

Minimising medicine use in organic dairy herds through animal health and welfare planning

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Final report

for

Project no. 1903

**Minimising medicine use in organic dairy herds through animal health
and welfare planning
ANIPLAN**

Period covered: (Final: 01.07.2007 – 31.10.2010)

Contract no.	1903	Contract Acronym:	ANIPLAN	
Contract title:	Minimising medicine use in organic dairy herds through animal health and welfare planning			
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Start of Project:	1 st June 2007	End of project:	31 st October 2010	

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*) PC: Project Coordinator, WPM: Workpackage Manager, WPCM: Workpackage Co-manager, P: Participant

***) All project participants are involved in all work packages but to different degrees and with different responsibilities. The number of WP, which the partner is responsible for, is underlined.

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In addition to the annexes 1 and 2 included in this report, the following annexes are to find at the ANIPLAN website (annexes 3 and 4) and 'Organic Eprints' (annexes 5-10)

Number	Title
3	ANIPLAN on-farm manual for dairy cows: http://aniplan.coreportal.org/gfx/Annex-3-ANIPLAN%20protocol%20dairy%20cows.pdf
4	ANIPLAN calf checklist: http://aniplan.coreportal.org/gfx/Annex-4-checklist-calves.pdf
5	Proceedings from 1st workshop in Hellevad, Denmark incl. deliverable report 2.1 http://orgprints.org/18396/1/18396.pdf
6	Proceedings from 2nd workshop in Fokhol, Norway http://orgprints.org/15692/1/15692.pdf
7	Proceedings from work meeting in Reichenau, Austria http://orgprints.org/18397/1/18397.pdf
8	Proceedings from final workshop in FIBL, Switzerland (will be uploaded on Organic Eprints; at the moment on ANIPLAN's webpage: http://aniplan.coreportal.org/gfx/CORE_Organic_Report_ANIPLAN_2010_final_100311[1].pdf incl. deliverable reports: 4.1: http://orgprints.org/18405/ 4.2: http://orgprints.org/18406/ and 5.1: http://orgprints.org/18407/
9	Research Media article describing ANIPLAN project http://orgprints.org/18398/1/18398.pdf
10	Proceedings from Calf Workshop in Fokhol, Norway http://orgprints.org/16794/1/Rapportserie_14_2009_Calf_welfare_in_organic_herds_-_planning_for_the_future.pdf

Project Summary, including objectives and expected outputs

(to be taken from original proposal (max. 1 pg. - Arial, size 11))

Summary¹⁾

Livestock is important in many organic farming systems, and it is an explicit goal to ensure high levels of animal health and welfare (AHW) through good management. This will lead to reduced medicine use and better quality of animal products. In two EU network projects NAHWOA & SAFO it was concluded that this is not guaranteed merely by following organic standards. Both networks recommended implementation of individual animal health plans to stimulate organic farmers to improve AHW. These plans should include a systematic evaluation of AHW and be implemented through dialogue with each farmer in order to identify goals and plan improvements. 15 research institutions in 8 European countries are involved in the proposed project with the main objective to minimise medicine use in organic dairy herds through active and well planned AHW promotion and disease prevention. The project consists of 5 work packages, 4 of which comprise research activities building on current research projects, new applications across borders, exchange of knowledge, results and conclusions between participating countries, and adopting them to widely different contexts. International and national workshops facilitate this exchange. Focus areas are animal health planning, AHW assessment using animal based parameters and development of advisory systems and farmer groups. Epidemiological analyses of the effect on AHW from reduced medicine use and herd improvements are planned in all participating countries.

Objectives¹⁾

To minimise medicine use in organic dairy herds through active and well planned animal health and welfare promotion and disease prevention.

This objective is met through the following intermediate objectives:

- 1) Develop animal health and welfare planning principles for organic dairy farms under diverse conditions based on an evaluation of current experiences.
- 2) Application of animal health and welfare assessment based on the WelfareQuality parameters in different types of organic dairy herds across Europe. This will result in an overview of the herds and allow for potential adaptations for the organic situation (e.g. pasture systems, longer cow/calf contact). For calves, a special system will be developed by the Norwegian partners, and combined and tested together with the WelfareQuality assessment system.
- 3) Develop guidelines for communication about animal health and welfare promotion in different settings. This can be part of existing animal health advisory services or farmer groups such as the Danish Stable School system and the Dutch network program.

Expected outputs²⁾

- Principles for animal health and welfare planning, which enables the organic farmers to enter a process where animal health and welfare is improved and through this, medicine use is minimised.
- Suggestions to relevant animal health and welfare assessment tools, which can be used on-farm in practice and can form basis for planning improvements.
- Guidelines for communication about animal health and welfare in ways which stimulate the farmer to take ownership and responsibility in relation to own herd,
- Manuals and farmer journal articles in the participating countries' local languages.
- A number of peer-reviewed international journal articles focusing on animal health and welfare planning.

1) These are shortened due to space in this section allowed to use for this, which is less than in the original application

2) Expected outputs were not described in the original proposal but later in our work plan

1. Main results, conclusions and fulfilment of objectives

1.1 Summary of main results and conclusions

Note: this should cover the whole project duration

(max. 5 pages – Arial size 11)

Learning from Animal Health Planning experience in the UK and elsewhere (WP2)

One of the first project activities was to analyse the situation in the UK and learn from their experiences with compulsory animal health and welfare plans for organic certification and widespread use of health plans across the livestock industry. Health planning was found to vary widely across the UK livestock sector. The study carried out by Aberystwyth University showed how health and welfare plans are promoted and implemented by British authorities, industry quality assurance and organic certification bodies. An analysis of the key principles of health and welfare plans and planning identified from this review was presented at our first ANIPLAN workshop in Hellevad. The analysis of 15 sets of health and welfare planning principles or 'frameworks' derived from various UK government initiatives, organic certification bodies and livestock industry bodies resulted in the identification of 14 key terms which were described the main issues of focus raised in the health plans. There were key differences between the organic and conventional sets of principles, primarily in relation to the use of veterinary medicines. There were also deficiencies apparent in some of the sets of organic health and welfare planning issues, particularly the requirement to analyse and review data – an activity that is of importance during a planning process. Attitudes towards health and welfare planning differed between farmers and industry bodies and a very clear distinction was apparent, especially in the farming community between health and welfare planning and health plans. Farmers feel that written health plans are of limited benefit to them but recognise that they do satisfy the requirements of government and industry bodies (e.g. for cross compliance, organic certification, quality assurance). Other shortcomings of the UK system of health and welfare planning were also identified including plans often being written but not effectively implemented, lack of analysis and review of collected health and welfare data, a lack of quality control in health planning systems and a lack of auditing to see if the health and welfare planning has been effectively implemented on the farm. One key point that became strongly apparent based on experiences from UK is that there is a big difference between the on-farm presence of an animal health and welfare plan versus animal health and welfare planning. The first is viewed by many farmers solely as a 'document', where the latter is the process involving the farmer in making a plan for improvements in the herd and implementation of this plan. This is a major conclusion which emphasised that in this project, we focus on the animal health and welfare planning process. Furthermore, in this project, we work with very different farming conditions. We aim at developing concepts which refer to the organic principles and ideas and are at the same time adjusted to national conditions. This analysis contributed with valuable information to the ANIPLAN process.

Approaches to health planning in ANIPLAN partner countries

Various approaches to the assessment of animal health and welfare specifically for organic animals have also been taken in Norway, The Netherlands, Denmark, Germany, Austria and Switzerland. Likewise, initiatives to farmer group formation and animal health advice through veterinary practices have been taken in many places. Much of the ANIPLAN project is based on national on-going activities, and is designed to transfer, jointly analyse and discuss the results of this work. Furthermore, we became increasingly aware of the many actors who – in different ways depending on country – contributed to the knowledge, inspiration and information to the farmers, as shown in Figure 1 below. Within the time and with the resources allocated within the project we could only describe parts of this and take examples from each country, which we have described in the deliverable 4.1. This was a major reason for postponing this deliverable, and it also became a part of the qualitative research part which was introduced in WP4. We cannot say that we have fully explored the whole landscape of services and actors around the farmer (among others because we have been a very limited number of project partners, who could not cover the whole country). We have not explored the whole landscape in details with regard to which factors influence the choices and processes of herd health and welfare improvements on the farm. The

organic environment, however, seems to be quite action oriented and generally involve networks and innovations.

