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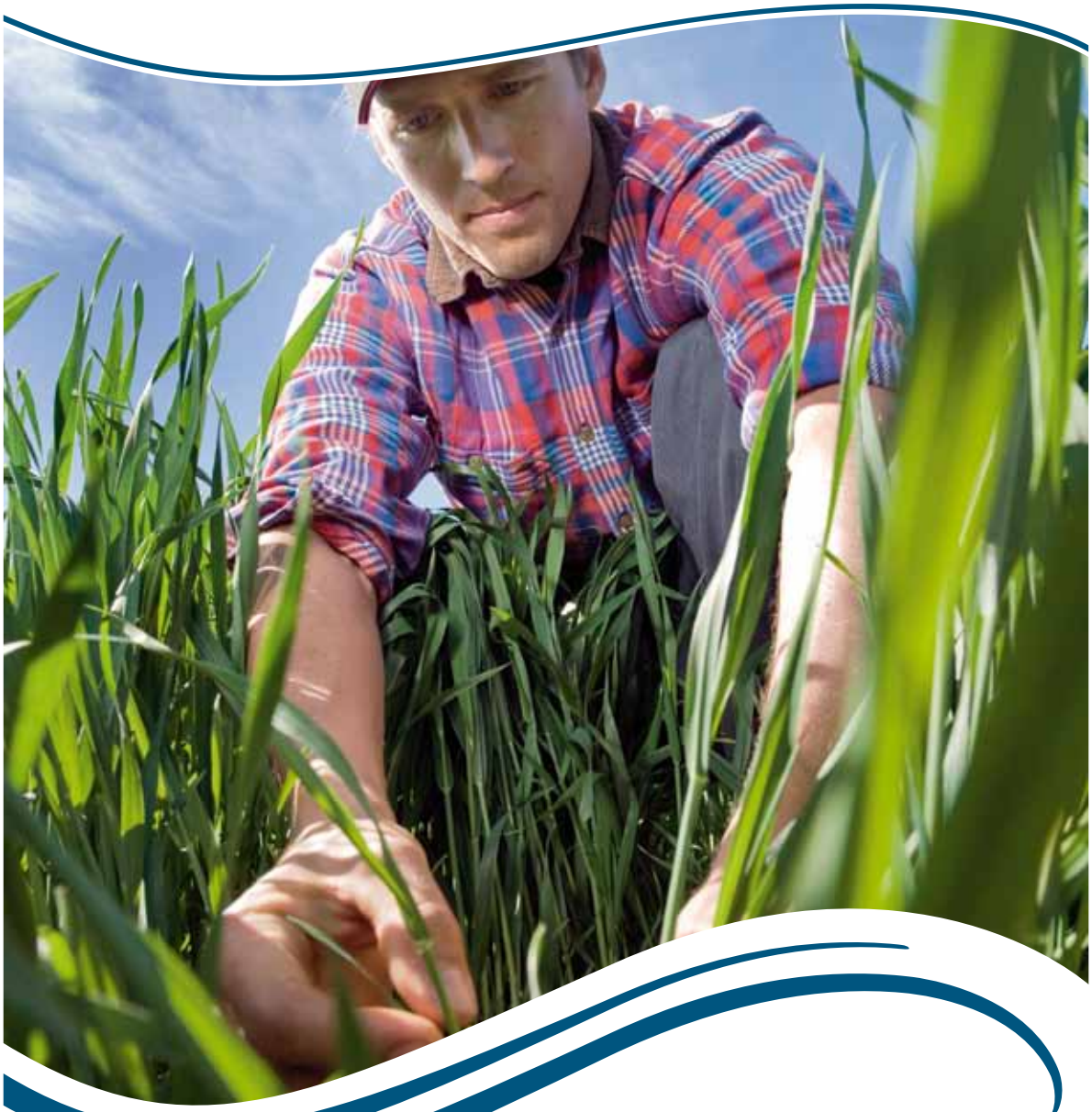
Focus on Nutrients

A decade of advice benefiting agriculture and the environment



Focus on Nutrients
10-year anniversary

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Preface

How the food we eat is produced is of major significance for our environment. This is why the role of agriculture in society and our environmental work make up one of the most important pieces of the puzzle when it comes to building a sustainable society. Focus on Nutrients, in turn, is one of the single most important ongoing efforts in this area.

One lesson to be learned from the ten years that Focus on Nutrients has been in operation is that it could not have been achieved without broad cooperation between the Board of Agriculture, the Federation of Swedish Farmers, the county administrative boards, and the advisory organisations. In a way, this is an example of a Swedish model where mutual understanding takes pride of place.

The fact that Focus on Nutrients has lasted for an entire decade is largely due to the willingness to change that has characterised the process. This is evident from the climate advisory services that we are now initiating.

The “new” Swedish environmental quality objectives were the background to the formation of Focus on Nutrients 10 years ago with objectives for reduced emissions of nitrogen and phosphorus. These remain important objectives but now there are new assignments related to water and climate, not least as a result of the EU water directive. Few would probably doubt that food production will need agri-environmental advisory services in the future as well. More and more EU member states are moving in this direction, with a growing provision of agri-environmental advisory services in their rural development programmes.

Nine out of ten farmers have implemented small and large environmental measures at their farms following a visit from an adviser. Most of them believe that these measures have also benefited the finances of the farm. Good for the environment and good for business – it could hardly be better.

Focus on Nutrients is based on positive drivers such as voluntary cooperation, knowledge, and resource management. This provides gains to the environment, entrepreneurs, and society. In our view, this is environmental work at its very best!

We would like to thank all farmers and advisers who have contributed to and worked with Focus on Nutrients these last ten years.

Helena Jonsson
Chairperson
Federation of Swedish Farmers, LRF

Mats Persson
Director General
Swedish Board of Agriculture

Introduction

Focus on Nutrients offers farmers knowledge and tools to implement cost-effective environmental and climate measures. The work is carried out with the help of advisers from a large proportion of agriculture's advisory companies. The county administrative boards administer and lead activities in their counties, in cooperation with the Federation of Swedish Farmers (LRF), among others. The Board of Agriculture is responsible for management, information, and follow-up and is assisted in this work by LRF and the country administrative boards.

