese drei Werkzeuge eingesetzt werden können. Dies geschieht unter Verwendung eines Konzept mit sehr operativen Fokus: die "Problemlage". Wenn sie in "Problemlage" denken, entwickeln Berater, Ausbilder und die Landwirte selbst eine größere Kapazität, um innovative Lösungen gemeinschaftlich, ganzheitlich und problemlösungsorientiert zu entwickeln.

(*) auf Deutsch: „Klar sehen“, „Problembasiertes Lernen“ und „Diskussionsgruppe“

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INTRODUCTION

In the « New Advisers » project, the aims are to facilitate a reduction in pesticides use, improve the overall performance of agriculture while achieving economic, social and environmental sustainability. Amplifying the difficulties under the theme of 'pesticides' can reveal various questions and adaptation needs that are currently experienced by advisory and training practitioners in agriculture.

Intervention procedures vary widely among countries, and its unclear how to standardize practices around how tools can be transferred. However transnational work makes sense if we know how to describe advice situations in a common format and vocabulary.

In the following pages, we will define the concept of "problem situation" cited by the New Advisers project partners. Then we will explain some conditions of implementation of the "problem-situations" and their relationships with three tools tested in the project: « Clear vision », « Problem-based learning » and « Discussion groups » [3].

1. THE CONCEPT OF 'PROBLEM SITUATION'

Pesticides: Confronting the complexity of questions

The interactions between the technical, economic and social components, deferred or cumulative effects, climate, biological mechanisms, etc. are difficult to assess for advisers in agronomy [1]. We propose the concept of a "problem situation" will tackle this complexity.

We propose the concept of a "problem situations" will to tackle this complexity. Indeed, if we can remove the complexity of situations, it is bad that the advisor and the farmer found helpless before the apparent complexity of the situation. We need to find way for them to 'play with' complexity, to integrate it into their thinking and action.

The concept of 'problem situation' is an operational and professional tool with educational and heuristic purposes, for advisors and trainers so they can build 'low-cost' representation coupling:

- One situation of agricultural production, or of advisory, training, applied research, dissemination, development of new regulations, etc.
- An emerging or associated-to-the-situation problem

A problem could be defined as a negative impact event that appears or may appear at the expense of some actors or stakeholders. Advice and training normally tackle problems, which are, in a broader sense, confrontations, malfunctions, non-achievement of objectives, threats to resources (time, money, soil fertility ...)

Given that definition, we reasoned systematically from cases described by partners throughout the project, and that from the first survey (see table on problems - Outcome 1 [4]).

An example of situation-problem

The repeated treatment of a crop (fruit trees, vines, vegetables, grains) is considered in this case in terms of health risks for the applicator of pesticides.

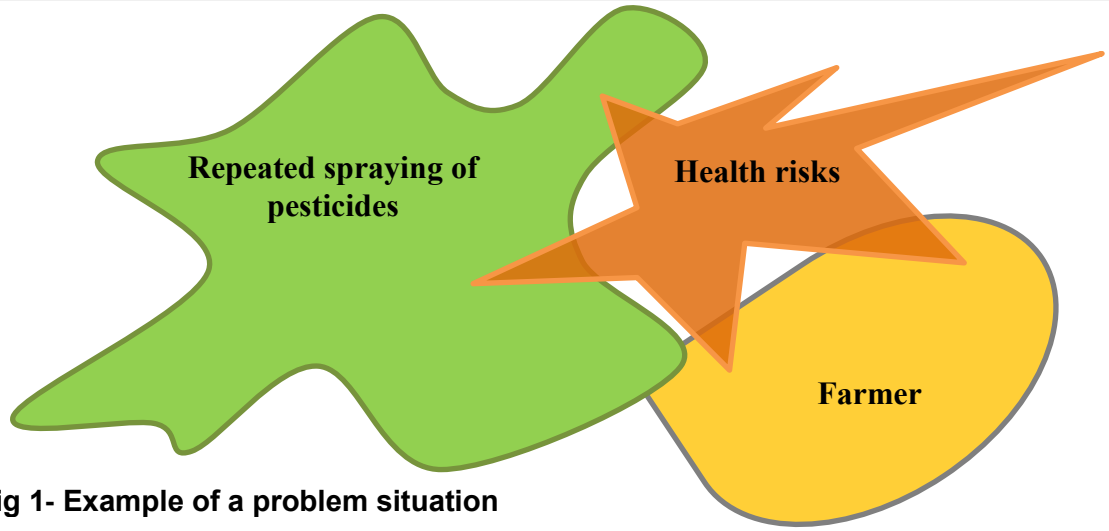

Fig 1- Example of a problem situation

Although relatively simple, this example suggests various questions like:

