



## DESIRE WB-3 Stakeholder Workshop 2 report

WP3.3 Stakeholder Workshop 2 report - held in the Mediterranean dry land in south of Chile VII and VIII Region.

November 12<sup>th</sup> 2009.

*Authors: Carlos Ruiz, Alejandra Engler.*

*August 17<sup>th</sup> 2009*

*INIA, Chili.*

*Report number 57*

*Series: Workshop and Meeting Reports*

This report was written in the context of the Desire project  
[www.desire-project.eu](http://www.desire-project.eu)





## **Annex 1: Report Format**

---



### **Workshop Report - English summary**

#### **Stakeholder workshop 2**

**Selection and decision on technologies / approaches to be implemented**

**Results and conclusions from the stakeholder workshop**

Name of the study site: Mediterranean dry land in south of Chile (30° - 37° S) VII and VIII Region.

Date of workshop: 12 November, 2008

Author(s): Carlos Ruiz, Alejandra Engler

## I. General information

### A) Workshop

Workshop venue: INIA Cauquenes, Chile. 12 November 2008

Workshop moderator(s): Ruiz Carlos, Engler Alejandra.

List of workshop participants:

Mr./Ms.	Name, First Name	Stakeholder category / institution (e.g. land user, researcher, NGO, GO)	Local or external participant? (L / E)
Mr.	Figuroa, Luis	Farmer	L
Mr.	Montecinos, Miguel	Farmer	L
Mr.	Valdés, Jorge	Farmer	L
Mr.	Badilla, Nicolás	Farmer	L
Ms.	Fuentes, Labrina	Farmer	L
Mr.	Sepúlveda, Victor	Farmer	L
Mr.	Seager, Helmut	Farmer	L
Mr.	Vega D., Arturo	Farmer	L
Ms.	Ojeda, Lucía	Farmer	L
Ms.	Bernardin G., Gloria	Operator - INDAP <sup>(1)</sup>	L
Ms.	Otárola, Odilia	Operator – INDAP	L
Mr.	Grandon A., Pedro	Operator – SAG <sup>(2)</sup>	L
Mr.	Nilo, Carol	Operator - SAG	L
Mr.	Fernández A., Fernando	INIA <sup>(3)</sup>	L
Ms.	Fernández R., Marta	INDAP	L
Mr.	Vallejos J., Marco	Operator - SAG	L
Mr.	Villar C., Luis	Operator - SAG	L
Mr.	Vargas A., Jorge	Operator - SAG	L
Mr.	Toro R., Arnulfo	Operator - SAG	L
Mr.	Riquelme S., Jorge	Researcher - INIA	L
Mr.	Ruiz S., Carlos	Moderator – INIA	L
Ms.	Engler, Alejandra	Moderator – INIA	L
Mr.	Aliaga, Claudio	Moderator – INIA	L
Ms.	Martínez, Ingrid	Moderator – INIA	L

<sup>(1)</sup> National Agricultural Development Service INDAP

<sup>(2)</sup> Agricultural and Livestock Service SAG

<sup>(3)</sup> National Agricultural Research Institution INIA

It is important to mention that all the farmers that participated in the first workshop were invited to this second workshop. In addition, new farmers were also invited. Some of the farmer that came to the first workshop could not attend the second workshop. However, it is important to mention that 5 out of 8 farmers attended both workshops. In the case of operators and officers form SAG and INDAP, the list of participants change and the explanation is that each institution sends their professionals according to their availability.

## B) Background

The workshop covered the Mediterranean dryland area from the VII and VIII Region. This area has 800.000 hectares; average rainfall is 640 mm per year heavily concentrated in the winter season. The population is around 100.000 and 19.000 families.

Until 1990 there were small and large farms, but today in the area there are small farms and farms owned by the forestry industry. Therefore, small farmers are surrounded by large forestry plantations. Current productive systems are a rotation of cereal crop and pasture and additionally vineyard. The last two decades, it has been seen and improvement in this productive system as a result a more and better availability of technology. However, the presence of erosion is still a major concern in the area.