The activities of Focus on Nutrients have been taking place for ten years and would not have been possible without the support and the interest shown by the advisory companies and LRF. This publication has been produced to mark the ten-year anniversary of Focus on Nutrients as a record and analysis of what made the project successful and what needs to be done in future to move agri-environmental matters forward. The publication is mainly intended for politicians and environmental officials, but also for the advisers and farmers who are or have been active within the project.

The editor of this publication is Bibbi Bonorden, LRF. Markus Hoffmann, LRF, and Stina Olofsson, Swedish Board of Agriculture, wrote most of the text, Hans Nilsson, the County Administrative Board of Skåne, and Cecilia Linge and others at the Board of Agriculture also participated. I would like to take this opportunity to thank all of you who work with Focus on Nutrients for your excellent work and commitment.

Stina Olofsson
project manager

Background to Focus on Nutrients

Background to Focus on Nutrients

At the beginning of the 21st century when Focus on Nutrients started, Sweden faced a unique situation due to two simultaneous events: the adoption of the new environmental quality objectives and the start of a new period in the EU Common Agricultural Policy. The new environmental quality objectives meant that for the first time farming had its own requirements for the reduction of nitrogen and phosphorus emissions. From a monitoring point of view it was an advantage that the targets, at least informally, were specified at sector level.

The start of Sweden's second period with the EU Rural Development Programme meant that experiences from advisory services and agri-environmental payments from the first period, 1995-2000, could be utilised. In particular it was important that there was now a budget including EU funds for this kind of environmental work in Swedish agriculture.

Co-financing through the EU budget enabled a new approach to advisory services with a degree of systemisation that had not existed before. In addition, certain lessons could be learned from other knowledge-building campaigns aimed at agriculture and forestry: the Board of Agriculture's "Biodiversity in the Agricultural Landscape" and the Swedish Forest Agency's "Greener Forest". "Safe Plant Protection" was another campaign supported by the Board of Agriculture and LRF. Representatives of LRF and public authorities were asking if it was time for similar work on plant nutrients and eutrophication. LRF's representatives and those responsible for agricultural enterprises emphasised their willingness to become involved in the campaign but insisted that they wanted an active role in its design and to be involved in project management. A common purpose was agreed at a workshop which included both environmental objectives and benefits to farmers.

The Board of Agriculture became the owner of the Focus on Nutrients project and is therefore project manager. Most people in the project management team are employed by the Board of Agriculture. LRF and the country administrative boards also have people working full or part time with the project's central activities. This demonstrates the project's cooperative form. Advisers from advisory companies take part in various sub-projects for the project manager on a consultancy basis and provide input for the advisory services. The project steering group comprises, in addition to representatives of the Board of Agriculture, people from the county administrative boards, LRF and agricultural enterprises.

Behind the scenes

When the environmental quality objectives and accompanying action plan were drawn up, legislation was discussed as one way to reduce nitrogen leaching. The pros and cons of introducing fertiliser accounts according to the Danish model were discussed. Briefly this involves a maximum permitted nitrogen level for each crop depending on location, crop rotation and access to the farm's own manure. The Danish rules were intended to reduce excessive doses and they have halved the use of mineral fertiliser. The large quantities of manure circulating in Danish agriculture are now used far more efficiently than before.

It was feared that introducing a similar system in Sweden would increase the administrative burden on agriculture. Sweden has far less manure than Denmark, which provides less scope to compensate for reduced doses by increased use of manure. In other words, there were strong reasons for going whole-heartedly for advisory services, in order to avoid such nitrogen management. In Skåne, in the far south of Sweden, people were particularly aware of the disadvantages that fertiliser accounts had caused Danish farmers.

What do farmers think?

In order to understand the context, it is important to know how plant nutrient leaching in agriculture has been managed over the years. In many ways, this is one of agriculture's most mature environmental issues. It has been around since at least the 1970s, when researchers started to measure leaching of nitrogen and phosphorus from arable land. At first, the differences in leaching between clay soils and sandy soils or between crops were not known, but understanding has increased with time.

In the 1980s, more systematic water management started in agriculture. Debates on dead zones in the Bay of Laholm and algal bloom in lake Ringsjön drew attention to the role of agriculture in eutrophication. Newspaper headlines at the time citing agriculture as an environmental villain made many farmers feel attacked and the debate often consisted of accusations and denials. Many farmers still want answers to basic questions before they are ready to start analysing their own management of plant nutrients. Farmers are not receptive to advice if they believe that nitrogen or phosphorus do not leach from agriculture and insist that other sectors have a far greater environmental impact. This means that the initial, basic discussion is decisive for the chances of putting good measures in place.

During the almost 30 years that have passed since the discussions on water quality in the Bay of Laholm, agriculture has made considerable advances in reducing leaching. Knowledge and awareness have increased significantly through various measures, including training of future farmers at upper secondary schools, information in the trade press, advisory services, and field walks. Nitrogen leaching and phosphorus losses have declined, as have ammonia emissions. According to official reports, the degree of utilisation of the plant nutrient balance has improved for the average Swedish farm. Development of methods and technology in crop production and livestock farming have made a substantial contribution to higher yields and thereby increased utilisation of resources such as plant nutrients.

"Focus on Nutrients allows advisers to return to the farm to follow up on previous visits"

A totally new approach to **advisory services**

A totally new approach to advisory services

Farmers were offered free advisory services even before Focus on Nutrients, but this was intended as a one-time measure and the adviser was not allowed to return to the same farm. Likewise, in the 1990s there was some talk about environmental protection at field inspections, courses and study trips.

Focus on Nutrients brought several new ideas to advisory services:

FOLLOW-UP. Focus on Nutrients allows advisers to return to the farm to follow up on previous visits and discuss outcomes and whether or not the measures recommended have been implemented.

SYSTEMATIC APPROACH. Focus on Nutrients introduced a more systematic approach than before. In order to ensure that nothing vital is forgotten, there are so-called cookbooks and checklists that tell the advisers what to include in their services and in what order to address various issues.

TRAINING ADVISERS. Advisers within Focus on Nutrients must meet certain basic requirements. This includes having a first degree from the Swedish University of Agricultural Sciences, for instance agronomist, farm management or similar education, as well as a two-day introductory course on Focus on Nutrients. In addition, courses are available about issues to be addressed when making advisory visits.

HOLISTIC VIEW. At livestock farms, both keeping of animals and crop production are reviewed in order to improve the farm's plant nutrient economy.

