

Education and Organic Pilot Farms

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Abstract

The main idea of ‘organic pilot farms’ is to create and to establish decentralized demonstration and consulting possibilities for gardeners and farmers through pilot projects by co-operating agricultural farmers out of the region. This approach is carried out within the field of organic agriculture. The co-operation of practitioners, consultants and researchers guarantee an efficient processing of current problem areas on the one hand and on the other hand a quick knowledge transfer from the universities through consulting institutions and organic pilot farms up to the width of agricultural and gardening practice. And the other way round agricultural and gardening issues are carried into research through consulting institutions and organic pilot farms. Therefore, these farming institutions have an exemplary function concerning the application orientation of all resident agricultural and gardening firms of the region by opening up themselves to new methods, knowledge and approaches and to transfer these into practice. At the same time the organic pilot farms offer direct feedback to the universities about their experiences concerning transfer into practice and additionally they carry on suggestions and problems of other farmers directly to research. Organic pilot farms have been implemented successfully as a point of intersection between practice and research. The process of direct exchange, development of solutions and their transfer are unique in the field of agriculture. This approach requires partners to carry it out. Therefore, in a first step the approach was transferred to Chile. It was introduced to the organic farmers within the VII/VIII region of Chile and the University of Talca/Chile accompanied this process as research partner. The requirements concerning approach and partners have been discussed, first results have been gathered.

Keywords

organic pilot farms; organic agriculture; teaching and learning; transfer to Chile; participation; inter- and transdisciplinarity

Introduction

The following paper presents first steps and first results concerning the possibility to implement organic pilot farms (Leitbetriebe) in Chile. Additionally, it demonstrates the required structural framework conditions to carry out further steps to build up a pilot project 'organic pilot farms'. The Ministry of Science and Research (BMWF) founded initial projects to carry out first research steps. The following text and figures are according to /Schmid, H., Zettel, C. and Hoeborn, G. 2014/.

Organic Pilot Farms

In 1993 the combination of research, consulting, and practice was established in the German Federal state of North-Rhine-Westphalia (NRW) concerning special issues of organic farming. This combination of research, consulting, and practice led to organic pilot farms, a project funded by NRW and the European Union /Stumm, C. and Köpke, U. 2008/. The main idea of organic pilot farms is to create a decentral demonstration and consulting possibility for farmers and gardeners by offering pilot projects through co-operating agricultural farmers out of the region. This approach is carried out for organic agriculture. This participatory, transdisciplinary, and interdisciplinary co-operate work of practitioners, consultants and researchers guarantee an efficient treatment and processing of current problem issues on the one hand and on the other hand a quick knowledge transfer from the universities through consultants and organic pilot farms up to praxis, up to farmers and gardeners. And the other way round, issues concerning gardening and farming praxis are transferred through the organic farm pilot projects and consulting institutions to research. Therefore, organic pilot farms have a role model function by opening themselves to new methods, knowledge, and approaches and at the same time implement them. Thereby, they offer implementation orientations to all gardeners and farmers of the region. Additionally, these organic pilot farms give feedback to the research institutions about their experiences concerning implementation and convey suggestions and problems of the gardeners and farmers directly to research institutions as well.

Within these projects research was carried out by the University of Bonn and the University of Wuppertal.

Preconditions and requirements concerning implementation of organic pilot farms

The idea of pilot farms is based on the perception and knowledge that a location related farming is a main condition for organic farming. Strategies of optimized production are set up on location related and nuanced field experiments. The selection of location and the networking of the pilot farms are main issues within the project. The results of the scientific research are transferred into praxis aligned procedures.

Thereby, the overall goal is to optimize exemplarily the entire farming production, the marketing, the economic stability factors related to regional location conditions, the types of business and operation, and the main focus of production concerning chosen organic farms in the region VII and VIII in Chile.