A history of overuse of natural resources (land and water), bad cropping practices and abusive extraction of native plantations derived in a high pressure on soil and water conservation. This history, by contrast with the interest of young farmers and the current governmental authorities that visualize the importance of conservation and are implementing different programs and practices that favour conservation. However, there is still a need for improved technologies and knowledge to aid these initiatives.

## II. Results and conclusions from sequences / exercises

### Step 1 → Objective(s) you worked on:

In this first step of the workshop, the moderators presented the results from workshop 1, in which it was developed and ranked a list of problems that cause degradation. The list is presented in Table 1. The discussion of the results presented in Table 1 was done in a plenary session. As a result of this activity the group agreed that the main problems of resources degradation are well reflected in the ranking made in the first workshop, and all of the problems can be considered a good objective to improve resource conservation. It was also a consensus in the group that identifying the main objective it is not possible since many of the problems are interrelated. Therefore, the group decided to use all the problems to represent the objective: **land resources conservation**.

Table 1 Problems causing resource degradation

<b>Problem causing degradation</b>
Inappropriate production system (traditional tillage system, management crop residues, crop rotation, fertilization)
Low water availability (low quality and quantity, inappropriate use of available water, leaching, contamination)
Financial resources (lack of capital, high interest rates, inappropriate terms of credits)
Erosion (traditional tillage system, no soil cover, slope)
Low soil fertility
Overexploited natural resources (overgrazing, slash and burn)

**Step 2 → Selected options and necessary adaptations:**

To select the technologies for evaluation, the first step was to present a set of seven conservation technologies. The decision of which technologies to present was based on two different sources: first we used the results of Workshop 1 and second, the technologies offered by the Incentives System for the Recovery of Degraded Land (SIRSD<sup>1</sup>) in the interior dryland. The decision on what technologies to present was made by comparing the practices in the interior dryland that have been most required by farmers in 2007 from the list of the SIRSD, and the technologies that were selected in workshop 1 (the selected technologies in this opportunity were: subsoiling, zero tillage, contour ploughing, ley farming system and irrigation technologies).

The list presented to the participants was:

- Zero tillage
- Subsoiling
- Management of crop residues
- Compost
- Water deviation trench
- Water harvesting
- Control of gullies

---

<sup>1</sup> SIRSD: This instrument is a national incentive system for land recovery. The instrument consists in a subsidy to finance specific management practices for the recovery of the eroded and degraded soils and for the implementation of conservationist practices of soil management. The instrument is managed by the Agricultural and Livestock Service and the National Institute of Agricultural Development.

For each technology, the team prepared a poster including a description of the technology, its implementation costs, potential economic benefits, and its potential impact on conservation, according to the WOCAT card and poster information. To prepare the posters, the moderators used information derived from DESIRE and other projects.

After a plenary discussion the group agreed to change the approach to evaluate group of integrated technologies instead of isolated measures as presented above. The resulting groups of technologies are the following:

Table 2. Groups of technologies for evaluation.

<b>Technology</b>	<b>Description</b>
Zero Tillage approach	Considering zero tillage implies also crop and pasture rotation, subsoiling, and management of crop residues.
Infrastructure: structural measures	Considers terraces, trenches, deviation curves, etc. Any major change in the farm.
Incorporation of organic matter	Such as compost, green manures, etc.
Agro forestry	Includes all type of systems that combines crop or pasture with tree plantation.
Water harvesting	Small dump.

The following steps in the workshop were done considering this final list of technologies.

### **Step 3 → Criteria for the evaluation:**

A brainstorming approach was used to select the group of criteria for the evaluation. We asked the participants to write on cards the criteria that were most relevant for them regarding the three different areas: economic / productive, environmental and socio - cultural. The cards were classified on three different panels according to the area. After all participants wrote their cards, we had a plenary discussion to group and rank all the cards. The group decided to select 3 criteria for each area, and the ranking method was done by direct voting of the participants. The result of this exercise is presented in Table 3.