REPORTING. There is a major emphasis on compiling the results from advisory services. Each visit must be documented, and this information is to be sent both to the farmer and to the county administrative board. When advisory services have been provided for a specific period, there is also a farm-based follow-up of the environmental objectives. Results by region and by groups of farms with similar production are compiled and issued in the form of reports.

COMMUNICATION. The advice given by Focus on Nutrients is given to practically every farmer in Sweden. However, this does not always take the form of an individual visit but can be through leaflets, advertisements and newspaper supplements. Focus on Nutrients has an active website which monitors new developments in research and environmental legislation both in Sweden and abroad. The website www.greppa.nu is an information channel for farmers, advisers, researchers, and environmental officials.

CLIMATE ADVICE FOR THE FIRST TIME. When Focus on Nutrients began, climate was not such a topical issue as it is today. Since plant nutrient and climate issues are linked in many ways, not least through the use of commercial fertiliser, individual advice on climate issues is now included in Focus on Nutrients' services.

COORDINATION FOR SAFER PLANT PROTECTION. Focus on Nutrients coordinates with the campaign Safe Plant Protection/Focus on Plant Protection. The result is that Focus on Nutrients has the main responsibility for advisory services while Focus on Plant Protection provides information material.

"Calculating nutrient balances is still a part of more than 40 per cent of all visits."

Training and advice provided by Focus on Nutrients

Training and advice provided by Focus on Nutrients

The most important part of the project is the individual meetings between the adviser and the farmer at the famer's kitchen table, at the feeding table, or out in the field. The advisory visits are divided by theme into "advice modules", which can be added together to form a whole to meet the needs of each farm. In order to make advisory services as efficient as possible, existing modules are reviewed every year and new modules are created as the need arises. This work has resulted in a specification of requirements that the county administrative boards use when they purchase advisory services.

Content of the advice

When Focus on Nutrients began, the emphasis was on nutrient balances. Calculating nutrient balances is still a part of more than 40 per cent of all visits. The balance drawn up at the initial visit shows the situation at the starting point, and the follow-up visit (no later than after six visits) shows what has been accomplished and how the farmer would like to continue the environmental work on the farm. By year-end 2010 the result was more than 13 000 balances collected in a database. This provides good opportunities to evaluate how nitrogen, phosphorus and potassium are used in production, in particular linked to measures carried out on the farm.

Wide range from feed and wetlands to fertility and climate

Right from the start advice on feeding bovine animals and planning of wetlands have been a large part of the project. Such advice remains extensive with surveys of feeding on dairy and beef farms accounting of some 15 per cent of all advice and advice on wetlands for 10 per cent. Advice modules on pig feedings have also been developed, but since the number of pig farms is limited, so is the number of advisers who specialise in pig production. Therefore such visits are not made to such a great extent. Plant protection advice, particularly on the handling of plant protection products, has been included since 2003. Cooperation with the Focus on Plant Protection campaign means that much information material is produced in this sister project, while advisory services are provided by Focus on Nutrients and now make up some 5 per cent of all advice.

When advisory services had been up and running for a few years, new modules were needed. Strategies on nitrogen and phosphorus were drawn up and put to use as the environmental debate changed. During 2004–2006 much advice dealt with nitrogen strategies, while the phosphorus strategy became more interesting a little later, as new research underlined the importance of phosphorus to the eutrophication of the Baltic Sea. Today, these modules account for almost 10 per cent of all advice. Our largest crop, grasslands, often falls between the fields of responsibility of the crop production and the livestock advisers. This made it important to develop a roughage module, and at present this accounts for almost 5 per cent of all visits.

Advice on long-term soil fertility is an interesting element in the total range of modules. The module on soil compaction has so far been implemented to a fairly large extent (some 3 per cent of all advice), while the module on crop rotation and fertility has not been used much as yet even though these issues are of increasing relevance.

Recent developments concern today's major subject, climate change. All modules have been reviewed and changed to a greater or lesser extent in order to give more weight to climate measures. Furthermore, a special module has been developed to map and provide a rough estimate of climate effects at the farm. This advisory service has only just begun and is expected to account for a significant share in the future.

Training offered to advisers

A large number of continuation courses have been offered to advisers over the years. These have been wide-ranging in scale and character, everything from brief web-based meetings with five participants to large conferences with more than 200 delegates. There have been some 120 training sessions of one to two days which reflects how advisory services have developed over the years. In the beginning the focus was on courses on nutrient balances, nitrogen strategy, phosphorus strategy, and feeding. In the middle of the period, subjects such as soil compaction and fertility were added, and in recent years there have been a considerable number climate courses and courses linked to water issues and the Water Directive. There have also been many popular courses not linked to any specific module, on subjects such as environmental economy, advisory methods, and environmental work in our neighbouring countries.

Training offered to farmers

Farmers are more or less explicitly required to attend a two-day basic training in accordance with a set syllabus. For a number of years in the late 1990s, many farmers (particularly in Skåne) took part in basic training within the so-called REKO measure, which was mostly about plant nutrients and plant protection. In other counties, REKO support had a lower participation rate, which meant that there was a greater need for basic training within Focus on Nutrients. The syllabus has become more flexible in recent years, but basic environmental knowledge is always included. There are several examples of successful arrangements around the country, ranging from two days of lectures to various combinations of lectures, study visits and study circles.

Other environmental work in the agricultural sector

There were and are elements in farming that have benefited and influenced Focus on Nutrients. At the same time, some farmers and growers have wondered why they should sign up for Focus on Nutrients when they are already taking part in an environmental programme run by purchasers of their products. Some have seen it as duplication of work and feared more paperwork. A key task for both advisers and project management has been to explain the economies of scale between Focus on Nutrients with other environmental projects.

REKO – Sustainable Conventional Agriculture. One of the agri-environmental payments in the late 1990s was designed as a package subsidy. The farmer should implement several small but important measures, including drawing up a plant nutrient balance and participate in a two-day basic training session on plant nutrients and eutrophication. These two measures have strong links to Focus on Nutrients.

Agri-environmental payments for “reduced nitrogen leaching” (catch crops and spring tillage). This agri-environmental payment was introduced at the same time as Focus on Nutrients began its activities, and participation rates swiftly became extensive. Everything was heading in the right direction and gave the appearance of great success for farming in voluntary environmental work.

