



Impact matrix analysis and cost-benefit calculations to improve management practices regarding health status in organic dairy farming

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D2.1 - Report on regional kick-off Workshops

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Executive Summary

This document provides descriptions of the regional workshops, arranged to get input for the variable list for the Impact matrix

Dissemination Level		
PU	Public	PU
PP	Restricted to other program participants (including the Commission Services)	
CO	Confidential, only for members of the Consortium (including Commission Services)	



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1 Background

Five regional workshops were organized with the main aim to get input for the list of variables to be used in the Impact Analysis for investigating herd-specific actions to improve animal health. The workshops were arranged in Nantes, North West of France (22.11.12), Nancy, North East of France (13.12.12), Witzenhausen, Germany (30.11.12), Lugo, Spain (23.11.12), and in Skara, Sweden (21.11.12).

The details of each workshop can be found in the appendix.

2 Participants

The participants in the workshops were selected to represent a wide range of competences with respect to animal health, specifically in organic dairy herds. The national organizers recruited therefore organic dairy farmers, technicians/engineers, advisors (animal scientists), veterinarians with clinical practice, members of the organic dairy industry and the dairy improvement associations as well as researchers.

The workshops included in total 80 participants, with 17+18, 16, 21 and 8 in France, Germany, Spain and Sweden, respectively.

3 Process

All workshops followed a similar process, to ensure that the final products, i.e. the list of variables, were comparable. Thus each workshop started with a description of the IMPRO-project, i.e. its background, intention and approach, and an explanation of the Impact Matrix method. The identification of areas relevant for animal health and welfare in organic dairy farms were then done based on the participants experiences starting from a "blank page". The factors thus identified were further discussed at the workshops in small or large groups (see appendix for details), and the final list of variables were subsequently arrived at through a careful review by the national IMPRO-teams.

4 Issues with the IMPRO-concept

The participants in the workshops were in general positive and enthusiastic about the approach taken by the IMPRO-project. Some comments were:

- a) A good understanding by veterinarians/advisors of the farm situation was considered crucial for the effective application of the Impact Matrix. It was suggested that the outcome of the first farm inspection, which will be performed before the Impact Analysis, should be shared with those that will participate in the Impact Matrix exercise.
- b) Identification of factors that may be able to influence animal health and welfare through the Impact Analysis alone will not necessarily lead to improvements, but needs to be accompanied with detailed and specific action plans and target agreements. Providing recommended actions is a task assigned to the advisory experts involved, namely the veterinarians and technicians. Target agreements will be documented by the IMPRO-researchers and be used as reference figures for the *ex post* farm inspection.

- c) Some variables that are identified in the list may have a much delayed influence on animal health and welfare, and the effects of actions taken on such variables will not be seen during the project period. Such variables should still be included in the list.

5 Recommended lists of variables

The workshops resulted in 4 lists of recommended variables (one per country). These lists are available in the appendix, but will be further processed into one common list to be used in the Impact Analysis in all countries and reported in a separate document (deliverable D2.2).

6 Appendices

Report on the regional workshops France

Participants workshop Nantes, Brittany and Loire-Atlantique (North West of France)

There were 17 participants at the workshop, represented by: 2 organic dairy farmers, 5 technicians in organic dairy production (working either for a milk factory, regional assemble of organic producers or a milk recording system), 4 veterinarians working in the field with a considerable amount of clients in organic dairy (approximately 15 percent of their clientele), 1 researcher (with experience in organic production systems), 2 engineers of the regional Chambers of Agriculture, 3 members from the IMPRO team.

Participants workshop Nancy, Lorraine (North East of France)

There were 18 participants at the workshop, represented by: 5 organic dairy farmers, 7 technicians in organic dairy production (working either for the regional assemble of organic producers and/ or Chamber of Agriculture, 1 veterinarian, 1 researcher (social sciences), 1 representatives of organic farmer' organization, 3 members from the IMPRO team.

Description of the process to get to the variables for both workshops

The IMPRO-team started with an introduction of the IMPRO-project, followed by a detailed explanation of the Impact Matrix. Theory was put into practice performing a small participatory exercise with the Impact Matrix in smaller groups. In each group a moderator of the IMPRO-team was present and multidisciplinary groups were composed (farmers, veterinarian and technicians).