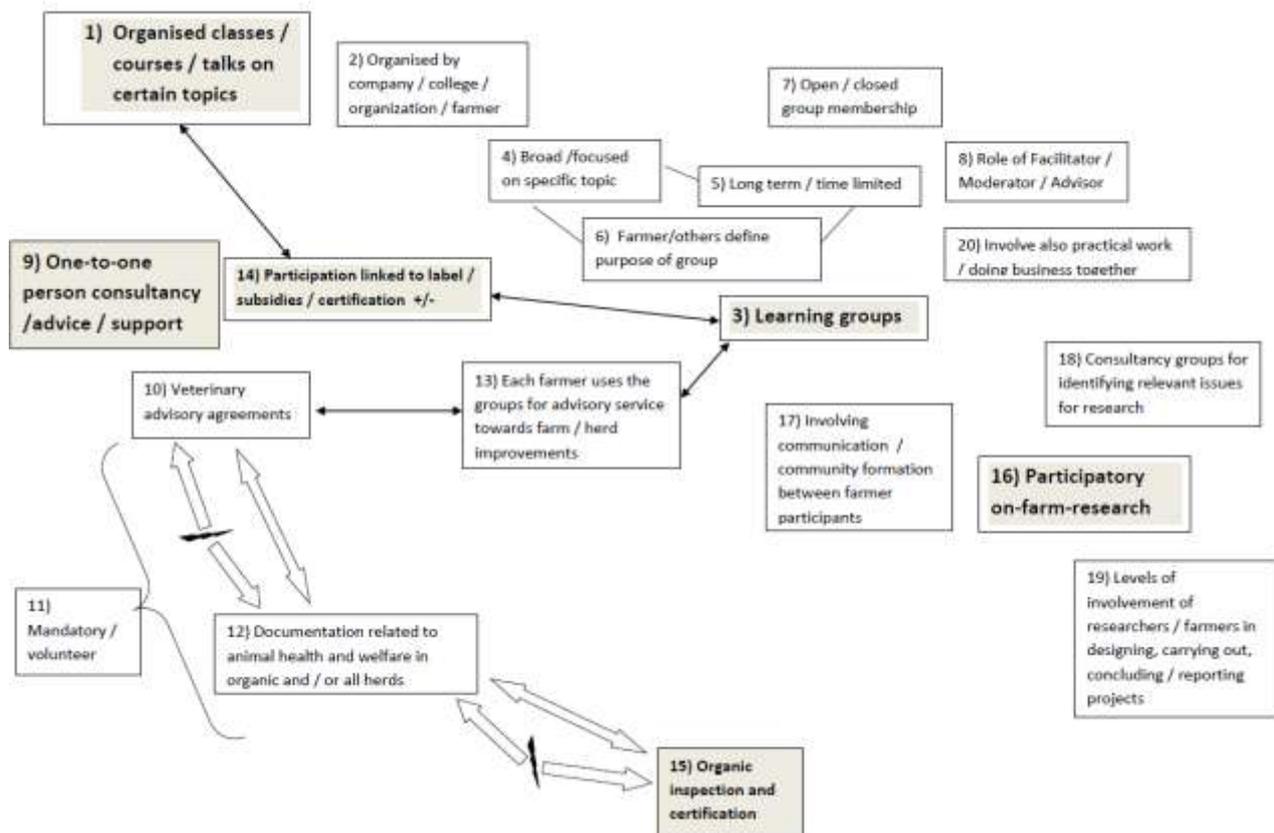


Figure 1. Mapping the types of interactions related to animal health and welfare planning, the actors and factors which have potential impact on the farmer's decision making.

Development of common principles in the ANIPLAN project

The goal of the project was to develop a model for animal health and welfare planning which can be implemented in all different types of farming environments, e.g. large scale dairy farming as well as alpine, smallholder and diverse farming systems. There is a requirement for dialogue in order to achieve a balance between farmer needs, animal needs and the wider societal perception of health and welfare whilst also satisfying the multiple objectives of organic farming. We developed 8 key principles in the initial phase of the project. These principles were used and tested under different conditions and in different types of dialogue, and based on an evaluation and interviews, a 9th principle was added, as well as a more refined description of the 8 principles was possible. In the Figure 2 below, all 9 principles are described. . P1: A health planning process should aim at continuous development and improvement, and should incorporate health promotion and disease handling, based on a strategy including current status + risks (animal based + resource based parameters) evaluation
action
review
P2: Farm specific
P3: Farmer ownership
P4: External person(s) should be involved
P5: External knowledge
P6: Organic principles framework (systems approach)
P7: Written
P8: Acknowledge good aspects
P9: Include all relevant people in the process

Figure 2 Nine principles of the animal health planning process. The first 8 were developed during the first ANIPLAN workshop, and tested in the participating countries and the 9th came out in the interviews as an aspect which was important and not covered within the 8 first principles.

The first and key principle is the continuous process of health and welfare planning (Figure 3). This is based on assessment (developed in WP3), a dialogue with the farmer, where the planning is taking place (means of communication; developed in WP4) and evaluation.

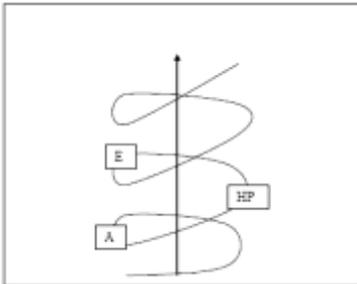


Figure 3. Representation of animal health and welfare planning as a continuous process based on assessment (A), planning (HP) and evaluation (E).

When evaluating how animal health and welfare plans were applied, the results confirmed the relevance of the eight principles. We found that stimulating the farmer to formulate own goals and actions created the necessary motivation among farmers. This process can be stimulated both in a farmer-to-advisor dialogue as well as in a farmer group. The facilitators (in the project using the Stable School model) as well as the persons involved in one-to-one advice found it to be a very useful model leading to action, and there was good feed-back from the farmers.

In addition to the eight principles, a further principle was derived from the results of interviews of advisors and facilitators, namely that **relevant persons should participate in a planning process (suggested principle P9)**. On many farms, there are several people involved in the decisions and in the practical actions. They should all somehow be involved in every dialogue about planning for the future. This applies to both one-to-one advice situations as well as farmer groups. Solutions to include the relevant persons may be found in different ways. Whereas it seems to be less of a problem in one-to-one advice, it may not always be possible e.g. that 5 persons from a farm participate in a farmer group meeting. It might be possible to have meetings on the farm where the inputs from the farmer group meeting (where one or more participated) are discussed and practical solutions and implementations agreed on.

Animal welfare assessment as a part of animal health planning (WP3)

A plan necessarily has to be based on knowledge of the animal health and welfare status on the farm. In this project, an ANIPLAN on-farm health and welfare assessment protocol was developed by the Austrian partner team which is based on the Welfare Quality[®] protocol for dairy cattle (Welfare Quality[®] 2009). It primarily relies on animal-based parameters (e.g. body condition score, lameness, social behaviour, avoidance distance at the feeding rack) but also includes resource-based measures (e.g. housing design criteria) and data collection on management (e.g. hygiene measures).

All partners were trained in conducting animal-based welfare assessment according to the ANIPLAN protocol during two workshops and at least satisfactory inter-observer reliability was achieved. The modified protocol was applied twice (baseline assessment and evaluation after one year) on in total 147 dairy farms in seven countries. The results of the baseline assessment show that the health and welfare situation on organic dairy farms varies considerably both within and across project countries. There is no clear pattern recognisable across countries. Main health and welfare issues found within the project are lameness, alterations of the integument, cleanliness of the animals and incidences of udder treatments.

Regarding the implementation of the assessment protocol in larger scaled herds it was a challenge to reach appropriate sample sizes within a certain time frame. The information gained through the assessment is giving a whole picture of the health and welfare situation of the individual farm, is well accepted by the farmers but rather time consuming. A modification of the assessment tool in

terms of reducing the number of assessed parameters might be a possibility to decrease the amount of time needed on farm. The Norwegian team focused on calves and developed a special protocol for health and welfare assessment in dairy calves. The protocol was based on earlier work, e.g. Kalveliv 100 from Denmark, Økologisk ku-komfort from Norway, Welfare Quality®, a Canadian calf HW protocol, practical experiences from Sweden and results from a questionnaire among Norwegian veterinarians and advisors and their views on 'critical points' for calves in organic dairy production. The protocol includes registrations done on farm regarding calf behaviour, human-animal relationship, clinical examination of individual calves (health parameters, body condition score), housing conditions (e.g. hygiene, cleanliness, straw, space allowance, social contact), feeding and feeding routines (colostrum, milk, suckling), and information obtained from health card recordings (mortality, medical and other treatments).

Effects of planning on the animal-based measures one year after the initial visit was analyzed at country level (see e.g. work package 3 description and results).

Communication in the process of animal health and welfare planning (WP4)

If animal health planning to the benefit of the farmer is to gain widespread use among organic farmers, communication with the individual farmer and the farmer community is crucial. A creative dialogue with the individual farmer is also necessary when identifying goals and planning how to reach them. Communication regarding the role and benefits of benchmarking or AHW assessment systems may be the catalyst needed to get farmers thinking about health and welfare planning. Based on interviews of facilitators and advisors in some of the participating countries as well as of the project participants who had facilitated animal health and welfare planning processes on the farms, we conclude the following regarding preconditions for an appropriate and useful dialogue:

- 1) The framework for and expectations to the dialogue must be clear and explicitly agreed on from the start. The purpose of the dialogue and process must be agreed on. It must be clear for everybody who participates in the dialogue process that the farmer has the responsibility to conclude what he / she wants to do on the farm. The role of external persons must be clear, and not mixed e.g. between inspector and advisor. It must be clear for everybody what is expected from who.
- 2) When data is brought into the process everybody must understand what the data tells. This means that data must be explained in ways so that everybody understands what it means and which conclusions potentially can be drawn from this. Otherwise the data will not be used appropriately, and there is a risk that no dialogue will take place involving the data. Therefore, data must be explained by the person who knows the data best, to everybody else in the process.
- 3) Written communication must be clear, preferably short, and agreed on. When writing an agenda or meeting notes, they should be based on the farmer's conclusions and important points from the discussion which led to the farmer's conclusions. The written documents are the common memory which will create the foundation for evaluation of the effects of the actions, and therefore it is important to agree on them. All meeting notes should therefore be confirmed.
- 4) The farmer should be encouraged to decide on the inputs for the planning process (e.g. external experts). It is important to emphasize that each type of advisory activity is relevant in specific situations and for purposes which may not be fulfilled by other types. The empowered farmer with clear goals and conscious about his/her/their farm identity will be able to use the spectrum of possibilities, which differ from country to country. When talking about the process, the farmer is the primary owner of the process and has the responsibility to weave the elements together.

We furthermore emphasize the 8 principles + 1 developed during the process, and we explore and discuss how learning takes place. Empowerment of farmers can take place in a dialogue between farmer and one advisor as well as in groups of farmers, who together create an enabling environment for the farmer to take decisions upon which he or she can act.

Can medicine use be minimised through animal health and welfare promotion which is facilitated through planning processes?

The main objective of this project was to minimise medicine use in organic dairy herds through active and well planned animal health and welfare promotion and disease prevention. The final analyses of the project targeted the medicine use and effects in the herd health following a conscious effort to minimise the medicine use.