Figure1: Project partner Paulo Escobar (BioNativa) discussing organic pilot farming according to /Schmid, H., Zettel, C. and Hoeborn, G. 2014/

Beside the production of agricultural production the aspect of generating energy out of biomass is an additional important research aspect. The issues ‘education’ and ‘quality management’ are integrative components concerning the introduction of the pilot farm project (see figure 2). While the original project in Germany was based on the local circumstances, conditions in Chile are very different. Due to these different conditions and by taking the holistic approach offering long term chances of success into consideration, as well transversal processes, supporting processes, have to be implemented. It turned out, that especially concerning the implementation of techniques of cultivation within the guidelines of organic agriculture and the transfer of research results into praxis there is a need for action. The development of tools of managing the farming (like business management, leadership of employees, self-management) is especially aiming on the sensitization of small family businesses towards a more professional management.

The co-operation of practitioners out of the region, consultants, and researchers of the Universidad de Talca offers the possibility of an efficient knowledge transfer into a wide agricultural and gardening praxis.

Stability by regional networking

Based on the principal idea of ‘stability by regional networking’ the possibility is generated to carry out part-projects with neighboring areas like the market of organic products or private or governmental institutions. These part-projects, sub projects, are aiming on

proving the mechanisms of regional co-operations and to transfer them into long term networking structures within the system organic agriculture – region. One example for this strategy is the employment of disabled within the organic farm business and by generating and serving a market which is aligned to the products produced by these people. There are many part-projects like these in Germany.