The food companies’ own environmental programmes have played a role in recruiting members. In particular, the environmental bonus programme of a dairy in southern Sweden and environmental guidelines for sugar beet provided by a sugar refiner have benefited Focus on Nutrients since they resulted in extensive participation in the southern regions of Skåne, Halland and Blekinge. Both these programmes required the farmer to implement measures that Focus on Nutrients could help them with. For the farmers, this meant that it did not seem like such a big step to sign up with Focus on Nutrients.

In recent years, quality labelling organisations such as Svenskt Sigill (the Swedish Seal of Quality) and KRAV have had an effect on Focus on Nutrients, and vice versa. Several of the measures that Sigill and KRAV producers must implement are recommended by Focus on Nutrients.

"If advice is offered free, it is easy to say yes just to try it."

Success factors in addition to reduced emissions

New farmers

Perhaps the most important side effect of Focus on Nutrients is that farmers have tried advisory services. Many farmers in Focus on Nutrients' target group, farms with more than 25 livestock units or 50 hectares, do not pay for advice today but only receive advice from their suppliers of consumables. If advice is offered free, it is easy to say yes just to try it. Hopefully, these farmers will continue to be clients of advisory services and be informed of the latest developments in environmental research. Another aspect is that there may be more to do in the environmental field on these farms than on farms that already use advisory services.

Cooperation between advisers

In order to provide good solutions for improving the farm's handling of plant nutrients, it is necessary to widen the perspective to include issues in crop production or feeding. Crop production and livestock keeping are so closely linked that advisers need to cooperate. Focus on Nutrients has encouraged such cooperation.

Cooperation between organisations

Since Focus on Nutrients is a cooperation between many different organisations, day-to-day work for everyone involved has led to many contacts. This has resulted in increased cooperation between organisations such the Federation of Swedish Farmers (LRF) and the Board of Agriculture, and to an exchange of knowledge between different advisory companies.

Communication and media

LRF has contributed at all levels to the marketing of Focus on Nutrients as a way for agriculture to assume environmental responsibility while at the same time offering opportunities for improved profitability in the agricultural company. Focus on Nutrients has become a concept that is easy to communicate and that gives farmers positive media feedback. This has probably increased consumer confidence in Swedish farming.

Avoided conflict between organic and conventional production

Some 10 per cent of all Focus on Nutrients' members, over 650 farms, have organic production. There is an advisory module that specifically handles strategies for nitrogen and phosphorus fertilisation for farms with organic production. Nutrient balances from the database's organic farms have been used by researchers on several occasions to study plant nutrient flows on such farms.

There is still some debate which aims to compare the environmental performance of organic and conventional farming. Focus on Nutrients could have been perceived as a programme for conventional farming, but that has not happened. Focus on Nutrients has always been open to both types of production and emphasised that everyone can and must improve their management of plant nutrients. This has helped credibility.

"No organisation on its own could have carried out all the advisory services, training and administration carried out by Focus on Nutrients."

Lessons **learned**

How to influence people in environmental issues

Focus on Nutrients has also provided knowledge in a more general sense on how to communicate on environmental issues. Since the campaign uses personal meetings, the internet, films and a considerable amount of printed information, we now know more about what is significant and how the message can be packaged so that it is heard to the greatest possible extent.

Change is possible

Nine out of ten farmers say that they have implemented measures after receiving advice. These relate to both minor and major measures for the environment. Of course it is difficult to know for certain which of these measures would have been implemented even without advice and what would have been done by the farmer in response to other more everyday inspiration to change such as reading articles and other information sources.

Change takes time

Realistic expectations from measures implemented are open to discussion. Some measures are simple and profitable in the short term. Others require investment and probably will not take place until it is time to replace a machine or build a new building. However, as frequent interview-based surveys have shown, it is difficult to change attitudes, for instance with regard to agriculture's share and role in eutrophication. People usually need to be convinced that a measure is important in order to do it, otherwise they tend to "do what they have always done".

Profitable environmental measures exist

When asked, most farmers say that advisory services in Focus on Nutrients have had a positive effect on profitability, probably mostly as a result of costs saved rather than increased revenues. There is probably still money to be saved on most farms by the farmer playing an active role in environmental work. For some, it is about fine tuning production that is already working well, while for others who have not had advisory services before, there is often more to be done.

Who has joined and who has not?

It is not possible to convince everyone to sign up with Focus on Nutrients. It is also not necessary as regards reduced eutrophication. The point is that a sufficient number become members, as a result of active canvassing, so that the overall total is significant for environmental work. It is likely that those who have not signed up with Focus on Nutrients to a greater extent remain outside other arrangements, like the Dairy Cow Control and the advisory services in the pig sector. However, there is an important difference between plant nutrients and plant protection. In plant protection, it is enough that one or a few people make a mistake for this to be significant for the environment and for residues of plant protection substances to exceed permitted limits. This is why it is particularly important to achieve a high participation rate for advice on plant protection.

Why farmers signed up

Each farmer has personal reasons for joining Focus on Nutrients. These can be roughly broken down as follows:
1) Those who are interested in trying advisory services because they have not used them before. They see opportunities to cut costs in production by receiving good advice.
2) Those who see Focus on Nutrients and the agricultural sector’s own environmental work as a way of preventing the introduction of new environmental rules.
3) Those who believe that Focus on Nutrients and other environmental work are necessary to meet consumer demands on how food is produced.
4) Those who have a stewardship and altruistic view and want to contribute to environmental work in general and want their farm and the soil to be in good condition when they hand them over to the next generation.

Organisations need to cooperate

No organisation on its own could have carried out all the advisory services, training and administration carried out by Focus on Nutrients. The project has required all the skills and experience of its participants from the Board of Agriculture, the county administrative boards, the advisory companies, and the Federation of Swedish Farmers (LRF).

Cooperation with the market and purchasers of agricultural products

Focus on Nutrients has always had contacts and exchanges with major purchasers of agricultural products such as the dairy company Arla and the cooperative Lantmännen. They have their own environmental ambitions and ongoing programmes. Focus on Nutrients has benefited from being able to make use of these purchasers’ extensive networks. They come into contact with many farmers, and in this way new groups of farmers may be encouraged to take an interest in advisory services.

Coordination with EU agri-environmental payments important

It is a good idea to coordinate individual advice with measures for which the farmer can receive agri-environmental payments. Focus on Nutrients' advisers have encouraged farmers to apply for the subsidies available for environmental protection. As regards wetlands, a special advisory visit has been designed in order to ensure that advantage is taken of this support and wetlands established.