All partner countries collected the data about the participating farm's medicine use and milk recording data. Medicine use was assessed as amount of treatments at all and differentiated in treatment categories (disorders in area of udder, fertility, metabolism, locomotion and others) generated from farm records and national databases, respectively. Health and production data on farm level were calculated from all individual milk recording data in the research period. Somatic cell score was used as indicator for udder health, low (<1.1) and high (>1.5) fat/protein ratio as indicator for risk of rumen acidosis and risk of imbalanced energy supply respectively (for Jersey herds threshold of < 1.3 and > 1.7 were used), calving interval as indicator for fertility. Before (year0) and after a one year period (year1) of an animal health and welfare planning (AHWP) process milk recording data and treatment data over the previous year were collected. Focus areas from AHWP resulted either from farmer field school (FFS) or from a one-to-one-advising (OTO) process during the project year. General linear models for repeated measurements were used to analyse the effects on farm level. The sum of all treatments but also the udder treatments and the metabolic treatments decreased significantly in the project year, while the treatments of lame cows increased significantly. Health situation remained stable in year1 in comparison to the situation in year0 except for somatic cell score (SCS) which improved significantly. Daily milk yield, milk components fat and protein and average lactation number also remained stable. Herd size increased slightly in the project farms. There were no significant advice effects (interactions of focus area and year) on the treatment and health variables except risk of rumen acidosis (farms with metabolic topic as focus area improved, but there was no overall improvement). Hence, the AHWP process, which was implemented on the farms, can be stated as a feasible option to minimize medicine use without impairment of production and health situation.

1.2 Fulfilment of objectives

To what extent did the project achieve its objectives?

Note: this should explain if the project achieved its objectives and if not, what was not performed, why, what happened, etc. (max 1/2 page – Arial size 11)

All objectives were fulfilled

2. Milestones and Deliverables status

Milestones:

Milestone no	WP	Description	Planned time, Month	Actual time, Month
1.1	1	Website	5	2
1.2	1	Organising project workshop	1, 8, 16, 34	4, 10, 23, 35
1.3	1	Workshop report published	3, 10, 18, 36	8, 22, 36, 36
1.4	1	National stakeholder meetings held	27	Changed
2.1	2	Evaluation of current use of AHW in UK and elsewhere completed	16	8
2.2	2	Principles for AHW developed	24	5
2.3	2	Guidelines + manuals for AHW planning in partner countries developed	36	(10) 36
2.4	2	One scientific publication concerning AHW planning submitted	36	36
3.1	3	Training of national partners in use of agreed animal based parameters done	12	8 + 17
3.2	3	Guidelines and manual for national use of animal based parameters completed	30	30
3.3	3	One scientific publication about use of animal based parameters submitted	36	36
4.1	4	Strategy for each participating country for dialogue on AHW identified	15	10 / 17
4.2	4	One scientific publication about dialogue on AHW submitted	36	36
5.1	5	Scientific publication on the use of AHW planning for medicine reduction submitted	23	36
5.2	5	Scientific publication on perspectives of minimisation of medicine use throughout Europe submitted	36	36

Deliverables:

Deliverable no:	WP	Description	Planned time	Actual time
1.1	1	Project workshop	1, 8, 16, 34	4, 10, 23, 35
1.2	1	Annual reports including cost statements	*)	*)
1.3	1	Workshop reports	3, 10, 18, 36	8, 22, 36, 36
1.4	1	Website	5	2
2.1	2	Evaluation report about the use of animal health plans in the UK and elsewhere	16	8
3.1	3	Analysis and first model of framework for use of animal based parameters to evaluate animal health and welfare in organic herds, ready to test and introduce to technicians and national partners	11	8
3.2	3	Scientific publication about use of animal based parameters	36	36
4.1	4	Evaluation report of state of the art regarding advisor systems, education of farmers and advisors and farmer groups in the participating countries	8	22 + 36
4.2	4	Analysis completed after joint effort to identify possibilities in each country as how to facilitate the best possible dialogue regarding animal health and welfare	16	10 + 36

4.3	4	One scientific publication about dialogue on AHW	36	36
5.1	5	Evaluation report on state of the art regarding animal health and welfare planning in the participating countries	8	36
5.2	5	Scientific publication on perspectives of minimisation of medicine use throughout Europe	36	36
5.3	5	Scientific publication on the use of AHW planning for medicine reduction	23	36

*) Depending on national rules and guide lines

Additional comments (in case of major changes or deviation from the original list)

Changes following the exclusion of the Italian partners

The project group agreed to carry through the project with the same objectives, despite the fact that the Italian and significant funds therefore were excluded. In summary the consequences and concrete changes in comparison with the original proposed plan were the following:

- Mediterranean organic dairy production was not considered, and this means that development of animal health and welfare plans for these types of dairy farming could not be developed. The project results will therefore cover mostly Mid-and North-Western farming conditions.
- 54 months work less than in original plan
- Work package leader for WP 4 replaced (Denmark)
- One financed workshop could not be held. This partly explains the changes in relation to milestone 1.2 and deliverable 1.2.

Comments to deviation in relation to individual milestones and deliverables (those not mentioned below was not changed):

D 1.1 / M 1.2:	The timing of workshops has been changed due to different factors, explained in the midterm report.
D 1.3 / M 1.3:	The first project report was slightly delayed mainly because of lack of proceeding template. The second project report was delayed, mostly because of a decision at the 2 nd workshop that it was not important for our work, since everybody participated in the workshop and had the information for their project activities. The third ws-report was delayed with same argument.
D 2.1 / M 2.1	This report was important for starting our discussion and therefore prioritized in the beginning of the project.
M 2.2	This was fundamental for starting the process and therefore developed and published early in the project.
M 2.3	A first version was developed at the start, and an up-dated version made by the end of the project.
D 3.1 / M 3.1	Training was done before the winter housing periods of relevant partners in two different workshops, each of 4-5 days.
D 4.1 + D 4.2 + D 5.1	This was based on qualitative data on the animal health and welfare planning process collected from summer 2009-autumn 2010.
M 4.1	The communication and strategy for farmer groups were planned at the first two workshops, and adjusted due to relevance and based on experience in each country.
M 5.1	To have planned submission of an article in month 23 where collection of the data, on which the article should be built, is still on-going seem to have been a typing error.

Qualitative aspects of animal health and welfare planning will be included

During the second ANIPLAN workshop in Norway it became increasingly visible that we lacked a research element dealing with the description of the process of Animal Health and Welfare Planning in a professional, systematic and analytical way using a qualitative research approach. It

was mentioned in the project proposal that there would be qualitative interviews and social science methods used, but it was originally thought of as included in the national data collection. At the project workshop in Reichenau in May, we decided that we could re-allocate some of the efforts in the project to also include qualitative research which should be carried out by the Danish partner. The report based on this activity could comprise deliverable 4.1 and 4.2. As a consequence of this, project partner 1 conducted a number of interviews in 2009 and 2010 in The Netherlands, Austria, Switzerland, UK and Denmark, as well as of the project partners in Germany, to explore the dialogue process through interviews with facilitators and advisors in five partner countries and use this as a basis for an analysis of the dialogue process.

Additional funding for project activities in UK obtained

The British partners received additional Defra funds to carry through animal health and welfare planning in two farmer groups in Wales and England respectively during 2009.

Calf welfare assessment included in the project activities only to a limited extent

The WelfareQuality® assessments focus only on the lactating cow herd. The Norwegian team has developed a method for assessing calf welfare, which was partially based on the results of the workshop in Norway in April 2008. It was tested in Norwegian herds, and the objective of developing the welfare assessment system for calves was fulfilled.

3. Work package description and results³⁾:

WP 1	Coordination and knowledge transfer
Responsible partner: 1, AU-DJF, Mette Vaarst	
<p>Description of work:</p> <p>Four project workshops are planned. All project participants, and to some extent external persons are planned to attend the workshop when relevant and aiming at a broader exchange of knowledge and experience. This will depend on economical resources in the project. Partner 1 (DIAS, Denmark) takes care of this activity. Travels, accommodation, meeting facilities are partly financed in this wp. After each workshop, an internal project report will be produced in addition to an official set of proceedings presenting the results and important discussions within the project. National stakeholder meetings will be encouraged in order to exchange and discuss the results and conclusions. These meetings may be reported in national newsletters and journals, and this will be put on the website. No other report will be produced based on these meetings. The website will be updated by the coordinator. All reports, papers and official presentations will be uploaded on the website, and all working papers will be uploaded in the intranet. A project newsletter preferably on monthly basis will be produced by the coordinator. The national project partners are welcome to translate parts of this and put in national journals as report from the project. Milestones and deliverables are focused on organisation of workshops, reports, proceedings, website, and course material for the workshops.</p>	
<p>Final report on work carried out and results compared to the original plan/WP aims:</p> <p>A- work carried out and results obtained:</p> <p>The four planned ANIPLAN workshops were held in Hellevad, DK (8th-12th Oct 2007), Fokhol, NO (1st-4th April 2008), Reichenau, AT (11th-14th May 2009) and Frick, CH (27th Sep-1st Oct 2010). The meeting in Norway was combined with a workshop on calf welfare in organic herds, organised by the Norwegian team. In addition, a smaller project meeting took place in Ghent 9th-10th September, where project plans were discussed in details, and strategies for data analyses were discussed. All countries were represented and the results of the meetings were written in a Newsletter. Proceedings were produced as CORE Organic reports from the WSs in Hellevad, Fokhol and Frick. The fourth CORE Organic Report contains reports on the animal health advisory systems and dialogues related to animal health planning (Deliverables 4.1, 4.2 and 5.1). Proceedings from the workshop on calf welfare was published in the report series of the National Veterinary Institute. The project website was established for public access and project participants within the first months of the project, and was regularly updated. All documents relevant to animal health and welfare planning including conference presentations, proceeding papers and manuscripts for publication as well as proceedings from ANIPLAN workshops have been exposed on the website. Two 'kick-off-newsletters' and 28 newsletters have been produced since the project start in June 2007 until project end, and sent by email to all project partners, as well as uploaded on the intranet of the webpage.</p> <p>B- comments on deviations from the original plan:</p> <p>National stakeholder meetings were originally planned as a joint activity within the whole group. This was changed already at the meeting in Hellevad. Stakeholder meetings were still encouraged but also seen as a natural component of the project, which is conducted in close collaboration with farmers and farmer organisations. Therefore, each country team will organise meetings when relevant and invite partners when relevant, e.g. the coordinator has participated in 4 farmer meetings and one meeting for veterinarians in UK, and one meeting for advisors and researchers in Norway (February 2009) where the ANIPLAN project was presented. On national basis, user-group-meetings are held when relevant. Since the milestone related to this was cancelled, it is also explained below in more detail in relation to deviations from the original plan. National stakeholders have been invited to the workshops in Norway and Austria, and stakeholders from all countries were invited to the workshop in Switzerland by the end of the project.</p>	

³⁾ The original description of work from the application cannot be presented here, since each wp can only by one page in total.