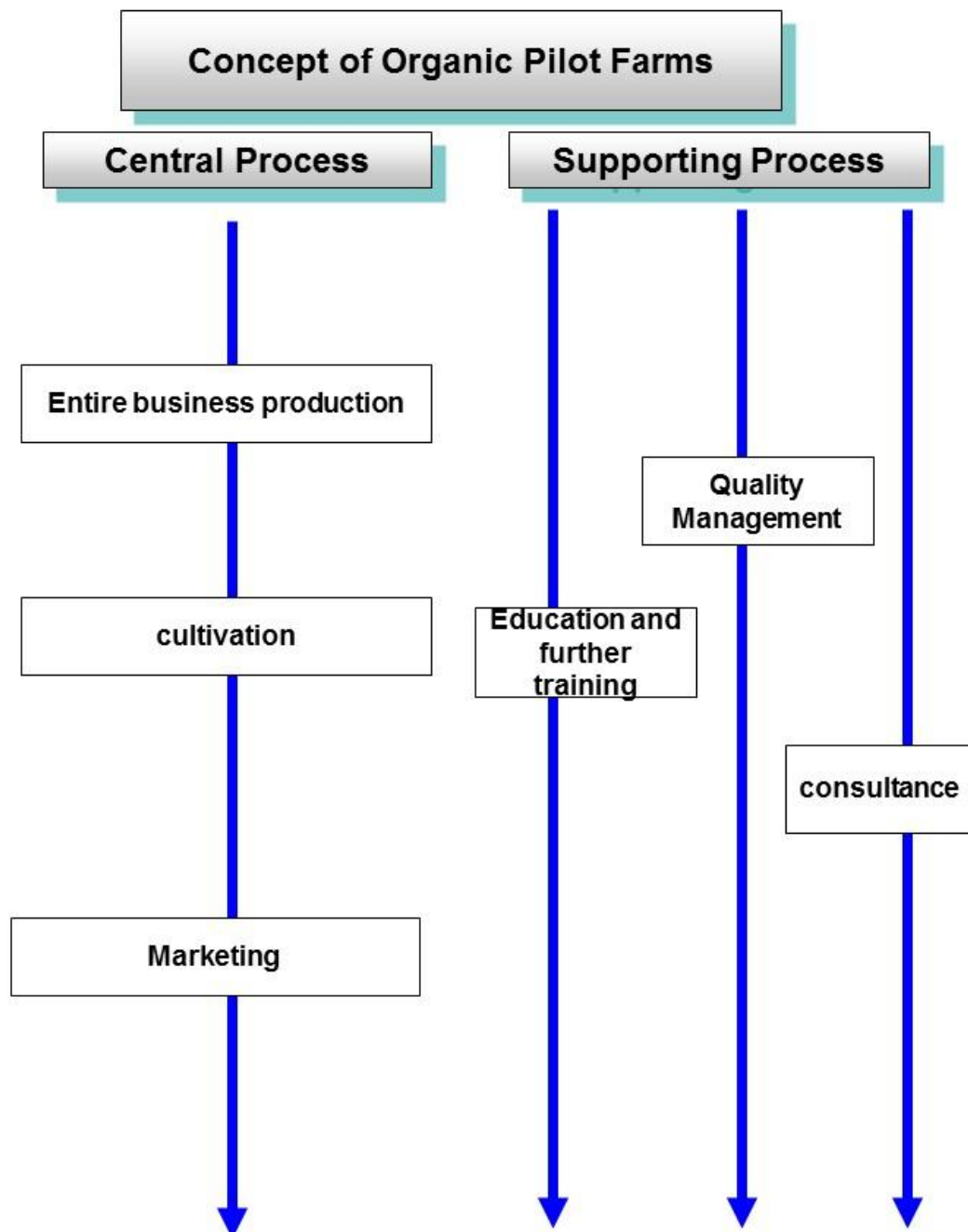


Figure 2: Processes of Implementation according to /Schmid, H., Zettel, C. and Hoeborn, G. 2014/

Additional examples:

- Institutions/organizations social groups build up networks by having a starting point (link) which may be a thematically question within an organic production business. Through their interaction they generate part-system, a sub-system. The condition to install a successful co-operation is the aim of a mutual benefit, a win-win-situation. So, for an organic farmer the benefit could be the opening of a new market or the creation of a positive public image which may be given through the social relevant discussion of the employment of disabled.
- Another example is organic agricultural tourism with nutritionally conscious costumers: The costumers visit the organic farm of the region and buy their nutrition. Through this visits stabile commercial relationships are generated and products are delivered to hotels e.g. additional producers are involved as suppliers.
- Line of action: Identification of relevant and current issues of the Chilean society and implementation of sub-networks including research, consultant, and practical transfer goals.

Objectives for the region of Talca

Overall Objectives

The overall target is to generate decentralized demonstration and consultancy possibilities for farming and gardening businesses by offering pilot projects through co-operating farms. The participatory co-operation of practitioners, consultants of different institutions like INDAP Chile e.g., and the University of Talca assures an efficient processing of current problem issues and a fast knowledge transfer from the university via consultancy institutions and pilot project farms towards a broad farming and gardening praxis.

A special emphasis is on the support and evaluation of regional networks and education institutions. They are the future supporters and multipliers for a long term transfer. In doing so, objectives within the field of action of the specific pilot farms, like healthy nutrition or generation of workplace e.g., should be combined with political-societal targets and actors of the region.

Requirements of the involved stakeholders

The production and marketing of organic agricultural and gardening products is related to a number of stakeholders. On the one hand, of course the farmers themselves, as well as their employees and suppliers, like of seeding material, machines, and fertilizers e.g. On the other hand, after harvesting regional distributors (traders), processors, salesmen, and user participate in the process. Additionally, consultant institutions, education institutions like schools and universities are affected as well. All stakeholder compile specific requirements.

The defined objectives concerning the region of Talca can be deduced from the specific requirements of the involved stakeholders. Within the projects being financed by the German Ministry of Science and Research (BMBF) special workshops have been carried out to gather these requirements and to evaluate them. By a first step the stakeholders themselves were gathered and defined. Secondly, the stakeholders were brought together aiming on a networking of the stakeholders. This process was steered and controlled by an expert team (chamber of agriculture NRW and University of Wuppertal). By offering a specific moderation within the workshops at the UTalca (University of Talca) the networking was initiated on the one hand and on the other hand the different requirements were gathered. These results are offered in /Hoeborn,G., Schmid,H. and Zettel, C. 2014/.