New energy and feedback essential for long-term work

Focus on Nutrients started as a campaign or perhaps as an extra show of strength. However, few campaigns last ten years. No one can sustain burning enthusiasm for that long without recognition and feedback. This is why it is important that farmers and advisers learn about the results of their work and that their efforts are appreciated.

Renewal is also essential

After several years of advice and recurrent visits, the farmer requires new messages and advice. Some things may need to be done every year, like the farm's nutrient balance but over time the farmer should learn to do this himself. Instead, advisory services need to be renewed or deepened. One example of renewal is the start of climate advice and advice on eutrophic watercourses (as a part of the Water Directive). Experience from a total of 20–30 years of agriculture's work with eutrophication and from ten years of advice on this subject will be very useful now with the start of advisory services designed to reduce greenhouse gas emissions from agriculture.

Status among advisers

A recurrent discussion is what status the advisory companies attribute to advice within the framework of Focus on Nutrients. Advice is often a task handed to new employees and in this way they learn how to work as advisers. Naturally, a recently employed and often young adviser lacks the experience of older colleagues. Some farmers have been dissatisfied with the advice provided within Focus on Nutrients, claiming that it did not tell them much they did not know before. Others appreciated coming into contact with new advisers and getting ideas from a person who has just completed basic training. Giving new advisers a good introduction is an important task for companies that take it upon themselves to carry out environmental advisory services, so that the farmer feels that the service is useful.

Long-term financing helps

Focus on Nutrients has been financed with both national and EU funds. In the first years, Focus on Nutrients was allocated funds one year at a time, which made planning uncertain. Each year, the county administrative boards had to wait for a decision before they could start, and advisory companies were cautious about hiring staff.

As the project was seen to be working well, new funding sources have emerged including the reinstated taxes on mineral fertiliser, which were brought to the project through the Federation of Swedish Farmers (LRF). In recent years, funds have been earmarked from the EU budget for work on water quality and climate have benefited Focus on Nutrients. Probably planning of this operation at all levels would have been more carefully prepared if funding had been secure for several consecutive years. On the other hand the lesson is that a good activity finds funding and it is necessary to "dare" to show the way in order to obtain financial backers.

"The adviser and the farmer perform an environmental objectives follow-up after three to four years."

Results of Focus on Nutrients – what have we achieved?

Methods for follow-up and evaluation

NUTRIENT BALANCES. When nutrient balances have been calculated on the farms during an advisory visit, they are collected in a database together with other data on the farm's production. Focus on Nutrients has designed a system which compares balances before and after advisory services. Selected farms are those where the farmer has received at least four advisory visits, at least two of which included balance calculations. On average, four to five years have passed between the first and the most recent balance. The most recent compilation contains data from 2000 to 2010. Farmers have had an average of five advisory visits in addition to the two visits that included a nutrient balance. Farms are divided into categories based on the dominant type of production: crops, dairy, pigs, cattle, and mixed livestock (farms where no species accounts for more than 75 per cent of total production). Changes are analysed for each category and the same farms are studied for the first and the most recent balance. Farms with mixed livestock, or that have changed their type of production, are not included. A total of 2 274 farms comprising 290 000 hectares are included in the calculations. This is a uniquely large number for an evaluation of this kind, even in an international perspective.

CALCULATING NITROGEN LEACHING AND NITROGEN EMISSIONS TO AIR. Together with nutrient balances, data on cultivation and livestock production are also stored in the database, and used to calculate nitrogen leaching and ammonia losses. These calculations use the same software that advisers use during their visits, STANK in MIND.

ENVIRONMENTAL OBJECTIVES FOLLOW-UP. In order to see if measures are actually implemented on the farms, the adviser and the farmer perform an environmental objectives follow-up after three to four years. In 2007–2010, 791 such follow-ups were performed. Data from these is also stored in Focus on Nutrients' database and shows the proportion of farmers who have implemented a certain measure at farms where it might be relevant, for instance how many have taken manure measures as a percentage of the number of farms that keep livestock.

Nutrient balances

The largest number of nutrient balances were collected from dairy farms and crop farms and most were performed in Skåne, followed by the county of Västra Götaland (table 1).

Table 1. Number of farms per type of production with breakdown by county

Average farm	Number of farms	Skåne %	V. Götaland %	Kalmar %	Halland %	Other %
Crops	919	73	14	2	3	8
Dairy	1045	52	21	11	8	8
Pigs	186	57	17	4	13	9
Beef cattle	124	37	28	15	14	6
Total	2274					

What do nutrient balances tell us?

Reductions of surpluses in nutrient balances are not a direct indicator of reduced losses to the environment, but do show that production is becoming more efficient. Reduced surpluses are often a result of unchanged or increased harvests or increased livestock production, combined with reduced inputs of plant nutrients in the form of mineral fertiliser and feed. This results in lower costs for the farmer. The average surplus in the most recent balance was 41 kg nitrogen per hectare on crop farms, 130 kg on dairy farms, 87 kg on pig farms and 108 kg of nitrogen per hectare on farms with beef cattle.

The risk of nitrate leaching, ammonia and nitrous oxide emissions, as well as phosphorus losses declines when the nutrient surplus is reduced. On the same type of soil, nitrogen leaching is generally relatively limited on a dairy farm while it can be more extensive on a crop farm or even greater on a pig farm with potato cultivation. All types of farm that handle manure have significant nitrogen losses in the form of ammonia, whereas such losses are often insignificant on crop farms.

Table 2 shows that surpluses of nitrogen and phosphorus have declined significantly in most types of farm.

Table 2. Changes in phosphorus and nitrogen surpluses between the first and most recent balance

Average Farms	No of farms	Change in surplus				Change in mineral fertiliser inputs				Change in feed inputs			
		N, kg/ha*	sign**	P, kg/ha	sign	N, kg/ha	sign	P, kg/ha	sign	N, kg/ha	sign	P, kg/ha	sign
Crops	919	-5,4	***	-1,6	***	0,3		-0,6	*				
Dairy	1045	-10,4	***	-1,4	***	-6,6	***	-0,6	***	-1,7		-1,0	***
Pig	186	-13,0	**	-6,1	***	0,6		-0,4		-6,8		-3,6	**
Beef	124	-0,9		-2,2	**	1,0		-0,6		5,1		0,3	
Total	2274												

* For each farm, the change in the nitrogen surplus has been corrected in relation to a benchmark comprising livestock density, crop composition, and manure quantities sold. This means that the figures show the change in surplus that is due to environmental measures, and not primarily to changes in production. Livestock density declined somewhat during the period in farms with dairy and pig production, and increased on beef cattle farms.