WP 2	Development of principles for animal health and welfare planning in organic dairy farms
Responsible partner: Partner 2, Aberystwyth University, Wales	
Description of work:	
<p>In UK, animal health planning is being increasingly promoted and implemented in both the organic and conventional livestock sectors. The presence of a health plan on each farm is compulsory for organic certification in the UK. At the moment very little is known as to how health and welfare plans are developed and how they are implemented at the farm level. Experiences in the UK are very valuable for developing animal health and welfare planning on a European wide basis. A Danish Ph.D./master student (under the joint supervision of DIAS and UWA) will undertake a survey on the use of animal health plans in the UK (with input from the two British partner institutions) and this work will form the basis for an analysis of other existing systems. Both in Norway (where a newly introduced animal health plan system is implemented) and the UK, the existing systems will be evaluated with regard to:</p> <ul style="list-style-type: none"> ○ the way animal health plans are used in advisory/veterinary service ○ the way they are used by organic farmers during and after conversion ○ the way it is used in certification and inspection <p>Other voluntary health planning exists in Switzerland, the Netherlands and Germany, and they will also be evaluated. In collaboration with wp 4, the development and use of animal health and welfare plans in the communication with advisors, certifiers and in farmer groups will be explored and analysed. The work in this WP is led by Aberystwyth University, which is involved in ongoing activities concerning the development of animal health plans, based on the following principles: 1) Evaluate and establish a baseline (using farm data and animal based parameters from wp 3), 2) identify, prioritise and set targets, 3) Develop farm specific strategy for improvement, 4) Implement strategy, and 5) Evaluate effectiveness of strategy. These principles will need to be developed further to incorporate the principles of organic health management; as they stand they are very focussed on the disease reduction component of the health plan, where they need to focus on health and welfare promotion in general and all factors on the farm that influence animal health and welfare. The milestones and deliverables in this wp focus on reports, manuals and guidelines on principles for development of animal health and welfare plans, and an international peer-reviewed article.</p>	
Final report on work carried out and results compared to the original plan/WP aims:	
A- work carried out and results obtained:	
<p>An in-depth analysis of how health plans are used in the UK was carried out as one of the first project tasks through a review of existing knowledge about the actual use and effectiveness in UK. This formed background for the report by Pip Nicholas and Aleksandra Jasinska: Animal Health and Welfare Planning - A Review (included in Annex 5). A number of workshop activities were carried through and the results of these pointed to a set of 8 principles, which were subsequently implemented in various ways in the partner countries, adjusted to local conditions and wishes. A new element of supplementing the quantitative evaluation of the effectiveness of animal health and welfare planning with a more qualitative approach to evaluation was discussed and was carried through to some extent (what was possible within the given framework). Most of this work was done within the framework of WP4. The results showed that farmers highly appreciated animal health and welfare planning where they were supported to take ownership over the process and formulate their plans with focus on the issues which they found important. Farmers greatly benefitted from results in their herd which gave them a view from outside about the condition, given that they understood the results (this often required some guidance and in some cases dialogue). The process ended up with recommendations of 9 principles for appropriate and relevant animal health and welfare planning (described elsewhere in this report and Annex 8).</p>	
B- comments on deviations from the original plan:	
<p>We decided to carry the review of existing health plans in the UK earlier than the originally planned and then initiate animal health and welfare plans based on the principles developed within the ANIPLAN groups in the partner countries. The results of this initial analysis of existing health plans contributed useful information to support this process.</p>	

WP 3	Development and testing of animal based parameters for evaluation of animal health and welfare
Responsible partner: Partner 4, BOKU, Christoph Winckler	
<p>Description of work:</p> <ol style="list-style-type: none"> 1. Adaptation of existing animal-based health and welfare parameters, e.g. on the basis of the results from WelfareQuality® and other existing assessment protocols. 2. Development of a calf welfare plan. This work was led by the Norwegian partners. 3. One training workshop for assessing animal based protocols on dairy cattle and offspring which will involve training the assessors to ensure repeatability. This will be a collaboration between the Austrian partners and Bristol University (United Kingdom). 4. Assessment of animal health and welfare on 10-20 farms/country in Norway, Denmark, Austria, UK, Germany, Switzerland, the Netherlands, and immediate feedback to farmers, including filling in the results to a database. The quality of the assessments will be evaluated by BOKU and Bristol University. The results of these assessments will be used in WP2 (be implemented as an evaluation tool for animal health and welfare planning), WP4 (included in discussions in farmer groups or health advisory systems) and WP5 (epidemiological analyses of herd results). <p>From this work package, four sub-contracts will be signed with institutions in participating countries regarding on-farm studies, where animal based parameters are tested and used, and where additional information is decided by the project group to be of great value in the partner countries. The partners in these sub-contracts will be identified at the first project meeting. The milestones and deliverables connected to this wp focus on evaluation reports, reports on on-farm-studies, a peer-reviewed article and guidelines for the use of animal based parameters under diverse conditions in dairy cattle and calves.</p>	
Final report on work carried out and results compared to the original plan/WP aims:	
A- work carried out and results obtained:	
<p>The Welfare Quality® on farm welfare assessment protocol for dairy cattle was discussed with regard to applicability in the different participating countries during the kick off meeting in Denmark and through communication via e-mail. Furthermore technical input was given by the German and Swiss partners providing additional indicators for assessing animal health and welfare based on ongoing national projects. This resulted in the final CORE Organic ANIPLAN protocol for dairy cattle (ANIPLAN on-farm manual, annex 3). In total two training workshops were held in Feb. 2008 in Trenthorst and in Nov. 2008 in Bristol. The first idea to the protocol for the calf welfare assessment plan was discussed at the calf workshop at Fokhol in April 2008. The protocol was subsequently revised and went through practical tests and evaluations (Annex 4).</p> <p>Two assessments in dairy farms were carried out in all partner countries (AT: 39 farms; CH & DK: 15; DE: 42 (20), NO: 6(6); NL: 10(10); UK: 20(10); values in brackets represent number of farms assessed based on subcontracting by Austria and Denmark). The results of the initial assessments were used in the herd health and welfare planning process. The second assessment one year after the initial visit was used to evaluate the effectiveness of the planning process. A publishable report on the initial health and welfare state (baseline assessment, as well as a publishable report on the effects of health and welfare planning in Austria have been produced.</p> <p>Calves: The Norwegian team developed a report through a process involving all ANIPLAN partners at a workshop in Norway, and in the evaluation and testing, external national and international experts, and the protocol has been tested in practice (annex 4).</p> <p>In conclusion, carrying through the assessments and using the results in the dialogue with the farmers stimulated the process positively. The animal-related welfare parameters were well received by the farmers since they reflect relevant and sometimes new welfare issues. Using these parameters in this project confirmed the importance of quantifiable data in Principle 1 of the planning process. However, the protocol was considered time-consuming especially in large farms. This was partly due to e.g. measurement of resources, questionnaire with farmer. Conditions of assessment are still open for discussion e.g. with regard to sample size and sampling strategies.</p>	
B- comments on deviations from the original plan:	
<p>Because of the timing of the overall training workshop in ANIPLAN and the herd visits, the calf welfare assessment was not included at the ANIPLAN training workshop. Refinement, application and evaluation was done by the Norwegian partner only.</p>	

WP 4	Communication about animal health and welfare and disease prevention in advisory systems and farmer groups
Responsible partner: Partner 1, AU-DJF, Mette Vaarst (taken over from Italy when they were excluded by their funding body)	
<p>Description of work: This work package contains the following activities:</p> <ol style="list-style-type: none"> 1) An evaluation of existing advisory systems, farmer groups, and possibilities which are not yet used in the participating countries will be based on experiences from farmer communication in all participating countries. An identification of the education needs of farmers, vets and other animal health and welfare advisors will be identified in the context of each participating country. University of Aarhus will lead this work. 2) Development of communication principles in animal health promotion work in the advisory dialogue and in farmer groups. 3) Analysing and implementing farmer groups following national adoptions to the Danish Stable School principle for minimisation of medicine use through animal health and welfare promotion and disease prevention will take place. Principles of Dutch farmer discussion groups including farmers assessing farmers will be included where relevant, and veterinary advisory service principles can be included from the Swiss Pro-Q project. All participating countries have experiences with communication which will contribute to identifying the national needs. Training of facilitators will take place in relation to implementation in each participating countries. This work is led by University of Aarhus, Denmark. <p>The process of animal health and welfare planning including the use of animal based parameters will be focus for the development of communication principles. Animal health planning and the use of animal based parameters are both very relevant to include in the dialogue related to development of animal health promoting initiatives in the herds. The milestones and deliverables in this wp focus on evaluation reports describing state of the art concerning health advisory systems, principles on Stable Schools, and a peer-reviewed journal article.</p>	
Final report on work carried out and results compared to the original plan/WP aims:	
<p>A- work carried out and results obtained: A mapping of existing ways and traditions for farmer groups and communication related to animal health and welfare planning was done at the project workshop in Hellevad and in Fokhol, forming basis for an initial evaluation report. Analyses of existing written material in combination with an in-depth analysis of the health plans in this project in the different countries was carried out by the Danish project partner, who conducted interviews of all facilitators among the project partners about the health planning process in each country. Other facilitators of different farmer group initiatives were also interviewed as well as some stakeholders involved in animal health and welfare planning. The dialogue was implemented in accordance with the principles developed in the project. In five countries, a process was carried through with evaluation of animal health and welfare followed by dialogue where the farmer commits him- or herself to action on selected areas (which the farmer selects, not the advisor) resulting in a written plan, and a new evaluation of the condition at the farm. In some countries this was done through farmer groups (Denmark, Switzerland, and UK). In Netherlands a subcontract was formed which enabled the Dutch partner to collect WelfareQuality data and feed the results back to the farmer immediately after the data collection. In Norway the planning process for calf health and welfare was not followed up in all herds due to lack of persons. In UK it became possible (through extra funds) for the project partners to form two farmer groups which were facilitated by a contracted facilitator in accordance with the Stable School principles, based on data collected by another contracted person. A one-day training session for facilitators was held in relation to the workshop in Fokhol in April, 2008.</p> <p>B- comments on deviations from the original plan: From the start only limited efforts on qualitative interview or analysis work was planned in relation to national data collection. When discussing how communication should take place, it became obvious that an additional effort necessarily had to be carried through in order to meet the goals which were set in this work package. This element was added to the project, which meant that some months more had to be spent for the Danish partner.</p>	