Choice of pilot project farms and target groups

The choice of the pilot project farms is driven by different criteria to assure representative results and to assure an excellent communication with the target and further transfer groups. Therefore, criteria maybe the regional distribution, line of production, ability, institutional involvement, personality of the leading farmer, quality of cultivation, and business development. Being institutional target groups within the region of Talca leads to the following requirements:

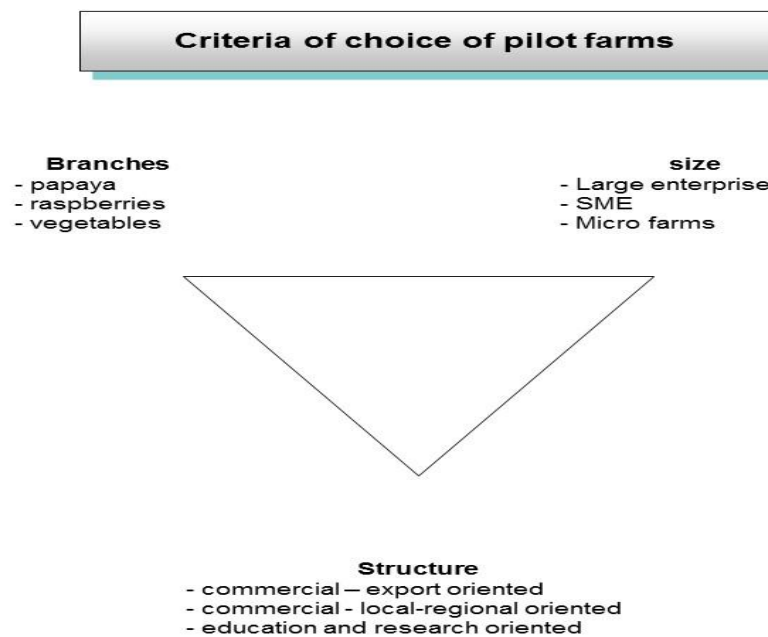


Figure 3: Criteria of choice

a) Production business

Production businesses offering a differentiated production or organization structure or be willing to implement it.

- Large firms offering vegetable and fruit production and, at the same time, offering defined relations of delivering (Surfrut e.g.)
- Family farms (granjas familiares) offering a varied agricultural production like potatoes, tomatoes, vegetables, berry fruits, special cultivation like chicory for insulin
- Small farms (pequeños agricultores) offering special fruits like papayas or raspberries
- Pilot projects like at the UTalca.

Target/Motivation: Opening of long term market perspectives by implementing organic agriculture. Getting a distribution of risk by variety of products. Market and competition advantages through an initial implementation of products and concepts. Getting access to a greater number of networks and thereby getting an increase of market potential.

*b) Agricultural educating schools / residential schools
(with an affiliated pilot projects)*

Target/Motivation: Organic-Curriculum in combination with an affiliated pilot project related to nutrition and processing of products as well as the education of teachers related to nutrition and organic agriculture.

c) Consultancy institutions

Consultancy institutions like agricultural chambers, farm cooperatives or co-operations, which offer a high transfer potential.

Target/Motivation: The efficiency of consultancy institutions concerning knowledge transfer of environmentally appropriate farming processes should be supported and intensified. Key words are networking of the institutions, consultancy of consultants, team building e.g. Thereby, the consultancy institutions get an exclusive access to research results.

d) Marketing institutions/transfer partners

If institution of marketing and transfer are offering the possibility of being a pilot project themselves, they should be involved early and if appropriate as a pilot farm like Surfrut, Romeral, offering organic apple farming.

Target/Motivation: Access to new products, possibility to establish a new market niche.

e) Supplier/Deliverer

Enterprises supporting the production and marketing process are involved into the pilot farm project at an early point of time like BioNativa and its generation of organic plants strengtheners e.g.

Target/Motivation: Testing and evaluating of the generated products, further development, widening of application field.