During the second part of the day the groups were asked to describe the system of an organic dairy farm and identify the variables that affect animal health in these systems. Results were compared, regrouped and discussed in a plenary session at the end. This resulted in the identification of about 25 variables, the so-called 'crude' list of variables. This initial 'crude' list was critically reviewed after the workshop by the IMPRO-team to insure that all the criteria of a variable were being met and to group some variables to attain a maximum number of 20 variables. For each variable a short and long definition was formulated and its indicators were identified, taken the remarks and discussion points raised during both workshops into account.

Main points of discussion

- The importance of having a variable specifically for calves, heifers and dry-cows.
- The role of genetics in the Impact Matrix as a variable and potential action lever, as its impact will not be observed within the one year.
- Does milk price alone have an effect on the way a farmer works?
- The importance of having animal health as a variable.
- How to capture renewal of animals, is it part of reproduction/health or do we assemble culling and renewal to assess renewal capacity of the herd.

Feedback on IMPRO and the Impact Matrix

In general, using the Impact Matrix as a tool to improve animal was found to be a promising method. Everybody agreed that developing a comprehensive and participatory approach of a farm specific animal health situation is the way forward. However, some remarks were made on its usage;

First of all, the technicians and veterinarians indicated that it would be very important to be well acquainted with the overall farm situation prior to the intervention with the Impact Matrix, in order to feel confident enough to be willing to participate and to insure the successfulness of the Impact Matrix. This could be assured for example, by sharing the data that we will collect during the initial farm visit with them.

Secondly, the participants felt that for the Impact Matrix to be successful, in terms of actually improving animal health, solely using it to visualize the farm system and identifying general levers wouldn't do. A way has to be found to use the obtained information to elaborate a more detailed and specified action plan following the Impact Matrix intervention.

Thirdly, due to the limited time frame (one year) the effects of the proposed measures might not be reflected in the animal health and production performances. For example, improving the breeding value for mastitis would only after 4-5 years have an impact on animal health. The question aroused whether we should keep this variable or not? We think we should.

Fourthly, the role of the veterinarian as an important counsellor for the farmer in particular cases was questioned and thus subsequently his role as a suitable participant performing the Impact Matrix.

List of the recommended variables (the results of the two French workshops are compiled)

No	Variable	Definition	Indicators
1	Amount of labour capacity	Amount of time by the farmer/ employees for farm work (herd and other farm production areas)	Number of employees/ business partners Number of cows Hectares of cultivated land Number of other production areas on the farm /tasks
2	Implementation of organic regulation	Implementation of organic regulation, including the farmers consideration of regulation in organic farming	Type of production label (organic/biodynamic/etc.) Use of alternative therapies Reluctance to use allopathic treatments
3	Stockmanship qualities of the farmer/ employees	The farmer's ability to provide appropriate animal care (regarding animal health, nutrition, housing, hygiene and welfare)	Technical know how Rigor in work Sensibility of the farmer towards his animals
4	Quality of herd surveillance	Amount of surveillance of herd health and production, at individual cow and herd level.	Animal observation time Technical know how Use of reasoned health surveillance protocols Rigor of the process
5	Access to advice and education	Farmer' access to advice and/or education	Technical background Continuing education Number of different advisors Access to a network Availability of competent advisors and education
6	Rentability of the farm	Economical results, financial resources of the farm	Revenues Obtained milk price, including premium prices or penalties. Obtained prices for calves, heifers, meat Financing and investment possibilities (e.g. bank)