WP 5	Analysing the effect of minimising the use of medicine through animal health promotion
Responsible partner: Partner 1: AU, Denmark Mette Vaarst (Strong involvement of Partner 5: FIBL, Switzerland & Partner 7: WUR, Netherlands)	
<p>Description of work: Minimising antibiotic/medicine use through health promotion means that we do not focus only on diseases, but on promoting the health and welfare of animals, e.g. through hygiene, feeding, housing, outdoor access etc. Alternative disease treatment could be relevant in some cases, but should not be the main focus. Animal health planning (setting goals based on knowledge about what happens on the farm, with ownership of the farmer, and working towards the goals) is very relevant in this context, and since it often demands farm specific and innovative solutions, it makes it relevant to work in farmer groups and / or use other advisory services. This work package focuses on a number of case study herds working towards a high level of animal health and welfare and minimization of medicine use. Strategies in the case study herds can be described using, among other things, existing knowledge and data on medicine use. Epidemiological analyses based on data, observations and recordings in the herds will be studied. The use of animal based parameters can be included in these analyses, depending on how much project funds are available. In this work package, projects involving a number of existing farms are supported through national funds. The structure of the study will be based on what is possible in collaboration with national projects. Two sub-contracts from Austria will be signed with institutions in NL and UK regarding on-farm studies where additional information is decided by the project group to be of great value in those partner countries. The partners in these sub-contracts will be identified during the first half project year.</p>	
<p>Final report on work carried out, results, deviations from the original plan/WP aims: A- work carried out and results obtained: All partner countries collected the data about the participating farm's medicine use and milk recording data. Medicine use was assessed as amount of treatments at all and differentiated in treatment categories (disorders in area of udder, fertility, metabolism, locomotion and others) generated from farm records and national databases, respectively. Health and production data on farm level were calculated from all individual milk recording data in the research period. Somatic cell score was used as indicator for udder health, low (< 1.1) and high (> 1.5) fat/protein ratio as indicator for risk of rumen acidosis and risk of imbalanced energy supply respectively (for Jersey herds threshold of < 1.3 and > 1.7 were used), calving interval as indicator for fertility. Before (year0) and after a one year period (year1) of a animal health and welfare planning (AHWP) process milk recording data and treatment data over the previous year were collected. Focus areas from AHWP resulted either from farmer field school (FFS) or from an one-to-one-advising (OTO) process during the project year. General linear models for repeated measurements were used to analyse the effects on farm level. The sum of all treatments but also the udder treatments and the metabolic treatments decreased significantly in the project year, while the treatments of lame cows increased significantly. Health situation remained stable in year1 in comparison to the situation in year0 except for somatic cell score (SCS) which improved significantly. Daily milk yield, milk components fat and protein and average lactation number also remained stable. Herd size increased slightly in the project farms. There were no significant advice effects (interactions of focus area and year) on the treatment and health variables except risk of rumen acidosis (farms with metabolic topic as focus area improved, but there was no overall improvement). Hence, the AHWP process, which was implemented on the farms, can be stated as a feasible option to minimize medicine use without impairment of production and health situation.</p> <p>B- comments on deviations from the original plan: A Danish sub-contract which was originally allocated in this WP to support the foundation of Stable Schools was decided to be allocated to the Norwegian partners in order to collect WelfareQuality data from the herds.</p>	

4. Publications and dissemination activities

4.1 List

Note: the report should contain all the publications and dissemination activities of the project. Publications should have been loaded in Organic Eprints, but some dissemination activities might not be in Organic Eprints and still have to be listed below. Part of the list required below can be extracted and pasted by doing a search in Organic Eprints, and others added manually. The resulting list should be clear and complete, whether the tables below are used or a search in Organic Eprints.

Project website(s)

Address		Authors: (name + institution acronym)	When was it last updated	Language	Comments
http://aniplan.coreportal.org		Mette Vaarst AU		English	Has been damaged

Deliverables

Planned / actual date (if deviating)	Title:	Authors: (name + institution acronym)	Where is it available	Language	Comments
1/4, 8/10, 16/23, 34/35	Project workshop	AU / Bioforsk + NVI / BOKU / FIBL Ch	Info about it at the website	English	Held and reported
*)	Annual reports including cost statements	Everybody to their own funding body			Done by national partners
3/8, 10/22, 18/36, 36	Workshop reports	AU + Duchy	Website + Organic Eprints	English	Completed; last set to be published Jan. 2011.
5/2	Website	AU	Website	English	Updated throughout project
16/8	Evaluation report about the use of animal health plans in the UK and elsewhere	Aberystwyth Univ.	Website + Organic Eprints	English	Completed and uploaded on website + published
11/8	Analysis and first model of framework for use of animal based parameters to evaluate animal health and welfare in organic herds, ready to test and introduce to technicians and national partners	BOKU	Website + Organic Eprints	English	Completed and uploaded on website
36	Scientific publication about use of animal based parameters	BOKU	Scientific journal	English	Submitted
8/22+36	Evaluation report of state of the art regarding advisor systems, education of farmers and advisors and farmer groups in the participating countries	AU	Website + Organic Eprints	English	To be published & uploaded on website
16/10+23 + 36	Analysis completed after joint effort to identify possibilities in each country as how to facilitate the best possible	AU	Website + Organic Eprints	English	To be published & uploaded on website

	dialogue regarding animal health and welfare				
36	One scientific publication about dialogue on AHW	AU	Scientific journal	English	Published + one more in preparation
8/36	Evaluation report on state of the art regarding animal health and welfare planning in the participating countries	AU	Website + Organic Eprints	English	To be published & uploaded on website
36	Scientific publication on perspectives of minimisation of medicine use throughout Europe	AU + Duchy College Cornwall	Scientific journal	English	In preparation
23/36	Scientific publication on the use of AHW planning for medicine reduction	WAU + FIBL	Scientific journal	English	Submitted

Reviewed papers (with full reference)

Planned / actual date	Title:	Authors: (name + institution acronym)	Name of Magazine, volume, pp. etc.	Language	Comments
Submit. Nov. 2009	Animal health and welfare planning in organic dairy cattle farms.	Vaarst, M., C. Winckler, S. Roderick, G. Smolders, S. Ivemeyer, J. Brinkmann, C. Mejdell, L.K. Whistance, P. Nicholas, M. Walkenhorst, C. Leeb, S. March, B.I.F. Henriksen, E. Stöger, E. Gratzler, B. Hansen, J. Huber	Open Veterinary Journal	English	In process of publication
July 2010	Farmer groups for animal health and welfare planning in European organic dairy herds.	Vaarst, M., E. Gratzler, M. Walkenhorst, S. Ivemeyer, J. Brinkmann, S. March, L.K. Whistance, G. Smolders, E. Stöger, J. Huber, C. Leeb, S. Roderick, C. Winckler, B.I.F. Henriksen, P. Nicholas, B. Hansen, C. Mejdell,	IFSA; : http://ifsa.boku.ac.at/cms/index.php?id=107	English	Reviewed conference paper General public, researchers
In process, submission planned Dec. 2010	Effects of health and welfare planning on medicine use, health and production in European organic dairy farms	Ivemeyer, S. G. Smolders, E. Gratzler, C Winckler, M. Vaarst, S. March, J. Brinkmann, L.K. Whistance, S. Roderick, C. Mejdell, B. Hansen, B.I.F. Henriksen, P. Nicholas, I. Rogerson, C. Leeb, J. Huber, E. Stöger, M. Walkenhorst	Submission planned for Livestock Science .	English	Manuscript; in language edition late December 2010
Submitted Dec 2010	Veterinarians' and agricultural advisors' perception of calf	Ellingsen K, Mejdell CM, Hansen B, Grøndahl AM, Henriksen BIF,	Animal Welfare (submitted)	English	Submitted

	health and welfare in organic dairy production in Norway..	Vaarst M.			
2010	Veterinærers syn på kalvehelse og -velferd i økologisk melkeproduksjon i Norge.	Ellingsen K, Mejdell CM, Hansen B.	Norsk veterinærtidsskrift 2010, 122: 394-401	Norwegian	Peer reviewed article

Presentations/papers at scientific conference (oral presentations, papers, leaflets, posters, etc.)