** The column "sign" shows statistically significant differences between the first and the most recent balance.
(*** p<0,001,**p<0,01, *p<0,05)

Surpluses have declined because of reduced inputs of plant nutrients with mineral fertilisers (primarily on dairy farms) and feed (primarily on pig farms). On crop farms and pig farms, removals of harvested products have increased significantly, which improved efficiency. Purchases of mineral fertilisers could be reduced through better utilisation of manure combined with improved fertilising techniques and adjusting fertiliser doses to the preceding crop. Reduced input of feed is due to better matching of feed rations to animal needs, improved utilisation of the farm's own grasslands and less feed waste.

Nitrogen leaching

Calculations for farms in the database

The farm database is used to estimate nitrogen leaching. Using Focus on Nutrients' calculation model, nitrogen leaching has been estimated for the same period as that used for calculations of nutrient balances. On average for the farms, leaching has been between 30 and 35 kg per hectare. Leaching is a result of many factors such as type of soil, choice of crop and growing location. These factors can strengthen or counteract each other. On dairy and beef farms the land is mostly in growth throughout the year with cultivation of grasslands, which produces low leaching. At the same time light soils, which are prone to leaching, are usual on these farms.

Based on information about changes on the different farms with regard to crop distribution, livestock density, type of manure, time of spreading of manure, time of soil preparation and tilling of grassland, catch crop area, and fertilisation intensity, the change in leaching has been calculated for each type of farm. The area of arable land on the farms studied, 290 000 hectares, accounts for more than 40 per cent of the area on all farms in Focus on Nutrients (703 000 hectares). Leaching figures from the studied farms have been scaled up to all farms whose farmers have received at least four advisory visits (an additional 190 500 hectares) (Table 3), and to 50 per cent of the area of farms whose farmers have received 1–3 advisory visits (an additional 221 000 hectares).

Table 3. Estimated reduction nitrogen leaching following advice from Focus on Nutrients

	Estimated reduction in leaching on average farms				Recalculated to all farms with at least 4 advisory visits (69% of total area)		
	kg/ha	Areal, ha	No. of companies	kg N	Areal, ha	No. of companies	kg N
Dairy	0,62	131 705	919	81 657	198 403	1 382	123 010
Mjölk	2,28	102 260	1 045	233 153	155 392	1 581	354 294
Beef*	1,60	9 933	124	16 091	25 544	302	41 381
Pigs	0,55	28 271	186	15 549	53 628	374	29 495
Mixed*	1,70	13 322	121	22 381	36 263	345	60 922
Other*	2,50	5 799	34	14 440	12 517	93	31 167
		291 290	2 429	383 271	481 747	4 077	640 269

*Estimated leaching reduction

The reduction in annual nitrogen leaching on the studied farms was estimated at 383 tonnes of nitrogen. When scaling up the effect as described above, the annual total leaching on farms in Focus on Nutrients decreased by 790 tonnes between the first and most recent date when the nutrient balance was calculated.

Result of Environmental Objectives follow-up

Diagram 1 shows the proportion of farmers who have performed an environmental objectives follow up who claim to have carried out various measures to reduce nitrate leaching, both before and after 2000 .

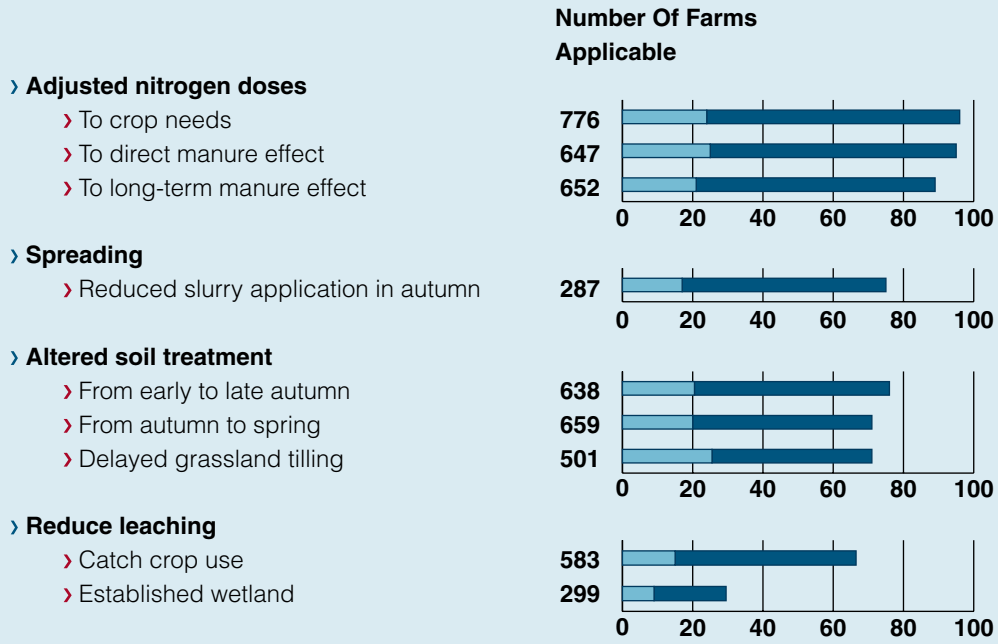


Diagram 1. Measures which reduced nitrate leaching following advice from Focus on Nutrients before (light blue field) and after (dark blue field) 2000, percentage of total number of farms where measures are possible. Data provided for 791 farms in 2007-2010.

Of the farmers, 45–71 per cent state that in the period after 2000, they have adjusted their nitrogen doses better than before to crop needs and to the direct and long-term nitrogen effect of manure. They have reduced the quantity and frequency of liquid manure spread in the autumn for winter crops, postponed tilling until later in the autumn or until spring, and started to grow catch crops. Tilling grassland has been postponed from early autumn to late autumn or spring.