7	Availability of feed	Autonomy in feed supply, concerning feedstuff and concentrates for cows and heifers	Amount of land in relation to herd size Characteristics of the land Rotation Parcelling of the land Accessibility Pasture management
8	Herd size	When herd size in itself influences other variables	Number of animals present (per age group)
9	Breed and genetics	Level the cows their adaptation to the organic production system; reaching an equilibrium between feed system and productive potential.	Production level per cow BCS
10	Milk production level	Level of production and the relation between quota and production level can be taken into account	Owned quota and obtained quota
11	Quality of the diet and water supply for lactating cows	Ability to continuously offer an optimized diet and appropriate water supply, meeting the nutritional demands of the cows at all times (thus including transition periods).	Access to feed and water Availability of minerals Percentage silage Grazing time Technical knowhow to compose an optimized diet Feed storage conditions
12	Quality of the buildings and pastures for lactating cows	The buildings (including milking parlour and stables) and pastures are appropriate to the work in terms of lay-out, interior design and climate. And insure cow comfort.	Percentage of integument alterations Animal density
13	Hygiene standard for lactating cows	Hygiene standards are being met, regarding housing conditions and during milking	Management of animal waste Cleanliness of the cows Milking protocol Presence of a calving and sick pen
14	Appropriate management of the dry cows	Appropriate management to insure optimal conditions (regarding, nutrition, housing, hygiene, welfare) for dry cows to be able to start healthy the next lactation	Disease recovery rates during the dry period
15	Appropriate management of the young stock (calves and heifers)	Appropriate management to insure optimal conditions (regarding, nutrition, housing, hygiene, welfare) for the development of the young stock to start their first lactation healthy and in time.	Age and weight at first calving Calf mortality Monitoring efforts concerning the risk of parasites Pasture management Use anti-parasitical methods
16	Therapeutic and medical intervention	Quality of curative and preventive therapies, and the use of vaccines	Early disease detection and treatment Usage of <i>a priori</i> effective treatment protocols Nursing quality Vaccinations adapted to herd health status
17	Herd health status	Health status of the herd related to endemic diseases	Incidence of disease Mortality Lameness prevalence Somatic cell count Health related culling (number, age, percentage being primiparous, number of animals bought)
18	Risk of introducing infectious diseases	Risk level of introducing infectious diseases through hazardous contacts; material or animal based, through internal and external contacts.	Known presence of infectious diseases on the farm Number of bought animals Common materials Number of neighbouring pastures Prevention measures taken
19	Reproductive performances	Quality of reproductive performances	Non-return rate after first artificial insemination Interval calving to first artificial insemination Calving interval

Report on the regional workshop Germany

Place and date

The regional workshop in Germany was held on the 30th of November at the University of Kassel in Witzenhausen.

Participants

There were 16 participants at the workshop, represented by 5 organic dairy farmers, 4 veterinarians, 3 advisors in organic dairy production (two belonging to organic producers' associations and one being from the governmental service), and 4 members of the IMPRO team.

A short description of the process to identify variables for the impact matrix

The workshop started with a short round of introductions. In a second step each participant was asked to explain in a few words his or her expectations for the day.

Thereafter Prof. Albert Sundrum gave an overview to the IMPRO project introducing its background, intentions, and approach. His presentation was followed by Susanne Hoischen explaining the operating mode and structure of the impact matrix analysis. Before lunch there was still time to ask some questions concerning the method which was made use of.

After lunch all participants were engaged in the process to identify relevant variables. Starting with a blank pin board the participants were asked to name factors which have an effect within the organic dairy farm considering the background of animal health. Suggestions were discussed in the group. If there was a general agreement on a "crude variable", it was written down on a card and pinned to a board by the moderator. Definitions and indicators were discussed and simultaneously typed out in a Word document. Wherever possible, related terms were moved around, arranged in clusters on the pin board and an umbrella term was looked for.

At the end of the time period, the group had collected around 60 "crude variables". It was not possible to reduce this number any further within the workshop. Instead the remaining time was used to clarify the next steps, such as identifying and recruiting the farms for WP2.

The pin boards displaying the collected terms and clusters were photographed. The IMPRO team then worked out a set of 22 variables, which comprise all "crude" variables in one way or the other. The list of variables was checked for system criteria with the help of a criteria matrix. To improve understanding and transparency a table was created to allow comprehension of the process of reduction and clustering. This table besides the "crude variables" includes definitions, indicators and some examples of potential measures to give the advisors and veterinarians an idea of how to make use of the knowledge of the most sensitive system variables of a farm.

The final set of system relevant variables was shared with the participants.

Main points of discussion

For the participants the term "variable" was difficult to grasp. The moderation was stipulated to continuously remind participants of the quality of variables during the process, which was time-consuming and demanding.

In the final discussion it was made clear by the farmers that the terminology used in handouts and presentations was sometimes too difficult to understand. A more comprehensible project overview than the one which was distributed before the workshop was requested, in order to be able to make the project more attractive for farmers.

During the German workshop the participating advisors were the most passive. Most active appeared to be the veterinarians, followed by the farmers.

What feedback gave the participants with respect to the IMPRO-concept and the impact matrix?