Planned / actual date	Type and Title of contribution: (also mention if a partner was keynote speaker)	Conference:	Partners involved: (partner acronyms)	Type of audience (General public, higher education, researchers, industry, farm sector, advisors etc.)	Size of audience	Countries addressed
18 th -20 th June 2008	Vaarst, M.; Leeb, C.; Nicholas, P.; Roderick, S.; Smoulders, G.; Walkenhorst, M.; Brinkman, J.; March, S.; Ströger, E.; Gratzer, E.; Winckler, C.; Lund, V.; Henriksen, B.I.F.; Hansen, B.; Neale, M. and Whistance, L.K. (2008) Development of animal health and welfare planning in organic dairy farming in Europe. Paper presented at Cultivating the Future Based on Science - ISOFAR, Modena, Italy, 18 - 20 June 2008; Published in Neuhoff, Daniel et al., Eds. <i>Cultivating the Future Based on Science 2</i> , page pp. 40-43 (orgprint 13729)	ISOFAR, Modena	All	Researchers, advisors, general public	Approx. 50	International conference
05.- 06.03.2009	Animal welfare assessment protocols as part of herd health and welfare planning tools	Knowing Animals Conference (oral presentation)	BOKU, University of Göttingen, University of Aarhus (Gratzer, E., F. Bernardi, J. Brinkmann, M. Kirchner, C. Leeb, S. March, C. Winckler, M. Vaarst)	General public, researchers, industry	150	International conference
25.- 26.09.2009	Qualitative behaviour assessment in organic dairy herds before and after	ISAE regional meeting, Vienna/Austria (oral	BOKU, University of Göttingen, University of	Researchers	55	International conference

	animal health and welfare planning.	presentation)	Veterinary Medicine, Vienna (Gratzer, E., J. Brinkmann, S. March, J. Huber, C. Winckler)			
25.-26.09.2009	Avoidance distance of dairy cattle on pasture is related to measures at the feed bunk.	ISAE regional meeting, Vienna/Austria (poster presentation)	University of Göttingen, BOKU (Brinkmann, J., S. March, C. Winckler)	Researchers	55	International conference
8.-9-10.2009	Interdisciplinarity and transdisciplinarity in (organic) animal welfare	Autumn conference of the European Academy GmbH, in Bad Neuenahr-Ahrweiler, Germany	Leeb, C. (BOKU)	Researchers from various scientific areas (animal welfare science, medicine, philosophy, law)	80	International conference
04.07.-07.07.2010	Farmer groups for animal health and welfare planning in European organic dairy herds.	European Symposium of the International Farming Systems Association, Vienna/Austria -	Vaarst, M., E. Gratzer, M. Walkenhorst, S. Ivemeyer, J. Brinkmann, S. March, L.K. Whistance, G. Smolders, E. Stöger, J. Huber, C. Leeb, S. Roderick, C. Winckler, B.I.F. Henriksen, P. Nicholas, B. Hansen, C. Mejdell,	Researchers	30	International conference

Presentations/papers at other conferences and meetings (oral presentations, papers, leaflets, posters etc.)

Planned / actual date	Type and Title of contribution: (also mention if a partner was keynote speaker)	Conference/title:	Partners involved: (partner acronyms)	Type of audience (General public, higher education, researchers,	Size of audience	Countries addressed

				industry, farm sector, advisors etc.)		
28.2.2008	Smolders, G., 2008. Antibioticavrij produceren	Oral presentation	ASG NL	Farmers	25	The Netherlands
08.04.2008	Minimierung des Tierarzneimittleinsatzes in der Ökologischen Milchviehhaltung durch ‚Herdengesundheits- und Wohlbefindens‘ – Pläne (Minimizing medicine use in organic dairy farming through animal herd health and welfare plans)	poster presentation	BOKU, VUW, FiBL Austria	General public, farm sector, advisors, public authorities	80	Austria
12.05.08	Smolders, G., 2008.Udder health and farm management on organic dairy farms without antibiotics	Proceedings	ASG NL	Dutch mastitis researchers	35	The Netherlands, Belgium
01.09.2008	Henriksen, B.I.F. 2008. CORE Organic ANIPLAN. Informasjon om ANIPLAN-prosjektet og norsk del om kalv på CORE Organic kontaktmøte 01.09.08. http://www.bioforsk.no/NewsPicture.aspx?pictureid=6349	http://www.bioforsk.no/NewsPicture.aspx?pictureid=6349	Bioforsk, NVI	Researchers, public authorities		Norway
30.09.2008	Hansen B. Velferdsvurdering kalv.	oral presentation	Bioforsk Tjøtta	Farmers, students, advisors, researchers		Norway
16.10.2008	Smolders, G., 2008. Antibiotica vrij werken	Workshop medicine pollution surface water	ASG NL	Public authorities, drinking water companies, human doctors, pollution specialists, pharmaceutical. Factories	28	The Netherlands
19.11.2008	Das ANIPLAN Projekt	oral presentation within the pro-Q day 2008	FiBL CH	Farmers		Switzerland
3.12.2008	Smolders, G., 2008. Antibioticavrij produceren	Oral presentation	ASG NL	Farmers	100	The Netherlands
03.12.2008	Das ANIPLAN Projekt	oral presentation within the FiBL “Tierprojekttag”	FiBL CH, FiBL AT	Researchers		Switzerland
19.12.2008	Henriksen, B.I.F. 2008. Korleis vil kalven ha det?	www.Agropub.no	Bioforsk Organic	Farmers		Norway
15.01.2009	On farm animal health & welfare assessment and potential behavioural indicators of stress in dairy cattle	Oral presentation, PhD course	BOKU	Researchers/ PhD students	25	Denmark

		“Trends in stress biology”				
12-02-09	Henriksen B, Lund V, Hansen B, Mejdell C. Velferdsregistreringer som ledd i velferdsplanlegging hos økokalv. Husdyrforsøksmøtet, Lillestrøm, Norge, februar 2009, proceedings s. 495-498 ISBN: 978-82-7479-020-9	Oral Presentation with full manuscript printed in proceedings	Bioforsk Organic	Researcers, advisors, teachers, authorities Farmers	70	Norway
12-02-09	Vaarst, M. 12th February 2009: Danske Fjøs-skoler – er det en rådgivningsmetodikk vi kan bruke i Norge? Talk at 'Husdyrforsøksmøtet', Oslo, Norge. [Danish Stable Schools – is that a way of advisory service which we can use in Norway?] In Danish, at The Annual Animal Research Meeting]	Oral Presentation	Aarhus University	Researcers, advisors, teachers, authorities Farmers	60	Norway
08.04.2009	Herdengesundheits- und Wohlbefindensplanung auf Bio-Milchviehbetrieben in Österreich	Oral presentation, meeting of agents for animal feed	BOKU	Agents	10	Austria
01.05.09	Vaarst, M. Phasing out antibiotics in organic dairy herds using farmer group approaches. Teaching at master course at Scottish Agricultural College, 2 hrs.,	Oral presentation	Aarhus University	Master students	40	Scotland/ International
25-27.08.09	Hansen, B., B.I.F. Henriksen, V. Lund 2009. Welfare assessment as part of welfare planning in organic calf production. Poster ved NJF seminar 422 i Estland, Tartu 25. – 27. August 2009. NJF Report 5(2):60	Poster presentation	Bioforsk, NVI	Researchers, advisors	100	International
10.11.09	Vaarst, M. & Leeb, C. Workshop in Bio-Austria 10th November 2009: 'The Danish Stable School concept and the facilitation of farmer groups'	Whole day workshop	Aarhus University + BOKU	Advisors	12	Austria
Nov 2009	2009 Henriksen BIF. Oppstalling av økologisk kalv. Foredrag ved Bygningsseminar for økologisk storfe. Stjørdal, 23.-24. november 2009.	Oral presentation	Bioforsk	Advisors, farmers		Norway
09-12-09	Vaarst M. Presentation and group facilitation at workshop for organic advisors held by IOTA: 'Being a facilitator'	Oral presentation	Aarhus University (Mette Vaarst)	Advisors	15	United Kingdom
15-12-2009	Vaarst, M. Co-organiser of the one-day workshop with participation of 70 farmers, processors and advisors 15th December 2009: 'Lavt forbrug af antibiotika i økologiske malkekvægbesætninger. Muligheder, konsekvenser og forudsætninger' ['Low use of antibiotics in organic dairy herds: Possibilities, consequences and pre-conditions'. In Danish]. Includes among others the two contributions: Whistance, L. 'Provide the cows with a good framework' (Proceedings, 24-27; in Danish), and: Vaarst, M. 'What do we need to ascertain good animal health and welfare in a phasing out strategy' (Proceedings, 16-23; in	Workshop + proceedings	Aarhus University (Mette Vaarst & Lindsay K. Whistance)	Approx. 70 farmers	70	Denmark

	Danish).					
Jan. 2010	ANIPLAN: presentation of a concept for animal health and welfare planning (Mette Vaarst)	Oral presentation, organic producers conference, Harper Adams, UK	Aarhus University	Farmers and advisors	15	UK
Jan. 2010	Animal welfare in organic dairy herds (Lindsay K. Whistance)	Oral presentation, organic producers conference, Harper Adams, UK	Aarhus University	Farmers and advisors	15	UK
Jan 2010	2010 Henriksen B.I.F., C. Mejdell, B. Hansen 2010. Velferdsplanlegging i økologisk kalveproduksjon. Poster på Bioforskseminar, Oppdal 2010, 12-13.jan	Poster presentation	Bioforsk	Farmers, advisors, researchers		Norway
25.01.2010	Voneinander Lernen - Die Stable School (Forschungsvorhaben 'Minimising medicine use in organic dairy herds through animal health and welfare planning') (Brinkmann, J., S. March, C. Winckler)	Oral presentation, information session for farmers	University of Göttingen, BOKU	Farmers	20	Germany
26.01.2010	Bio-Milchviehhaltung: Neue Wege zu mehr Tiergesundheit	Oral presentation, conference of organic association Bio Austria	BOKU	Advisors/ farmers	30	Austria
Feb, 2010	2010 Henriksen B.I.F., C. Mejdell, B. Hansen 2010. Velferdsplanlegging i økologisk kalvehold. Poster til Bioforsk-konferanse i Sarpsborg 10.-11. feb 2010 Trykket i: E. Fløistad, K. Munthe (red). Bioforsk FOKUS 5(2):220-221.	Poster presentation	Bioforsk / Veterinærinstituttet	Advisors / farmers		Norway
13.07.10	Advisory systems and how to exchange knowledge among farmers; presentation of the Stable School Concept (Michael Walkenhorst + Mette Vaarst)	Workshop with advisors and FIBL researchers	FIBL Switzerland & Aarhus University	Advisors	10	Switzerland
16.09.10	Experiential learning among farmers – using the example of phasing out antibiotics (Mette Vaarst)	Teaching session, UMB, Norway	Aarhus University	Master students	28	Norway
16.-17.09.10	Fjøskskole kursur – two days course (Mette Vaarst)	Helsetjenesten for storfe, Norway + Tine Dairy Comp.	Aarhus University	Advisors / veterinarians	39	Norway
1.10.2010	Planiranje dobrobiti in udobja krav v sistemih organske priraje	Oral presentation, buiatrics society Slovenia	BOKU	Veterinarians	80	Slovenia
18.09.2010	Minimierung des Tierarzneimittleinsatzes in der Ökologischen Milchviehhaltung durch ‚Herdengesundheits- und Wohlbefindens‘ – Pläne (Minimizing medicine use in organic dairy farming through animal herd health and welfare plans)	poster session, 1. Kremesberger Tagung "Bestandesbetreuung Wiederkäuer"	BOKU, VUW, FiBL	Veterinarians	80	Austria

22-10-2010	Learning about how farmers can be facilitated to improve their farm & their sector	Oral feed-back workshop for interviewees in NI, Gidi Smolders + Mette Vaarst	WUR (NI) + AU (Dk)	Advisors	8	Netherlands
(February 2011)	Henriksen B., Mejdell C., Hansen B, Velferdsplanlegging i økologisk mjølkeproduksjon. Husdyrforsøksmøtet, Lillestrøm, Norge, februar 2011,	Oral presentation	Bioforsk, NVI	Researchers, farmers, advisors	60	Norway

Book chapters

Planned / actual date	Type and Title of contribution:	Book title	Partners involved: (partner acronyms)	Type of audience (General public, higher education, researchers, industry, farm sector, advisors etc.)	Size of audience	Countries addressed

Popular articles and other dissemination activities (press releases, interviews etc.)