- Are there really health risks? What are they?
- For these risks, how much is due to the type of phytosanitary products used? What part is due to dose, to frequency? to the spreading equipment? to the cropping conditions?
- How does the crop protection depend upon the production type (work, equipment) or economic conditions (prices)?
- How spraying protocols or technical knowledge of the applicator affects the health risk? '

Ultimately advice is to find ways of solving a problem that are relevant vis-à-vis the leeway of players themselves. Speaking and thinking in terms of "problem situation" should facilitate:

- Openness to different levels of analysis: cognitive, social, political, etc.
- Addressing the drivers of change: motivating stakeholders (involvement, inclusion, accountability), access to tangible and intangible resources (knowledge and skills), impact of the organization
- Communicating with peers at various stages (research in group).

The pragmatic construction and handling of problem situations can describe, qualify, decompose and recompose, and imagine resolution (see H. Trocmé-Favre - the stages of learning [5]).

2 - THE BUILDING OF A PROBLEM SITUATION

The three components of a problem situation

In the example above, we have defined at minimum the "problem situation" with its three parts:

a-The situation where advice or training is conducted

b-The problem which takes in a first step the heart of the expressed issue

c- The players (possibly stakeholders) that interfere with the problem characterization itself. The 'health risk' above in the example does not have the same meaning when applied to the applicator of pesticides, to people who live near the treated fields, to consumers of plant products or drinking water, etc..

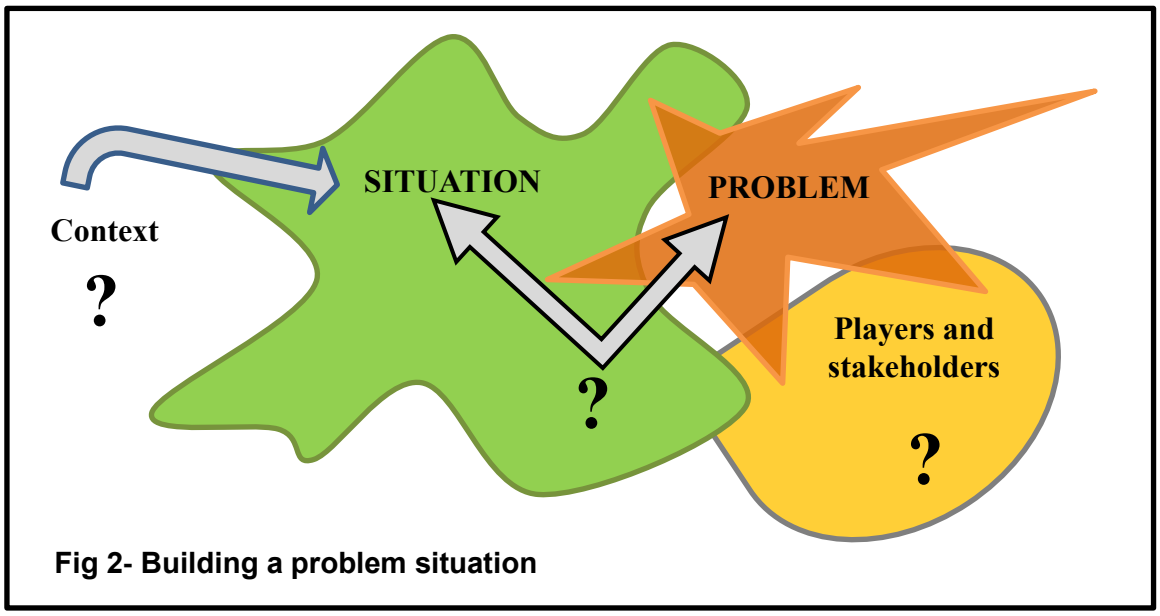

Fig 2- Building a problem situation

To build a solid “problem situation” (Fig. 2) requires a phase for recognizing constituents (the circumstances, the actors, and their questions), a phase for observation and active listening to the players, then a phase of reformulation of what we understand.