The system approach was generally appreciated and acknowledged. It became visible, that during the discussion the participants perceived their own role. As it became clear that they all had their entitlement and were accepted in their position this helped the discussion a lot.

The “aggregation level” – where the participants conceptually meet – enables interactions in the first place. In our evaluation after the workshop we found this “aggregation level” to function as a meta level where misunderstandings can be resolved.

We also found that the process of finding one’s own position in the thematic context and role in the group demands “slow thinking”. With enough time and space provided everyone involved can and needs to leave automatisms behind. Thus conventional stereotypes and expectations are dissolved.

The platform IMPRO provides with the impact matrix analysis abstraction and reflection from a certain distance. It allows (especially the farmers) to leave the farm and look in/down from the outside at what happens on the farm level.

The participants were excited by the project concept and signalled their willingness to take part in the next phase. They agreed to provide us with lists of potential farms by the end of December.

A question raised during the discussion of farm identification was how well the advisors and veterinarians involved need to know the farm. It was made clear that the information collected during the first farm visits needs to be well prepared and available in due time before the second farm visit to allow for preparation. Also it was stressed that an inspection will have to be part of the second farm visit too. This will need to be included in the estimation of the time scope of those visits.

Another question raised was how to get to a plan of measures which are disposable to improve the current health situation on the farm. Our opinion is that once the impact analysis is accomplished it is up to the advisor and the veterinarian to make suggestions as to what actions are promising with regard to animal health. The identification of potential measures that might work in the farm specific situation might be facilitated if a list of measures is provided in relation to each variable that addresses actuating elements.

The task for the scientists involved is to record the target agreements so their fulfilment can be evaluated in the telephone interview at the end of the project. How these target agreements may look and what they need to contain should probably be part of the teambuilding meeting in January.

List of recommended variables

No	Crude variables	Variables	Definition	Indicators	Measures (examples)
1	Quality of the advisor, quality of the vet	Quality of advisory	Veterinary and agricultural advisory service, ability to identify problems and measures and their communication and coaching	Technical expertise, communication skills, knowledge of complex interrelationships, open-mindedness, continuity of the advisory	More frequent use, change in advisors, intensification of co-operation
2	Milk prices, feed prices, costs per kg milk	Financial resources of the farm	Financial resources to modify and improve suboptimal conditions	Balance between income and expenses	Reduction of costs, increase the added value
3	Technical expertise, stockmanship skills, problem-solving skills	Expertise of the farmer / employees		Technical expertise, stockmanship skills, problem-solving skills	Training, recruitment of additional persons, outsourcing
4	Time for animal care, importance of farm sections, number of main activities, aims / conception / strategic orientation	Priority of animal husbandry / animal health	What's the priority of animal husbandry in the farm context and its consequences for the availability and distribution of resources	Equipment of the sector, prioritization of measures	Shifting of farm resources, reduction of stock, outsourcing, buy in resources
5	Defined responsibilities, turnover of staff	Process sequence structuring		Quality of the organization, definition of responsibilities, compartmentalisation	Application of management tools: work sessions, trainings, diary etc.
6	Animals' needs, husbandry system	Appropriateness in relation to animal welfare	Level / degree of correspondence with the needs of individual animals and its capability to cope with its environment	Functional circle, quality of living conditions	Extending, building, optimization of interior and management
7	Technical prerequisites	Degree of technologisation	Balance between availability of technology and use / necessity / conditions on the farm		Acquisition, better use of existing possibilities, machinery ring
8	Contentment of the farmer, social situation, atmosphere, knowledge	Motivation to make changes	Preparedness of the farmer / employees to change traditional procedures and structures	Contentment of the farmer, social situation, atmosphere, knowledge, knowledge of one's own actions	Reflection, interviews with staff, family members and externals, structuring, holidays
9	Diagnostic expense, level of documentation, use of data	Degree of controlling in the area of animal health	To what extent is information assessed, analyzed and are effects traced back to initial measures	Diagnostic expense, level of documentation, use of data	Increasing diagnostic expenses, more documentation, analysis of results, change of actions
10	DM-intake, sort of feed, forage performance, concentrate efficiency, feed situation, feed quality, quality of the feeding management	Adequacy in meeting the nutrient requirements	Degree of meeting the nutrient requirement of individual animals in their actual life stage, including water supply	DM-intake, sort of feed, forage performance, concentrate efficiency, feed situation, feed quality, quality of the feeding management	Ration adjustment, more frequent pushing up of feed, pasture management, feed analyses, feed purchase