Ammonia losses

Calculations for farms in the database

Advisory services in Focus on Nutrients use the software STANK in MIND to calculate ammonia losses from different manure storage and spreading methods. These calculations and the data on which they are based are not stored in the database in such detail as for nitrogen leaching. This means that ammonia losses are more difficult to estimate. Some assumptions can be made, however. Keeping livestock, and above all handling manure, accounts for 95 per cent of ammonia emissions from agriculture according to reports from Statistics Sweden (SCB). So it is on farms with livestock that the losses are primarily of interest. Average ammonia losses from Focus on Nutrients' farms with dairy, beef and pig production amounted to 32-34 kg per hectare, while they only amounted to a few kg on crop farms where very little manure is used. Of the arable land on Focus on Nutrients' farms, 41 per cent is on crop farms and 59 per cent on livestock farms.

Table 4 shows the total reduction in nitrogen on the farms in the analysis and recalculated to all farms which have received four advisory visits. The reduction in the surpluses of nitrogen in the nutrient balances in livestock farms amounted, after scaling up in the same manner as for nitrogen leaching, to 2 485 tonnes of nitrogen. If ammonia losses are assumed to account for 25-30 per cent, this corresponds to an ammonia reduction of 620–745 tonnes, but this is a very rough estimate.

Table 4. Changes in surplus nitrogen between the first and most recent balance

	Change in surplus on average farms				Recalculated to 69% of land: all farms with at least 4 advisory visits		
	kg N/ha	Area, ha	No. of companies	kg N	Area, ha	No. of companies	kg N
Crops	-4,2	131 705	919	-553 161	198 403	1 382	-833 293
Dairy	-9,4	102 260	1 045	-961 244	155 392	1 581	-1 460 685
Beef*	5,9	9 933	124	58 605	25 544	302	150 710
Pigs	-13,8	28 271	186	-390 140	53 628	374	-740 066
Mixed*	-1,1	13 322	121	-14 654	36 263	345	-39 889
Other*	5,5	5 799	34	31 895	12 517	93	68 844
		291 290	2 429	-1 828 700	481 747	4 077	-2 854 380

Result of Environmental Objectives follow-up

Diagram 2 shows for farmers who have performed an environmental objective follow-up the proportion who claim to have carried out various measures which reduce ammonia losses, both before and after 2000.

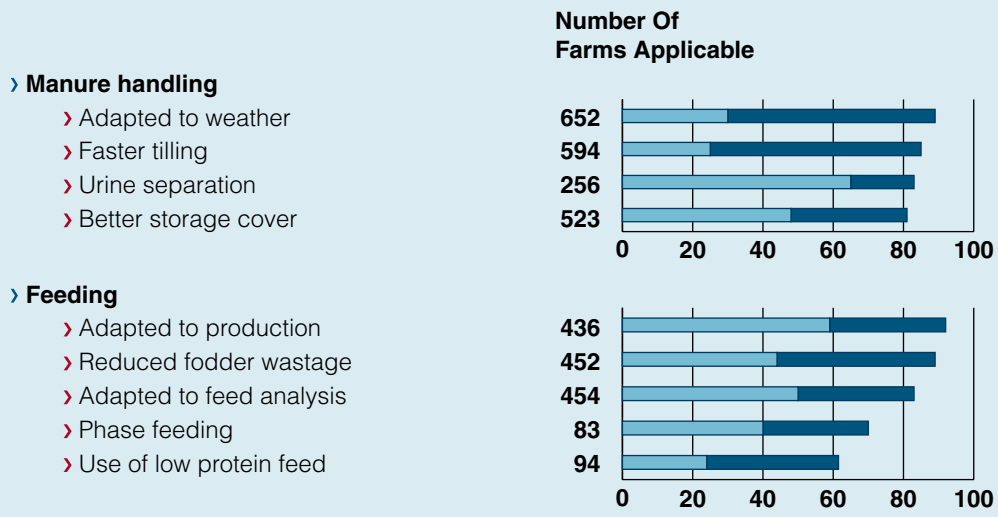


Diagram 2. Measures which reduced ammonia losses following advice from Focus on Nutrients before (light blue field) and after (dark blue field) 2000, percentage of total number of farms where measures are possible. Data provided for 791 farms in 2007-2010.

Of the farmers, 45–60 per cent state that during the period after 2000 compared with previous years they till manure faster and to a greater extent avoid spreading manure when it is hot and windy. They have carried out measures which have reduced feed waste in the barns and in conservation of feed from grasslands.

Nitrous oxide

Calculations for farms in the database

Nitrous oxide, or laughing gas as it is commonly known, is one of the most significant greenhouse gases emitted from agriculture. Nitrous oxide is formed in agricultural soils when bacteria convert and break down organic materials. This process is supported by easily available nitrogen and carbon at the same time as the oxygen content of the soil fluctuates between an oxygen-free environment and low oxygen levels. The soil also needs to contain a certain amount of water. Other parts of production where nitrous oxide losses can arise include deep litter.

It is difficult both to measure and calculate nitrous oxide emissions. When calculating climate effects, IPCC (Intergovernmental Panel on Climate Changes) uses one per cent of the amount of nitrogen added to the soil through mineral fertiliser, nitrogen fixation and crop residues, as an indicator of nitrous oxide emissions. To this must be added other processes which produce nitrous oxide emissions, such as the manufacture of mineral fertiliser pre-farm and when the nitrogen leaves the soil, i.e. post-farm in conjunction with ammonia emissions and nitrate leaching. Nitrogen in manure also leads to nitrous oxide loss in the soil but in order to avoid double counting the climate impact is mainly estimated from cultivation of the feed.

Diagram 3 shows how inputs of nitrogen with mineral fertiliser and nitrogen fixing crops combined have declined at the farms during the advisory period. This input is a key part of agriculture's source of nitrous oxide and if reduced amounts are added to the soil, the risk of nitrous oxide emissions is reduced, although this correlation is clearer in some years than in others. The climate impact of nitrous oxide is 298 times stronger than the corresponding amount of carbon dioxide. By using data on additions to soil and performing a scaling up similar to that for nitrogen leaching, the resulting nitrous oxide emissions are estimated to have decreased by 31 tonnes or 9 200 tonnes of CO2 equivalents on the farms. But many factors other than fertilising and nitrogen fixation affect the farms' climate impact and new knowledge is included in Focus on Nutrients' advisory and follow-up systems as it arises.