Table 3: Criteria for the evaluation

<b>Economic / production</b>	<b>Environmental</b>	<b>Socio – cultural</b>
Productivity increase	Erosion reduction	Migration reduction
Profitability increase – cost reduction	Increase of organic matter	Promotion of associations
Funding accessibility	Water resource protection	

**Step 4 → Scoring of options made by different groups**

To evaluate the technologies we split the participants into two groups, A and B, in which the stakeholders were mixed. The moderators asked the participants to choose a group. Therefore, both groups were composed by farmers, operators and officers of SAG and INDAP and researchers.

We ask each group to evaluate the technologies using a scale from 1 (worst) to 7 (best). The results are presented in Tables 3 and 4. This exercise was done after lunch, and during the break the moderators prepared two boards with a table listing the technologies and criteria. The groups used the board to set the qualification. The result of this exercise is in Tables 4 and 5.

Table 4. Evaluation results of group A

Technologies	Criteria							
	Economic			Social		Environmental		
	Productivity	Profitability	Funding accessibility	Migration reduction	Promotion of association	Erosion reduction	Increase of organic matter	Water resources protection
Zero Tillage approach	7	7	7	5	6	7	7	7
Infrastructure	3	3	3	4	4	5	4	4
Incorporation of organic matter	6	4	4	3	3	4	6	5
Agro forestry	5	6	6	6	5	6	5	7
Water harvesting	4	5	5	7	7	3	3	3

Table 5. Evaluation results of group B

Technologies	Criteria							
	Economic			Social		Environmental		
	Productivity	Profitability	Funding accessibility	Migration reduction	Promotion of association	Erosion reduction	Increase of organic matter	Water resources protection
Zero Tillage approach	7	6	3	6	3,5	7	7	6,5
Infrastructure	4	3	6	6	2	7	5	6
Incorporation of organic matter	7	7	3	6	2	7	7	5
Agro forestry	6	5	1	2,5	2	6	6	6
Water harvesting	7	6	2	6	3	5,5	3,5	7

### Step 5 → Ranking criteria

Step 5 has been explained in Step 3.

### Step 6 → Analysis and interpretation

In general, both groups agreed in giving the best evaluation to the Zero tillage approach, including crop rotation. The second alternative was not a consensus. One group put agroforestry in second place, while the other put incorporation of organic matter in second place. However, we can say that infrastructure has a low preference in both groups. Table 6 and 7 shows average evaluation for each technologies and the ranking made by both groups.

Table 6. Average evaluation of Group A and B

Technology	Group A	Group B
Zero Tillage approach	6,63	5,75
Infrastructure	3,75	4,88
Incorporation of organic matter	4,38	5,50
Agro forestry	5,75	4,31
Water Harvesting	4,63	5,00

Table 7. Ranking of technologies for Group A and B

Ranking	Group A	Group B
1	Zero Tillage approach	Zero Tillage approach
2	Agro forestry	Incorporation of organic matter
3	Water harvesting	Water harvesting
4	Incorporation of organic matter	Infrastructure
5	Infrastructure	Agro forestry

The ranking made by each group for each of the criteria area is presented in Tables 8 and 9. According to these results, it can be seen that there are differences in Group A and B for each criteria set, and the highest differences can be seen in the economic set of criteria. However, it needs to be mentioned that the difference in this area can be explained by a difference in interpretation used in group A and B for the criteria Funding Accessibility. For Group A funding accessibility was seen as an opportunity to finance the technology, because they recognize that there are instruments for that; and for Group B it was the lack of access to financing. The difference in interpretation was captured at the end of the workshop, so it could not be fixed at the moment of the meeting. Therefore, we need to be careful about the interpretation of this criterion.