Planned / actual date	Title of contribution:	Type of contribution (presentation, leaflet, poster etc.)	Partners involved: (partner acronyms)	Type of audience (General public, industry, farm sector, advisors, policy makers, public authorities, higher education, researchers, etc.)	Language	Countries addressed
16.05.2008	Vaarst, M. 2008. Planer for sundhed og velfærd (in Danish);	Organic Farming Journal 'Økologisk Jordbrug', 16.May 2008.	AU-DJF, Denmark	Farmers	Danish	Denmark
15.12.2008	Henriksen, B.I.F. og V. Lund. 2008. Slik vil kalven ha det.	Buskap 8:52-53.	Bioforsk Organic, NVI	Farmers	Norwegian	Norway
10-7-08	Smolders, G., 2008. Koescoren: dierwelzijn en –gezondheid wisselt per bedrijf	www.biokennis.nl	ASG NL	Farmers	Dutch	The Netherlands
20.09.2008	Smolders, G., 2008. Antibioticavrij werken: hoge weerstand opbouwen	Farmers magazine Ekoland, sept 2008	ASG NL	Farmers	Dutch	The Netherlands
1-10-08	Smolders, G., 2008. Laag celgetal bij eerste afkalving betaalt zich terug	V-focus	ASG NL	Farmers/advisors	Dutch	The Netherlands
23-10-08	Smolders, G., 2008. Alternatieve	www.biokennis.nl	ASG NL	Farmers	Dutch	The Netherlands

	middelen tegen hoog celgetal getest					
30-10-08	Smolders, G., 2009. Droogzetstrategieën in kaart gebracht	www.biokennis.nl	ASG NL	Farmers	Dutch	The Netherlands
2009	Henriksen B.I.F. 2009. Slik vil kalven ha det,	Del 2. Buskap 4:50-52	Bioforsk Organic	Farmers	Norwegian	Norway
25.feb.2009	2009, 25. feb. Lokalavisa for Verran og Namdalseid (Tone Vesterdal): Stresser ned Dagros. Reportasje og intervju med Berit Hansen under velferdsutredning i ANIPLAN-prosjektet.	Newspaper, Verran and Nasdalseid	Bioforsk Organic	General public	Norwegian	Norway
14-5-09	Smolders, G., 2009. Koeien gaan sneller liggen in pot- en heuvelstal	www.biokennis.nl	ASG NL	Farmers	Dutch	The Netherlands
17-7-09	Smolders, G., 2009. Europese verschillen in melkveehouderij	www.biokennis.nl	ASG NL	Farmers	Dutch	The Netherlands
November 2009	Voneinander Lernen – Die Stable School	Farmers magazine: "Bioland"	University of Göttingen, BOKU (Brinkmann, J., S. March, C. Winckler)	Farmers	German	Germany

Internal reports and proceedings, newsletters, web communication and other dissemination activities etc.

Planned / actual date	(No.) and title	Type: Deliverable, proceedings, internal report, newsletter, web communication	Partners involved: (partner acronyms)	Type of users addressed (General public, higher education, researchers, industry, farm sector, advisors etc.)	Language	Countries addressed
March 2008	Vaorst, M. & Roderick, S. 2008. Planning for better animal health and welfare. Report from the 1 st ANIPLAN project workshop, Hellevad, October 2007	CORE Organic report	All	Researchers, advisors	English	All participating countries + interested others
March 2008	Nicholas, Phillipa and Jasinska, Aleksandra (2008) Animal Health and Welfare Planning - A Review , 39 pages. In: <i>CORE Organic project nr. 1903 - ANIPLAN</i> . CORE Organic project nr. 1903 – ANIPLAN.	CORE Organic report	All	Advisors, researchers	English	All participating countries + interested others
March 2008	Theofano-Elissavet Vetouli (2008). Animal welfare approaches and	Master Thesis	NVI	Researchers,	English	Norway; all

	the concept of naturalness in organic dairy calf management. M.S. Thesis. University of Hohenheim, 144pp			advisors		participating countries
April 2009	Publication of the Proceedings from the calf workshop in Fokhol in Norway Lund V, Mejdell CM (eds.). Calf welfare in organic herds - planning for the future. Proceedings from an ANIPLAN workshop 30.03 - 01.04.2008.	Workshop proceedings Veterinærinstituttets rapportserie nr. 14, 2009	Bioforks, NVI; all	Researchers, advisors, farmers	English	All participating countries
April 2009	Vaarst, M. & Roderick, S. 2009. The process of researching animal health and welfare planning. Workshop report from the ANIPLAN meeting in Norway in April 2008. <ul style="list-style-type: none"> - March, S., Gratzner, L., Brinkmann, J. & Winckler, C. Results of the CoreOrganic Workshop on animal based parameters in Trenthorst, Germany (04.02.08-08.02.08), - Whistance, L. Eliminative behaviour of dairy cows, - Roderick, S. & Vaarst, M. The ANIPLAN project: Reflections on the research approaches, methods and challenges, - Smolders, G. Improving animal welfare by assessing college's farms, - Vaarst, M. Learning and empowerment in farmer groups as one way of creating a healthy process of animal health and welfare planning, - Vaarst, M. & Roderick, S. Implementation of farmer groups for animal health and welfare planning considering different contexts. 	Workshop proceedings	All	Researchers, advisors, farmers	English	All participating countries
Sep 2010	Anonymous: Workshop report, the workshop in Reichenau, Austria; all presentations and decisions on writing	Workshop proceedings	All	Researchers, advisors, farmers	English	All participating countries
(Dec 2010/Jan 2011)	Vaarst, M. & Roderick, S. 2010. The interactive process of minimising antibiotics through animal health and welfare improvements	Workshop proceedings + D4.1 + D4.2 + D5.1	All	Researchers, advisors, farmers	English	All participating countries

4.2 Further possible actions for dissemination

- List publications/deliverables arising from your project that Funding Bodies should consider disseminating (e.g. to reach a broader audience)

Articles in 'International Innovation Magazine' December 2010: 'Not just any plan' (page 13) and 'Herding for success' (page 14-15). This magazine reaches politicians and decisions maker at EU parliament levels plus all national bodies and other stakeholders pointed to by the national project partners, and explains the project in a journalistic way.

- Indicate publications/deliverables that could usefully be translated (if this has not been done, and indicate target language)

4.3 Specific questions regarding dissemination and publications

- Is the project website up-to-date?

Yes – but the website seems damaged at the moment.

- List the categories of end-users/main users of the research results and how they have been addressed/will be addressed by dissemination activities

This project aimed at minimising medicine use in organic dairy herds through active and well planned animal health and welfare promotion and disease prevention. This indicates that the main target groups are the farmers, farmer organisations and advisory service organisations.

Farmers

All research team work directly in the farming environment, all data collection is done among farmers, and in some cases together with local advisors. Furthermore, project meetings are held in many cases with farmers. These meetings are not classified as dissemination but as project meetings. However, in many cases, they affect the farmer environment. In all countries, the project results have been or are planned to be presented at minimum one major farmer meeting.

Advisors

Results have been published in many journals, web sites and magazines read by advisors. Furthermore, advisors and their environments have been actively involved in the project through meetings, interviews and workshops. Project participants have been involved in national meetings, e.g. in Norway, 39 advisors were educated to facilitate farmer groups in accordance with the ANIPLAN principles on a 2-day workshop in mid September 2010. .

Researchers and research environments

Results from the project are presented in two Ph.D.theses, a number of articles and at a number of international and national scientific conferences.

Policy and decision makers

An article is produced through Research Media, which is sent to policy makers and decision makers throughout Europe. Representatives from the funding bodies were invited to the final ANIPLAN workshop.

ANNEX 1: CHANGES IN WORK PLAN AND PROBLEMS ENCOUNTERED

Changes in consortium and work plan

(Type and reason for the changes, if any - Arial, size 11)

Note: the changes and the reasons should be indicated both in the WP sections and here.

The changes listed below were made. They are not indicated in the WP section due to lack of space and due to the fact that they had broad impact on the whole project rather than specific impact on any deliverable or part of the plan:

- Compared to the original proposal submitted in November 2006, the 3 Italian partners were excluded by the Italian funding body, and the ANIPLAN consortium aimed at fulfilling the original goals without the contribution from these partners.
- We lost one partner, who was the project responsible person in Norway, due to cancer. She died in early June 2009, and was unable to participate fully in the project from December 2008.
- Due to job changes (some of which were due to lack of funds in the institutions) two Norwegian project participants, and one Austrian project participant (partner number 8) left the project.

Problems encountered, delays and corrective actions planned or taken, if any:

(list here the issues with deliverables)

(Arial, size 11)

Nothing, apart from the changes listed above.