Setup of a regional market

To encourage all actors towards an engaged acting within the field of organic production requires a long term alignment of structures of networking and affiliation. This assures a manageable business risk. The development of the domestic regional market, therefore, is a necessary opposite pole towards the currently existing export orientation which means at the same time an export dependency.

Due to the dominant export orientation especially concerning organic products Chile needs a new long term alignment of its marketing.

Implementation

The process graphically shown in figure 6 is divided into a main process, dealing with the direct implementation of the pilot farm approach, and into supporting and processes, dealing with all setup and supporting activities. These activities support the multiplication targets later on.

Main process

The focus of the main process is the implementation of the pilot farm project in Chile. Therefore, the first step is to *identify the institutional partners*. Within the already mentioned projects many of the partners are already identified. The research partners are given by University of Talca by Hernán Paillan or in the field of technology transfer the governmental

institution CORFO (La Corporación de Fomento de la Producción) has been identified. Additional stakeholders have been gathered and evaluated as well. Through mutual workshops of the German and Chilean partners an implementation concept has to be worked out bilaterally, first steps have been discussed within former initiation projects. The German approach has to be analyzed in detail concerning its transferability, specific adaptations to the Chilean conditions and requirements have to be included. Within the initiation projects first steps concerning the realization of a transferability have been carried out. For example, in Chile are heterogenic production conditions due to big differences in company size and related big differences concerning technical equipment, this is clearly different to Germany.



Figure 3: Harald Schmid (Chamber of Agriculture NRW) as a consultant according to /Schmid, H., Zettel, C. and Hoeborn, G. 2014/

1.) *Inquiry of status quo includes an evaluation of*

- Crop rotation for field crops due to condition regarding location
- Cultivation method of specific plantation regarding to entire land use system
- Technical methods of weed regulation
- Animal farming (animal health, feed conversion ratio, grazing, use products)
- Support of landscaping measures as well as species and biotope conservation regarding use and ecological structural variety
- Product quality
- Marketing strategies
- Business, working, and market situation

2.) *State of the art – Demand of implementation for praxis*

- Balancing of humus and cycle of materials/ management of nutrients
- Definition of quality regarding different plantations like generation of crop seeds with high quality
- Nitrogen supply within vegetable cultivation
- Trefoil-grass cultivation regarding to nitrogen accumulation
- Condition regarding location design of ration of feed for animal production
- Commercial exploitation and marketing
- Generating and use of bio gas
- Gathering and planning of business and management



Figure 5: Workshop with Surfrut Company according to /Schmid, H., Zettel, C. and Hoeborn, G. 2014/

If all requirements concerning implementation are known, possible pilot farms have to be searched. The farms have to be interested in a co-operation on the one hand, and on the other hand, they have to accomplish with the requirements. Potentially possible private farms and pilot projects of institutions have already been contacted.

The chosen businesses will implement the pilot farm approach, this implementation will divide into phases. Within the first implementation phase targets are worked out regarding to the chosen farms and institutions as well as ways to reach the targets, their planning and transfer.