11	Dry cow / reproduction / calving / young stock management, calf rearing, age at calving, animal purchase	Quality of health and reproduction management	To what extent are special demands of newly calved heifers, calves, dry cows and purchased animals recognized and considered	Dry cow / reproduction / calving / young stock management, calf rearing, age at calving, animal purchase	Building performance groups, video surveillance, improved heat detection, quarantine of new animals
12	Claw / udder health, infectious diseases, metabolic / reproduction / immune status	Morbidity rate	Prevalence and incidence of diseases	Claw / udder health, infectious diseases, metabolic / reproduction / immune status	Improvement of diagnostics, prevention and treatment
13	Lifetime milk yield per day, milk yield, genetics / breed	Performance level of the herd		Lifetime milk yield per day, milk performance level, genetic performance potential	Improvement of animal health, change of feeding, breeding
14	Duration of use, culling rate, replacements	Culling rate due to health problems		Duration of use, culling rate, replacements	Improvement of prevention and treatment
15	Hygiene	Level of implementation of hygiene measures			Creation of sanitation areas, detection of pathogens, cleaning & disinfection, sick bay
16	Drug use	Appropriateness of treatment	Level in the appropriateness in the use of remedies and palliative measures		Training of staff, detection of pathogens, improving animal observation
17	Legal framework conditions and private standards	Level of legal and market claims	Criteria demanded by legal or private regulations or retailers.	Requirement profile of legal framework conditions and private standards, premiums, market requirements	Can hardly be influenced
18	Consumers' expectations	Suggestibility of the farm by external statements	To what extent do statements from colleagues, consumers, teachers etc. influence decisions of the farmer	Degree of feeling embedded / part of in society, confrontation with consumers' expectations	Can hardly be influenced
19	Available labour time	Available labour time	Balance between labour time requirement and availability		Recruitment of staff, distribution of work and tasks, outsourcing, management
20	Quality of the advisor	Availability of advisory services			Can hardly be influenced
21	Milk price	Milk price			Can hardly be influenced
22	Sort of feed, feed situation	Availability of quality feed	Availability of home-grown and bought-in feedstuffs of high quality necessary to fulfill the nutritional requirements of animals		Cooperation with neighbouring farms, feed purchase, crop rotation

Report on the regional workshop Spain

Background

The regional workshop was designed to provide inputs for the list of variables to be used in the Impact matrix and investigate herd-specific actions to improve animal health.

According to the Agenda of IMPRO in WP2, the group of IRTA organized a regional workshop held in Lugo, Spain. The Workshop was celebrated the 23rd of November of 2012 and took place at IBADER (Institute of Biodiversity and Rural Development). IBADER receives funding from the University of Santiago de Compostela and the Galician Government (Xunta de Galicia).

The group of IRTA, an Organic Consultant Agency (Agronovo Ecoloxía SL) and IBADER organized a two-day Technical Seminar for Organic Farming. This event took place simultaneously to the Workshop of IMPRO. The rationale of this cooperation was the optimization of human and financial resources and the shared target audience. The group of IRTA were also speakers at the Seminar.

The Seminar offered the advantage to talk about IMPRO with a higher number of organic producers (apart from the participants of the Workshop) and let notice about the recruitment of farms for IMPRO in the month of December.

Participants

The participants of the workshop in Spain were chosen to represent a wide range of competences regarding organic dairy production. Since a maximum of 25 people was recommended (guidelines for the Workshop), the aim of the selection was to capture a representative number of persons per stakeholders. According to the selection criteria the person distribution was as it follows: organic farmers (3), clinicians working in organic farms (4), clinicians working with homeopathy in organic farms (2), members of the organic dairy industry (2), researchers in organic farming (2), consultants (4), a representation of the Dairy Association in Galicia (1) and (3) members of the group of IRTA.

We also covered a big umbrella of the agro ecological research area of IMPRO in Spain since the participants of the Workshop of IMPRO are from Galicia, Asturias, Catalonia and Cantabria. The invited dairy Industry collects the majority of the organic milk in Spain. This umbrella was also intended in order to integrate a representation of the country context.