At this stage, we can formulate the correct envelope of questions, i.e. elements that are part or not in the system: is the farmer included or not?, is the adviser included or not? upstream and downstream consequences for the farm included or not? Is the territory included or not?, are other stakeholders are they included or not? etc.

The "right" level of approach

The analysis of a problem situation can be targeted or very broad. To go forward, we could use an analogous grid to ESR approach[1] to analyse the problems faced by the advisers - cf. [2] Outcome 2 - Table 1: ESR Model from Hill and MacRae (1995) - INRA (2010).

We can therefore distinguish between three levels:

Level 1: the choice is to focus on the expressed, active, exacerbated part of the problem and its interactions with the situation. Actors and stakeholders are kept away from solving approach and considered as neutral or invariants.

For example, if the problem is a weed resistance to certain herbicides, we will propose to change the phytosanitary product without necessarily re-view spreading techniques, equipment, crop selection, etc.

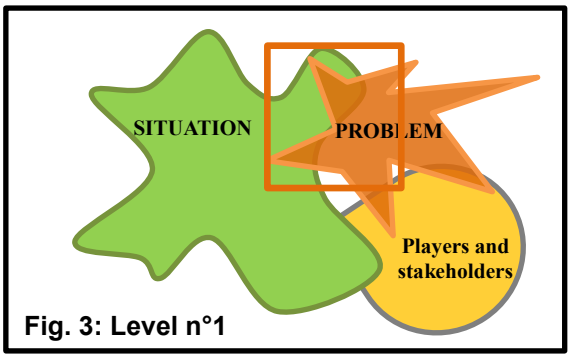

Fig. 3: Level n°1

[1] E=efficiency (for example by making better use of pesticides), S=Substitution (replacement of an herbicide by mechanical weeding, without changing the overall balance of crop current system), R = redrawing cropping system and production system.

Level 2: the problem identified is to be fully treated. In particular the interactions between the problem and the players are included in the analysis.

To keep the example of herbicide resistance, it will include a fine approach to decision rules (choice of herbicides, localization and recognition of the weed flora, organization of work, recording results, preventive treatments, etc...).

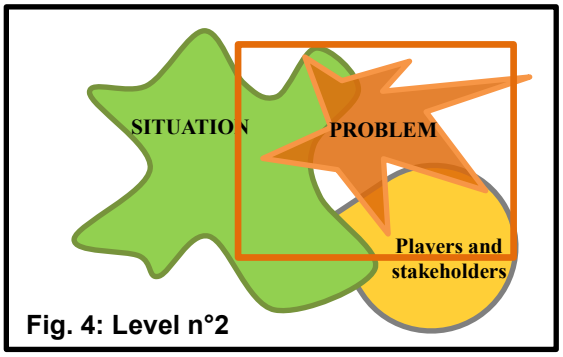

Fig. 4: Level n°2

Level 3: The bias is to include all the known and investigable position. In this approach level, the problem may itself be indicative of interactions between actors and situations in terms of leeway that the actors get, and that they could use to change the situation itself, and to change the problem by way of consequences.

For example, a change in the rotation (extension, diversification of crops) may be favourable to the control of the most dangerous weeds, but also take into account markets, economic valuation of all productions, and organization of work, equipment and investments.

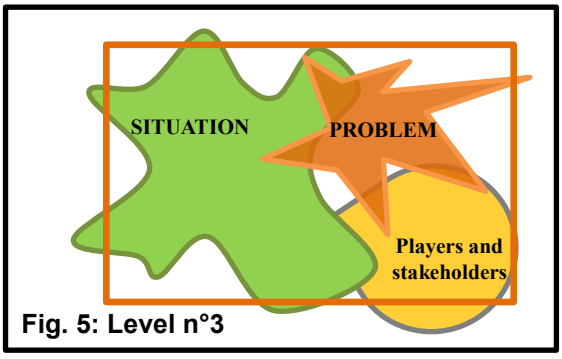

Fig. 5: Level n°3

Of course, there is no 'good' level approach in the absolute, the right level will be suitable for co-actors of advice or training, in this case the farmer and the adviser. The quality of the resolution could even result from the ease of co-actors to fluidly combine the various levels of approach, according to importance and urgency of decisions at stake.