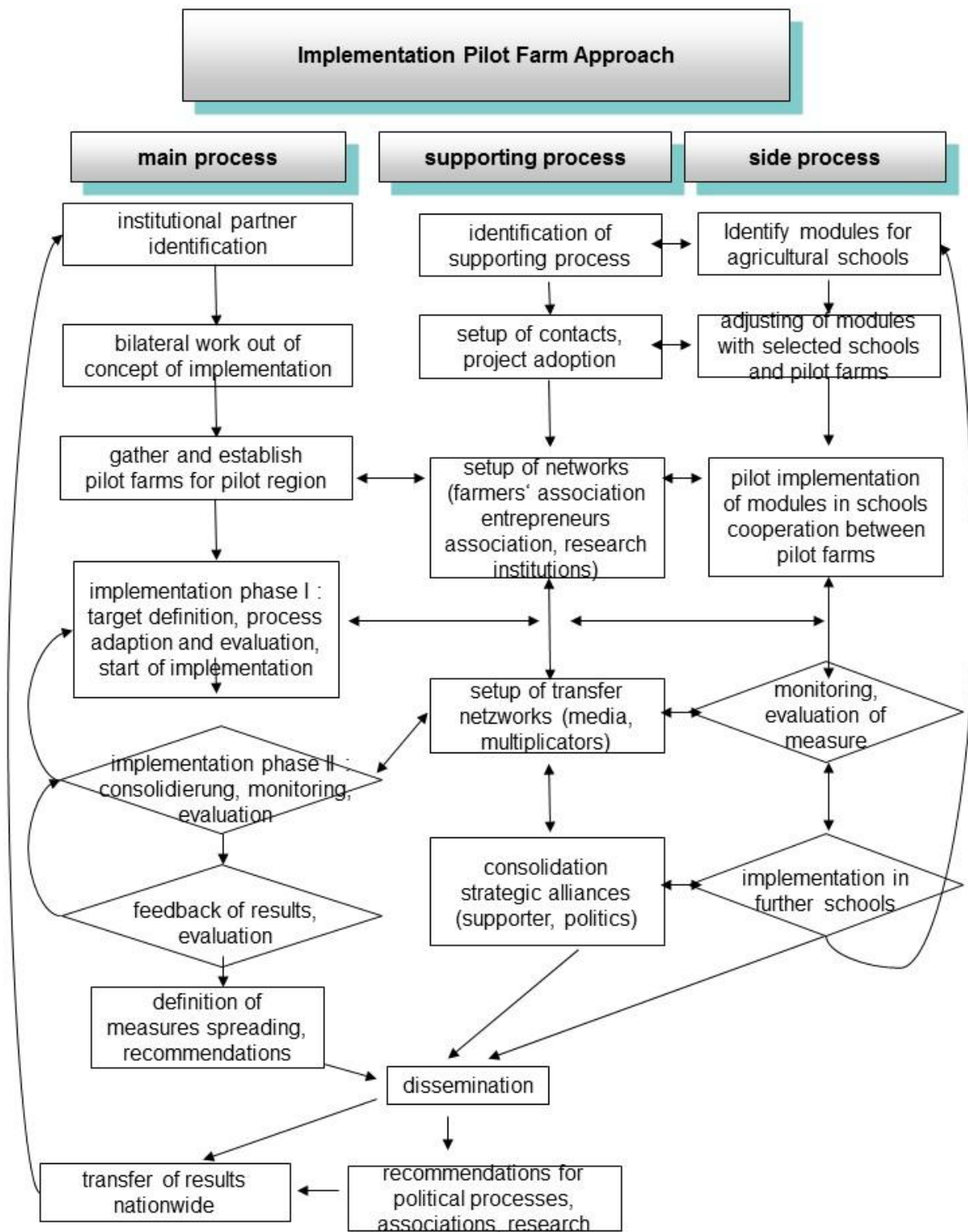


Figure 6: Processes of Implementation according to /Schmid, H., Zettel, C. and Hoeborn, G. 2014/

During the second phase first results are presented and discussed with all involved stakeholders. Further steps of the test execution are planned.

After this phase of implementation an evaluation of the results is carried out. This leads to a *feedback* regarding the prior defined targets. After eventually necessary correction a nationwide transfer of the results through all stakeholders will take place.

Supporting and side processes

Parallel to this main process supporting and side processes are carried out. Within this process supporting measures are identified, related contacts are established as well as a network, which is extending the project partners. This includes the generation of a multiplier network as well as a political network.

- education: Involvement of educational institutions by measures of sensitization, classes of organic agriculture
- Quality management: Quality management audits (processing business), certification (pilot farms and processing business), development of eco-seal

The side processes have to be carried out like graphically demonstrated. The results of all three processes are spread and they slip in a nationwide transfer combined with political recommendations.

Conclusion

Within many workshops in Chile and Germany the approach of the organic pilot farms has been introduced to the Chilean partners. The related stakeholders have been brought together. Partners have already been required. There is a big interest to implement one or more pilot farm projects in Chile and to run them under Chilean conditions.

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