Table 8. Ranking of technologies by each criteria area. Group A

Ranking	Economic	Social	Environmental
1	Zero Tillage approach	Water harvesting	Zero Tillage approach
2	Agro forestry	Zero Tillage approach	Agro forestry
3	Incorporation of organic matter	Agro forestry	Incorporation of organic matter
4	Water harvesting	Infrastructure	Infrastructure
5	Infrastructure	Incorporation of organic matter	Water harvesting

Table 9. Ranking of technologies by each criteria area. Group B

Ranking	Economic	Social	Environmental
1	Incorporation of organic matter	Zero Tillage approach	Zero Tillage approach
2	Zero Tillage approach	Water harvesting	Incorporation of organic matter
3	Water harvesting	Incorporation of organic matter	Infrastructure
4	Infrastructure	Infrastructure	Agro forestry
5	Agro forestry	Agro forestry	Water harvesting

### Step 7 → Prioritisation of options:

According to the analysis made in Step 6, the best option is Zero Tillage approach, which also considers crop and pasture rotation, subsoiling, and management of crop residues.

The ranking was also discussed with the project team, and they agreed in considering this a relevant alternative for the area under study. Moreover, Zero tillage is part of the experiments already carried out by DESIRE.

The proposed experiments are described in the following setup:

Two fields experiment.

The 1<sup>st</sup> with 5 treatments:

- Conventional tillage with animal
- No tillage and Subsoiling
- No tillage and barrier hedges
- No tillage and contour ploughing
- No tillage

The 2<sup>nd</sup> with 3 treatments:

- No tillage and countour ridging with subsoiling
- No tillage and infiltration trenches
- No tillage

**Context for the implementation:**

The location of the experiments presents the following characteristics:

*Location description*

Coordinates: [35°97'S](#) [72°24'W](#)

Physiographic setting of the plots (slope, landscape etc):

Light, moderate and strong slopes are found at the Mediterranean zone of central Chile. The type of erosion is light, moderate and severe.

Soil information (type, texture, depth, fertility indication):

Degraded granitic soils (Alfisol), sandy loam and shallow soils (<90 cm). The fertility is low (OM 1.1-1.5%).

Geological information (formation, lithology):

Granitic materials.

Annual rainfall and seasonality information:

640-1.100 mm rainfall annually, 80% between March and August and 15% between September and November

Land user that will apply the Technology:

- Individual / households
- Small / medium / large scale producers
- Common / average users
- Mixed gender

**Step 8 → Embedding into overall strategy**

At the end of the workshop, the participants gave an important insight to the conclusions of this activity: they need technologies that do not require major investments and changes of the structure of the farm.

This result is in the same direction of the overall strategy adopted by the project DESIRE, in terms of optimizing existing technologies, for which more information and research is required, and to disseminate these results among the relevant stakeholders to generate a real impact on the area.

**III. Evaluation of the workshop**

Again, in this second workshop, the participants were very active during the whole activity, giving their impressions and assessment in all the exercises. There was good communication between small and large farmers, and none of them acted as leaders in the discussion.

The moderators agreed in that the results of the workshop are very useful for the project and that the activity could reach its objective, which was selecting the technology to test in the field.

#### **IV. Other information**

##### **Difficulties encountered:**

The only difficulty of the activity was to change the approach in the technologies selected for the evaluation. The team prepared a set of technologies, but the group of participants wanted more broad technologies for the evaluation. The moderators needed to deal with this situation and needed to change the approach during the workshop.

##### **Changes made concerning the procedure suggested in the workshop guidelines:**

The workshop was developed in one day, because of time availability of the participants.

##### **How was the interest and participation of the different stakeholder groups in the workshop?**

We found a high motivation and interaction across the different groups (local and external)

##### **Recommendations:**

No recommendations

##### **Comments:**

You will find below some pictures of the workshop.

Photos of WP 3.2, 12 November, 2008. Cauquenes, Chile.



Workshop participants



In the back: Poster presented with information of technologies



Panel for selecting criteria



Technology evaluation exercise