3 – RELATIONSHIP TO THE TESTED TOOLS

The concept of problem situation can be applied to various situations in the manner that we will examine below.

Linked problems: Clear vision

Description: In a given farm, led by a farmer or a few partners, different problems, possibly linked, can be observed and are to be resolved.

Example*: On a farm producing cereals, seed and lambs, the farmer faces problems of weeding, of overall unprofitability, and of workload. Moreover, the farm employee will retire in 2 years. The issues identified may appear, separate at first view or may be interrelated. The time available to the farmer follows the choice of activities and equipment. The poor control of weeds in spring may be one consequence of excessive workload. The recruitment of a new employee depend on economic performance, which themselves depend on the technical mastery. Everything is connected, but to act effectively, we must first place the net of problems.*

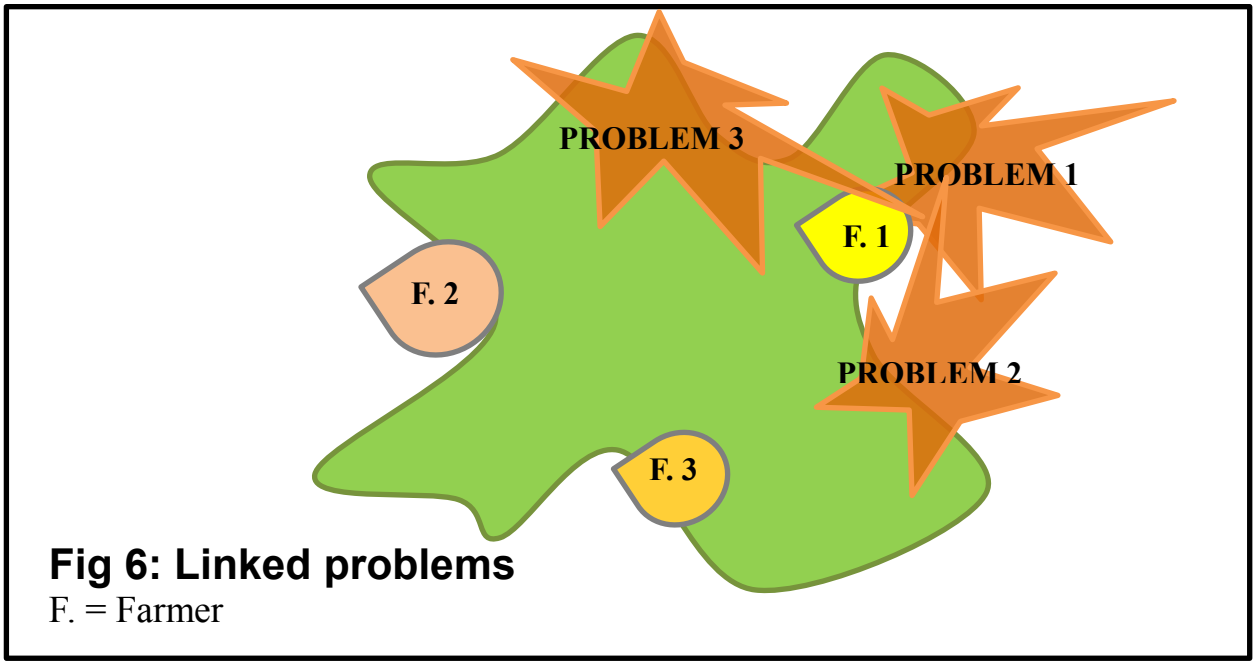

Fig 6: Linked problems
F. = Farmer

Comments:

- The various problems are not all of the same level of complexity, some can be easily solved, others are more complex to address and deal
- To find sustainable solutions, we have to move from one level of approach to another, in other words, put the issue of weeds in cultivation practices, and these in economic efficiency, and link them with organizational matters.
- Action or changes to the system involves considering the availability of the farmer, his expertise, perhaps his values and goals.
- The implementation process, spread over time, assumes the farmer himself understands the intervention, and can even coordinate contributions of different stakeholders.

Transfer of Innovation: Among the tools to unravel a web of interrelated problems, we retained and test « **Clear vision** », used for several years by the French partner. This simple and very flexible tool, can loosen the node of problems, and co-produce with the farmer a guideline to strengthen and refocus the new direction..