Process to get variables, main points of discussion, feedback about the IMPRO-concept and the impact matrix

The work session was structured in two parts.

We concentrated at the first part the presentations of persons, project, and agenda of the Workshop. Firstly, we let the participants introduce themselves in a way that does not make them uncomfortable (name, origin and profession). Then, we presented IMPRO to the Audience (content extracted from the website of IMPRO; <https://www.dropbox.com/sh/ac0v2e5tn5tb6uw/0gSeT6xEYy>), the conceptual background of IMPRO provided by Albert Sundrum (Spanish version; <https://www.dropbox.com/sh/ac0v2e5tn5tb6uw/0gSeT6xEYy>). The last presentation focused in motivating the group, how to success in the Workshop as a starting point of the proactive formula to work at IMPRO, how to maintain a constructive relationships within the work session and encourage participants in order to identify problematic areas in organic farming at the current situation in order to integrate them as research areas of the farm centric approach of WP2

(<https://www.dropbox.com/sh/ac0v2e5tn5tb6uw/0gSeT6xEYy>). We also presented the timeframe and the logistics of the group's work for second part.

For the second part, we changed the location to other room with an empty board that we filled in during the process and the board was visualized by all the participants. One person from IRTA (Isabel Blanco Penedo) acted as a moderator and also wrote down the debate at the same time. We tried to maintain a balance between letting the group debate on their own and actively assisting them to keep focus and equal input among participants and time distribution to each variable; and one voice at once.

We invited the participants to start the debate and the first participant to speak was a farmer. The selection process of each variable continued with the variable description and indicators (for parametrization).

Discussions of the interdisciplinary group members were concentrated in the decision to include a variable or not but mainly for the consensus of the variable description. The compilation of indicators did not invest so much time, the participants easily gave examples. Alternatively, non commented variables from the preliminary list (sent by UKS partners) were launched to the audience and let participants to decide if the variable was important enough to keep in the board. This procedure gave more dynamism to the work session.

At the end of the session, the moderator in cooperation with the participants gave a summary of achievements. IRTA group acknowledged their participation and send a post-event email to show gratitude and ask their opinion about the Workshop (feedback and recommendations for further events).

During the contact to organize the Workshop we received the first signs of interest about it. The majority came and helped in the dissemination to the event. Some were sceptical, thinking that they would not provide much in the debate. The lunch break generated a good atmosphere among participants and IRTA group. At this moment, we received first feedbacks about IMPRO project and impact matrix concept. Farmers easily showed their difficulties (producers) and their wish to sustain the farm under the economic crisis and clinicians and consultants showed the need to work in cooperation and like very much the systematization of the proactivity. Post-event feedbacks concentrated in their reflections about their own work and that IMPRO implies hard work.

List of variables

No	Variable	Variable description (and indicators)
1	A balanced ration	It refers to a necessary ration so the cow is "healthy" and the ration covers its physiological needs such as maintenance. <u>Indicators</u> : the presence and extent of diarrhea, body condition, internal signs of pathological processes, adequate production, silage conditions
2	Quality of the food ration and silage	A food that provides characteristics and nutrients needed by the animal. Feedstuff that must be approaching an optimal profile (references are needed). <u>Indicators</u> : palatability, silage chemical composition, food nutritional quality, hygienic quality of silage, intake of dry matter, availability and quality (also temperature) of water, amount of nitrates of water, analysis or not of water, opening of a new silage & prevalence of abomasum displacement, presence and extent of diarrhea, other signs of liver disorders: yellow snouts, "chopped" liver, control of cows at peripartum, body condition score