ANNEX 2: COST OVERVIEW AND DEVIATIONS FROM BUDGET**Project Budget and Costs in €:**

Partner no.	1	2*	3****)	4*	5	6	7	8*)
TOTAL BUDGET	174.420	246,998	£23,578	-	92.904	£25.698	33.300	-
Spent at Mid term	102,585	108,816	£13,522	-	37.380	£11.085	16.825	-
Spent in 2nd period	71,835	130.382	£10056	-	55.524	£14.613	16.475	-
TOTAL SPENT	174.420	246,998	£23,578	-	92.904	£25.698	33.300	-
DEVIATION:	0	7.800	0	-	0	0	0	-

*) There is only one national budget for the two Austrian partners as required by the national funding body, and partner 8 (FIBL Austria) is subcontracted from this budget.

**) The Norwegian partners from Bioforsk (Tingvoll and Tjøtta) and Norwegian Veterinary Institute are covered by the same budget according to national agreements.

***) The budget was slightly changed because of the new German wage agreement (TVöD); it was originally 30.600 Euro.

****) Reported in £ in accordance with the contract with Defra in 2007. If this amount of £s is given in Euro using the exchange rate based on ECB for 2 Jan 2009 of (€0.961 per GBP) – Value in pounds amount contracted with Defra..

*****) Exactly the same amount in pound as the original amount in Euro: 25,698 €, but in accordance with the contract between Defra and Duchy

Partner no.	9**)	10**)	11
TOTAL BUDGET	-	102.000	34.315***)
Spent at Mid term	-	56.607	32.815
Spent in 2nd period	-	45.393	1.500
TOTAL SPENT	-	102.000	34.315
DEVIATION:	-	0	0

Person months (PM) spent on the project:

Partner no.	1	2*)	3	4*)	5	6	7	8*)
TOTAL PM budgeted	8	36	4	-	10	3	1.3	-
Spent at Mid term	5	13	3.3	-	4.15	1,5	1	-
PM spent in 2nd period	7½	23	0.7	-	5.85	1.5	0.3	-
TOTAL PM SPENT	12½	13	3.3	-	10	3	1.3	-
DEVIATION:	5*)	0	0	-	0	0	0	-

Partner no.	9**)	10**)	11
TOTAL PM budgeted	-	9	6
Spent at Mid term	-	4,22	6
PM spent in 2nd period	-	4.78	0
TOTAL PM SPENT	-	4,22	6
DEVIATION:	-	0	0

Reasons for major deviations in spending compared to original budget:

(Arial, size 11)

No alarming deviations exist; all milestones and deliverables are fulfilled, and explanations were given to the deviations experienced at the midterm. The following remarks are given in relation to each country:

P1: More time was needed to fulfil the goals and therefore the budget was re-allocated, which was approved by the Danish funding body, see appendix a. One person month was allocated to secretary help, and 3½ months for senior scientist Mette Vaarst.

P. 2 + 4: Austria: no major deviations; surplus is mainly due to lower workshop costs.

P. 3: The amount spent at mid term review appears to be low for the number of person months spent at the mid term review. This is because the bulk of study undertaken by P.3 was done by a Research Assistant who cost less per hour than initially budgeted for. It is intended to spend the remaining funds allocated to the task completing a scientific paper based on the report on Animal Health Planning in the UK.

P.5: The Swiss ANIPLAN budget is mainly intended for on farm assessment (WP3) and on farm advisory work (WP4). The person months spent and therefore the budget spent was lower than foreseen at mid term.

P7: The number of days spent on the project has been higher (only meetings are budgeted for), and the travel costs have been a bit lower.

P9+10: There was a bit of extra work connected to moving a workshop to Norway, and the development of the calf welfare assessment protocol was highly prioritised to finish so that other countries could use it as a part of their welfare assessment in the last part of the project.

Addendum

A. Added value of the transnational cooperation in relation to the subject

(which are the main advantages of the transnational research cooperation compared to a national research project approach in regard to the subject of the project. You may in particular expand on new research ideas raised by the project, research cooperation established during the project, research funding obtained etc.)

Synergy effect related to joint data collection

In this project, we balanced between the possibilities to collect comparable data for a joint analysis on one side, and adjust data collection to regional and national conditions (e.g. different housing systems, herd sizes, practices related to different times of the year). The process of actually working together in practice, being able to discuss details in data collection and editing and at a later stage to work jointly with the analysis gives a synergy effect where the common data base is not just a collection of data from 7 participating countries, but also the combination of data showing many different relations between outcome variables and risk factors. The involved researchers can all contribute to explain relations that may be new for their colleagues who come from different conditions or who are so used to certain ways of reasoning that they cannot see their own data from outside.

Outputs are expected to have greater external validity for European organic farming

As a follow-up of the above, it must be emphasised that the outputs of the entire project build on a joint effort of data collection, editing and analysis of selected aspects. The animal health and welfare planning process, which is the central part of the ANIPLAN project, is carried through under different circumstances, but still based on the same principles. This provides the whole team with a unique opportunity to together analyse the results and the context in which the results were generated. This gives a robustness to the results which are expected to give them greater impact and general external validity for European organic farming in general, both inside and outside the partner countries.

Research methodologies are developed, and interdisciplinary approaches are strengthened

The contact between research environments with a long tradition for (like in this case) on-farm, epidemiological and practice-related research in organic livestock farming is stimulating, because we have had the same focus but still very different approaches and methodologies involved. The development of methodologies is therefore potentially renewing and a source of inspiration for everybody.

Networks are created between national research environments and international research platforms

All partners are also partners and participants in national research and organic networks. Therefore, the contact between the ANIPLAN partners is more extended than the contact between the persons being in charge of concrete project activities. The ANIPLAN project also forms a platform for contact between research networks.

The understanding of 'organic' is constantly challenged

This project is focused on organic dairy herds. All partner countries follow the same EU regulation, but organic farming is nevertheless taking very different directions, for several reasons, in different regions in Europe and based on different history of e.g. the organic movement. The perceptions of animal welfare among farmers, advisors and organisation vary between countries, and being confronted with this in a common attempt to develop animal health and welfare planning is challenging and inspiring for scientists having worked with these matters through a number of years. The constant challenge keeps very much the dynamics in the consortium and adds to the relevance of the results which are analysed in different lights.

B. Recommendations to the CORE Organic Funding Body Network in relation to launching and monitoring of future transnationally funded research projects

We gave the following statements almost identical in the midterm report; the last half part of the project just confirmed and emphasised some of the points, but did not add new points.

Actions related to the exclusion of one project applicant / change of the consortium before the project starts

It is important to be aware that all partners in a project most likely play different roles in a project. The exclusion of one partner (by their own country) needs to be met by the funding bodies from the remaining partner countries by dialogue with the partners in this country in order to make a new plan which is realistic in the light of the changes in the consortium.

Adjusting our national agreements to the international team and project agreements

Some confusion arose in the start in relation to our national funding bodies and the overall project agreements. This was mainly a result of lack of tradition for this type of collaboration. Clear guide lines for project leaders and national partners are of great help.

In the first phase we had some discussions with some of our national funding bodies that somehow illustrated that the funding bodies judged the benefits of the research from a narrow national angle, and did not see the benefit of the international collaboration as a benefit also to their own national partners. This was e.g. visible in discussions about paying for data collection outside your own country (e.g. through sub-contracts), and funding bodies questioned whether paying partners in other countries e.g. to collect data for the whole project would benefit the partners 'here at home'. By the end of the project, we conclude that it would not have been possible to get the benefits mentioned above, if not all countries had opportunities to contribute with data and perspectives from home. We emphasise on this background that what benefits the whole project and the project consortium also benefits each individual partner, and that it is narrow minded and destructive to the project, if a certain amount of flexibility and joint efforts between partner countries is not present

Partner countries with very different budgets

Based on the section just above, we also emphasise that it is a challenge to build a project under circumstances where each country has its own policy. E.g. some countries were willing to fund certain activities and not others (e.g. if one country only will fund workshop participation and travels but not research), or have certain specific call interests (e.g. not prioritising livestock research, or dairy cattle). In our case, we found it relevant to include the partners who formed the consortium. We had some discussions about how to weigh the different elements in the project. It was an advantage that all partners were very well aware of their country's national priorities, and we could build this into our planning already when applying for funds. We are aware that the calls this time is directed towards some specific topics, but must, however, recommend that within these topics, the CORE organisation ensures that there is accordance between policies and priorities when evaluating and selecting the proposals. We expect that with a 2-step procedure, most of these challenges can probably be caught before the initiation of the projects.

When currencies and exchange rates change over time

In our project, we are partners from 7 countries with 5 different currencies (Danish and Norwegian kroner, Swiss Franc, Euro, and GBP) and especially the GBP changed dramatically during the project period. We explained this in detail in the midterm report, but will still emphasise that in cases with workshops across borders, sub-contracting and exchange of persons between teams, this needs to be dealt with in terms of a certain flexibility within a country to adjust to exchange rates.

Three years is very limited time

We knew when applying for the project that we had three years, and yet, we find it important to emphasise that both in relation to the results (changes in dairy herds stimulated by the project) and

the project collaboration, three year is a very limited time period, and 5 years as a minimum would definitely be preferable.

Factors which in our experience improve the collaboration within a project

- Many of the project partners in the application had previous experience of collaboration through network and/or project activities. It is recommendable that at least some of the main partners in a project have proven good collaboration earlier.
- The project partners come from quite different farming conditions and research environments, but all with a research tradition of on-farm research in close collaboration with farmers.
- It has been important for our project to have a workshop early in the project to align out expectations, and the establishment of the communication and contact early is very important.
- There has generally been a high degree of flexibility and will to understand each others' different working conditions; this is to a very high degree supported by a project description which allows room for adjustments.
- Workshop of a certain length, at least 3-4 full days, improve the communication significantly and give us time for more in-depth discussion and work. This is a research and not a network project, and the budget should allow this as well as exchange visits for data discussions and analyses.
- Regular updates and newsletters are absolutely necessary. In this project, 26 Newsletters were sent out to project partners in a 3 year period.
- All project partners did efforts beyond what could be expected, because of professional and personal commitment. This cannot be 'planned', and should not be a precondition for a successful project, but it explains the amount of publications and presentations.