To be scooped problem: Problem-based learning

Description: Sometimes the relationship between the situation and the problem is not sufficiently well known. First these relationships should be precisely described, before initiating a process of resolution. The premise is for a small group of players to start an investigation phase and on the way learn mechanisms and underlying knowledge

Example*: This is the application of pesticides on a largely agricultural catchment area, with farmers having a good technical level and economically very dynamic farms. Questions are being asked by the territorial authority of water management about how to preserve the quality of surface water in the catchment.*

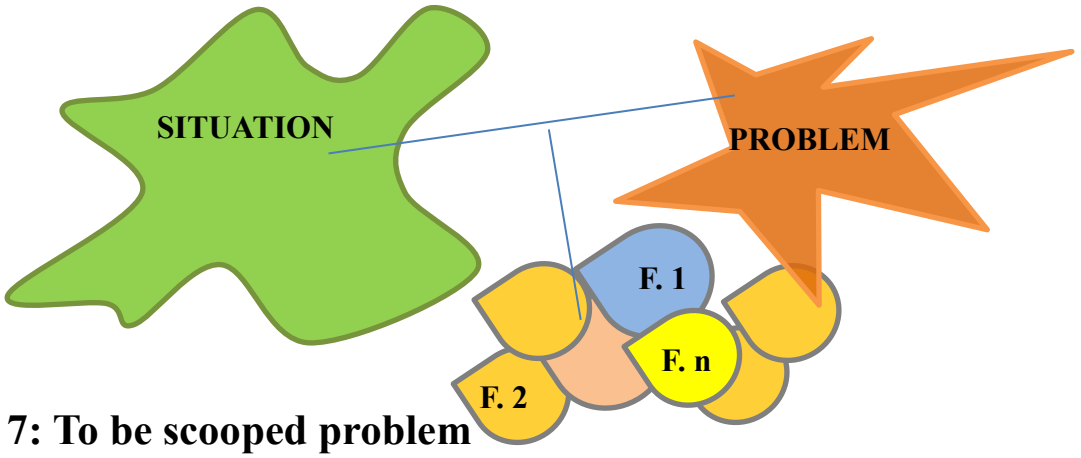

Fig 7: To be scooped problem
F. = Farmer or future farmer

Comments:

The investigation of the problem in the specific situation will follow a logical path:

a. We must begin by clarifying the issue; for getting results, the issue of work must be neither too narrow nor too wide

b. Working together should be very organized. The schedule provides for appointment of the entire team (comparison between various analysis, research progress, summary, debriefing) and the times for research and reflection in small groups or alone.

c. To keep the motivation of all participants, it is important to mark the milestones and results.

These remarks underline the need for regulation, possibly provided by a facilitator, who will be involved not on content, but very strict on the method and cooperation in the group

Transfer of Innovation: Among the tools to investigate and to deepen collectively, we chose and test the learning problem, commonly used by the Swedish partner in agricultural training courses. Thanks its versatility compared to themes and audiences, **« Problem-based learning »** seemed to may enrich the range of professional practices.

Shared problem: The discussion group

Description: Several farmers in different operating contexts are facing a similar problem

Example: *During a local technical meeting, six farmers spend two hours preparing for the next cropping season. After recalling the yields in recent years and the problems (photos of last years' diseases and weed infestation), the agricultural adviser who facilitates the discussion encourages each farmer to express their views and questions. These issues may relate to choice of varieties, soil preparation equipment, succession of crops, etc.*