3	Genotype breed	It refers to the potential and adequacy of the animal genetic/breed accounting individual variability. Farmer management (hygiene, stress) is the clue. Between the races of milk there is enough genetic variability to choose the most appropriate. In order to maximize production, animal size, and bull size are important. Cows in low and high genetic level should be evaluated. This issue is indeed more relevant if the farm further processing the product. Rusticity is also important. <u>Indicators</u> : (as the genetic selection scheme and penalties), animal size, need of energy from food, animals closer to grass, udder taken or not into account, production diseases- level, Number of cows removed in first parity by mastitis, acceptable production, legs problems, milk quality: % protein, age at first calving, seasonality of calving, productive life, lifetime production (accounting the seasonality).
4	Management of reproduction	It refers to the organization, planning, and the interconnection of IPP and grazing management, the time of voluntary wait, the length of the dry period since lactations are very long in organic. <u>Indicators</u> : IPP-grazing management, open days, infertility, time of voluntary wait, grass production into account, number of cows on 60 days after calving and not in heat. The cows stay or not at the farm?, length of the dry period, lactations length, tax of replacement, apparition of visible heat and take out the maximum performance, use or not (for decision) the number of cows that calve and in two months have to go in heat, knowledge of heat detection, time of observation by the farmer to detect the heat, time observing animals, seminal doses per pregnancy
5	Management of milking	Importance of the milking relies on health and expenditure by disease. <u>Indicators</u> : health indicators, mastitis incidence, good conditions of milking equipment, maintenance of the milking equipment, routine of milking, expenses on veterinary service, expenses in drugs.
6	Management of the production	Paired with the type of food and the need of constant production. <u>Indicators</u> : body condition score, prevalence of production diseases, mastitis, availability of forage-grass silage-pasture, minimum production permitted, cow longevity, diarrhea?, indicators of stress
7	Management of colostrum	It presents like a problem of calf management. <u>Indicators</u> : Diarrheas and calf mortality
8	Management of animal health	It mainly focuses in curative measures rather than preventive measures. Consciousness that you do not have the therapeutic arsenal of conventional farms, consciousness that mastitis at early stage is almost 100% curable. <u>Indicators</u> : follow-up of the pathological states (yes/no), follow-up of somatic cells (yes/no), effectiveness of the treatment, accuracy of the treatment, suitability of the dry period, expenses in drugs, variability in drug use, management and suitability of the treatments: drugs, monitoring-follow-up, management, dairy control service (yes/no), updated farm books of treatments (yes/no), update daily?, culling reasons, culling by mastitis (days-stage in lactation), % involuntary culling
9	Health Prevention and degree of monitoring	The system suffers a lack of integral work. <u>Indicators</u> : dairy association service, records of treatments, diseases, breed/genotype of the farm
10	Biosecurity	It refers especially to the repercussions by the lack of biosecurity. <u>Indicators</u> : culling management and codes, health status, with shoes or not, control of dogs, cats, veterinary visits, rodents, starlings
11	Sustainability (industry dependence/bonus/ Organic dairy farms/ Consumer expectances)	The maintenance of a farm is highly dependent of bonus of the industry, necessary to cover costs (i.e. fat acid profile), part of the orientation market, (thinking in quality). Societal values and consumer overview. <u>Indicators</u> : constant production, barometer (local) of consumption in the zone (perception and degree of consumption), study (local) of market
12	Grazing management	It refers to the efficiency, advantage and repercussion in the production (quantity-quality). <u>Indicators</u> : quality of the pasture, control of parasites, the repercussion of the pasture in milk, ingestion, milk quality, liters of milk per ha-pasture, livestock density
13	Farm building	The milking is not contemplated here. <u>Indicators</u> : surface, cubicles per animal, bedding type, bedding size, recommendations and standards to sell as certified organic, risk of pollution?
14	Management tools and degree of control	Use of management software for a better farm control but it is usually employed for data collection and for fertility problems, not referred to production and the personnel enter data. The degree of control is very variable and should cover not computerized systems such as paper data, by the consultant or the farmer. <u>Indicators</u> : software applications, person entering the data, service of assessment
15	Legislation	It is considered difficult to meet and with climate change, should be applied with the same rigor to all regions. Awareness of the carbon footprint, need for integration agricultural, force the decisions and interests of the industry. It must be different from certification, real problems with mineral supplementation. <u>Indicators</u> : degree of farmer welfare to meet legislation, difficulties in the conversion phase, industry pressure.