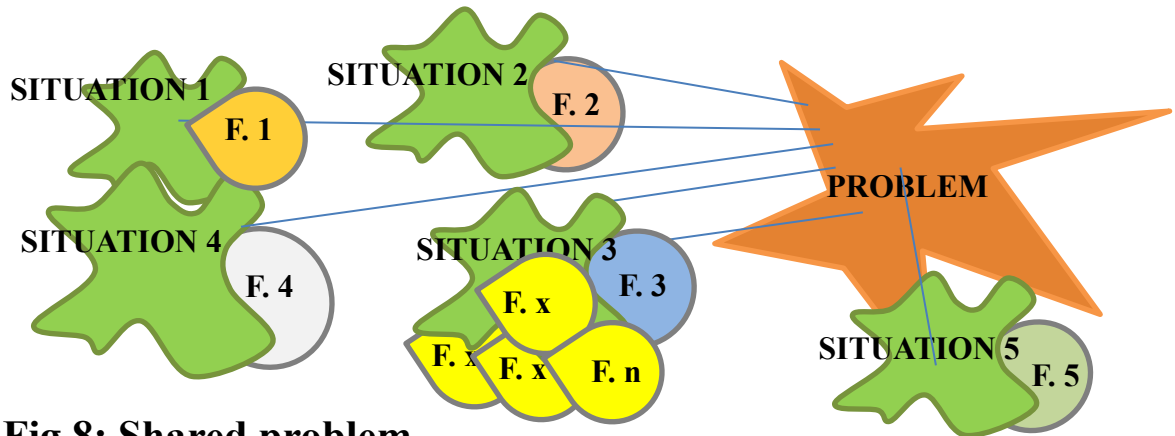

Fig 8: Shared problem

F. = Farmer

Comments:

- Farmers are not all in exactly in the same situation and, therefore, the means to practically solve the problem may be different for each farmer.
- This advice allows (or sometimes even requires) a change in the level of analysis of the problem and finding solutions as a step back, vis-à-vis the reality immediate and specific to each.
- There is a dilemma between the general approach at the group level and resolution at the individual farmer level.
- Exchanges between participants enable a comparison of situations and solutions. This discussion enriches the understanding of each farmer to their own situation.

Transfer of Innovation: Among the tools for sharing and disseminating technical or organizational solutions, we select and test the **« Discussion group** ». This tool is practiced in several partner countries (Sweden, France Ireland). The methodology of implementation of the Irish partner seemed the most attractive because of its highly developed nature in Ireland. The experiences of the Irish partner integrated the practical functionality of discussion groups within a local technical team to the training of advisers-facilitators.

CONCLUSION

The purpose of a Transfer of Innovation Leonardo project is not to conduct theoretical research, but to enrich the professional practices from experiences of advisers and partners. The approach structured on the entire 'New Advisers' project began by identifying families of problems (see [4]: WP1 - Outcome 1 - Table 4: Typology of problems in advising on pesticide reduction). After testing tools, it is followed by an ex-post reflection on how the actors coped with the resources they have mobilized, those who failed to use the tools and those who chose to reworked the tools (see WP3 - Outcomes 10, 11 and 14)

Our test device to transfer tools (WP2) is rather pragmatic and 'bottom up': Tools testers confront each tool to the theme they deem locally most important (given the diversity of agriculture, we have not decided any standard problem-situation for all tests). Then the test results are observed in terms of satisfaction of participants about each tool and tool presentation. The tester and the project coordinators will chiefly use the pattern of ‘problem situation’ to analyse the test conditions and build the final communication.

In their daily activity, the formulation in “problem situation” terms is not so obvious to some advisers who attach great importance to the specific demands of each farmer. However the effort of abstraction that causes the formulation in 'problem situation' allows a more efficient understanding of the issue at stake, to:

- Simplify: keep only the essentials, the skeleton, the frame
- Communicate with peers: one sentence is enough to say the most important
- Open the view: adviser and farmer can break free from individual and immediate concerns (‘hot' advice) to take into account context and process (‘cold’ advice).

Extending to innovation opportunities rooted in practice, the 'problem situation’ is an effective tool for progress on issues of integrated management of crop pests and diseases.

These three tools may be added to the Endure list of tools [6] which can be used for IPM. They will contribute to a better understanding of what is needed transnationally for successful implementation of tools, and professional dynamic around agronomic advice.

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[2] Coelho J. - Hanlon J., Delbos C., 2013. Resources for advisers on phytosanitary topics - New Advisers project - Outcome 2 – 58 pp

[3] Hennessy M., O'Donovan T., Hanlon J., 2012. Guidelines for the implementation of transfer test – Three tools - New Advisers project - Outcome 6 – 67 pp

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[5] Trocmé-Fabre H., Huort T., 1999. 'Réinventer le métier d'apprendre' - Editions d'organisation - 288 pp and Trocmé-Fabre H., 2004. 'L'arbre du savoir-apprendre' – Editions Etre et Connaître – 68 pp

[6] ENDURE IPM Training Guide is available on line at : http://www.endure-network.eu/endure_publications/endure_ipm_training_guide

ABBREVIATIONS

WP1, WP2, WP3: Various work packages (WP) in the 'New Advisers' Leonardo project