16	Farmer attitude-cooperativism	It refers to the use of resources in the absence of farm structure in many farms. The criteria of grouping must be proximity, region, with expected benefits. With clear purpose. <u>Indicators</u> : cost of raw materials, supply of raw materials, marketing, sales promotion, weight of the product price, margin of milk, facilitate the management of grass
17	Potential of growing (Advantage of the land property /Accessibility to new lands/ Minimum size of the farm / Geographical context)	Growth capacity of the farm largely depends on land property, soil fertility (manipulated) and where is located the farm. <u>Indicators</u> : conditions of the facilities of the farm, utilization of the forage, utilization of cereal, farm adaptation to the milk quota, incomes, herd size, proximity to GMO crops.
18	Hand labour	Qualified, trained labour hand and how much it costs? <u>Indicators</u> : time of observation of the animals, do personnel know how to detect cows in Estrus?, know how to manage grass?
19	Animal welfare	They consider that it is already implicit in other variables (since it is a transversal issue) and it must be assessed with generic indicators. Questioned its degree in organic indeed when animal graze. <u>Indicators</u> : generic indicators for animal welfare and including grazing activity
20	Financial resources	This variable integrates the financial resources/structure. <u>Indicators</u> : liquidity, rental equipment, a patient subject or is a variable, possibility of growth, expenses by hectare, field quality, relevance of the concentrate, hand labour costs, consumption of diesel fuel

Report on the regional workshop Sweden

Participants

There were 8 participants at the workshop, represented by: 1 veterinarian, specialist in ruminant medicine; 1 animal scientist, working with advisory services; 1 veterinarian, researcher at the Swedish Dairy Association; 1 veterinarian, researcher in animal welfare and health, housing, dairy cattle; 1 veterinarian working with advisory services; 1 animal scientist with skills on ecological animal farming and feeding; 2 veterinarians representing the IMPRO-team in Sweden. The invited farmers unfortunately were prevented from coming in last minute. The farmers' opinions were therefore collected by telephone after the workshop.

Description of the process

After a brief introduction by the facilitator and a short introduction to the project to the participants, we organized two discussion groups. The discussion started with an open, free dialogue on important areas for animal health and welfare, with respect to all participants' different skills and knowledge, in the subject area. After the initial round, we discussed in the whole group and compared what areas had come up. After a second round of discussion in the small groups we summarized in the whole group again. The final outcome was reached through dividing and reducing/condensing/concentrating areas (see the variable list further down).

Main points of discussion

- The importance of animal flow, every age of the animals has its problems
- The time around calving
- Parasite management
- Claw health and lameness
- Grazing
- Feeding and the quality of the nutrient supply
- Udder health and management, monitoring, incidence
- Calf rearing conditions
- Management skills and labour
- Advisory, how much and frequency. Important with the Approach and attitude to advisory.
- Reasons to durability and culling
- Cow comfort
- Important with "eye for animals", to see how the animals are and when someone is sick.
- Working routines and time of work
- The economy of the farming
- Fertility and strategy
- Strategies and management
- Level of production, if increased you often get increased rate of diseases and problems

Feedback

The participants' feedback on the IMPRO-project was entirely positive and enthusiastic. The importance of preventive work instead of "fire extinguishing" was emphasized. "This is a concept right on time" was an adequate concluding remark.

List of variables

No	Variable	Description (including indicators)
1	Quality of housing conditions	Including the dimensions of housing and the quality housing components such as fittings and equipment (indicators: quality of bedding, width of passage-ways etc.)
2	Calf rearing conditions	Colostrum, Hygiene, Whole milk, Housing, Management
3	Milk performance	Indicators: M kg, protein, fat, per day / lactation, persistence, quality
4	Use of management software	Indicators: is software installed, who uses it, how often, what is it used for, success?
5	Milk price	
6	Herd size	
7	Labour capacity	
8	Quality of nutrient supply	Indicators: feedstuffs, nutrient content, feeding management (including grazing, feed presentation), performance groups etc.
9	Hygiene standard	Indicators: bedding, dung scraping, cleaning and disinfection, feed, udder hygiene, milking equipment etc.
10	Financial resources	
11	Animal observation time	
12	Fertility	Monitoring, Strategy, Abortions,
13	Grazing	Quality, Grazing time
14	Udder health	Monitoring, Incidence, Management
15	Lameness	Monitoring, Trimming, Biosecurity
16	Parasite management	Monitoring, Strategy, Grazing rotation
17	EU Reg. (qualitative dimension)	If regulations were stricter or more relaxed, what would be the consequence for farms/animal health
18	Management skills	Indicators: what knowledge exists, how is it used and applied, how does learning occur, what exchange takes place
19	Health related culling rate	This is more than the incidence of disease, it is to what degree animals leave the farm because of health problems
20	Efforts for herd health monitoring / Degree of controlling	Indicators: data analysis, verification, feedback, time spent on this /To what extent is information collected, processed, analysed and results fed back into the system