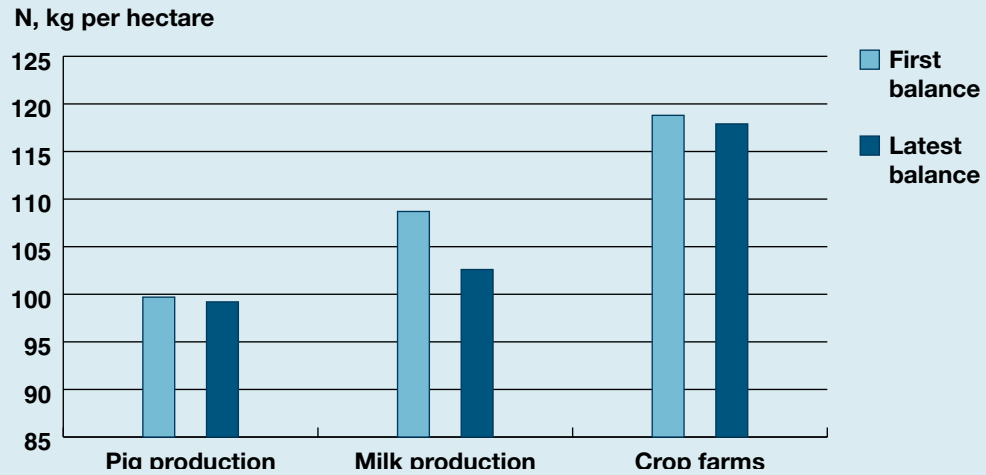


Diagram 3. Inputs of nitrogen with mineral fertiliser and nitrogen fixation (new nitrogen) on farms in Focus on Nutrients when the first and most recent balance was performed.

Phosphorus losses

Calculations for farms in the database

Table 2 in the section on nutrient balances shows that surpluses of phosphorus have declined on the farms during the advisory period. By using these figures and performing a scaling up similar to that for nitrogen leaching, the reduction in surpluses of phosphorus can be totalled at 1 260 tonnes. Phosphorus losses are very difficult to quantify, however, since they depend on many factors other than inputs to arable land. Losses can depend on the size of the spring flood, soil preparation, type of soil, phosphorus saturation in the soil, choice of crops and whether the phosphorus is particle-bound or free. Research has nonetheless shown that trial strips using high phosphorus doses result in far higher phosphorus losses than strips fertilised with doses that correspond to what the crop can absorb.

In an attempt to estimate losses of phosphorus on the Focus on Nutrients' farms, data has only been compiled from farms where most of the fields are in the two highest categories for easily accessible phosphorus in the soil, class IV and V, and which at the same time had a surplus in the balance, a total of 22 per cent of the farms. Scaling up as described above provides a reduction of the surplus of over 300 tonnes of phosphorus. If it is assumed that 5–10 per cent of this surplus would have leached out, the annual reduction in phosphorus losses can be assumed to amount to a total of between 15 and 30 tonnes for the farms in Focus on Nutrients during the advisory period.

Result of Environmental Objectives follow-up

Diagram 4 shows for farmers who have performed an environmental objective follow-up the proportion who claim to have carried out various measures which reduce phosphorus losses, both before and after 2000.

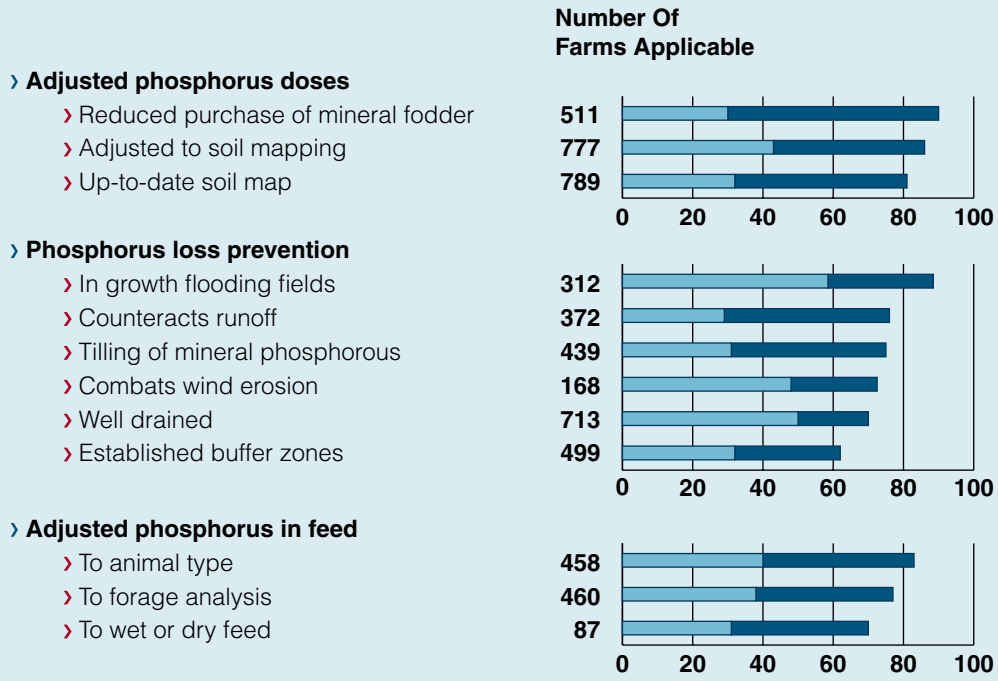


Diagram 4. Measures which reduced phosphorus losses following advice from Focus on Nutrients before (light blue field) and after (dark blue field) 2000, percentage of total number of farms where measures are possible. Data provided for 791 farms in 2007–2010.

Of the farmers, 60 per cent state that during the period after 2000 compared with previous years they have reduced their purchases of mineral phosphorus. 48 per cent have mapped their lands to a greater extent than before and 45 per cent say they now counteract surface runoff to a greater extent by either reduced tillage, spring ploughing or ploughing at right angles to the slope of the field. 40–43 per cent claim to better adapt phosphorus fertilisation based on soil map and average yield, tilling mineral phosphorus, and better adapting phosphorus content in feed to livestock type and feed analyses.

Plant protection

In plant protection, many farmers introduced improved routines as early as the end of the 1990s in response to stricter legislation, environmental programmes and delivery requirements from purchasers of agricultural products.

Result of Environmental objectives follow-up

Diagram 5 shows that 42–43 per cent of farmers during the period after 2000 compared with previous years have become more conscientious about applying recommended soil-adapted buffer zones and actively use "the Assistant" to work out wind-adapted buffer zones.

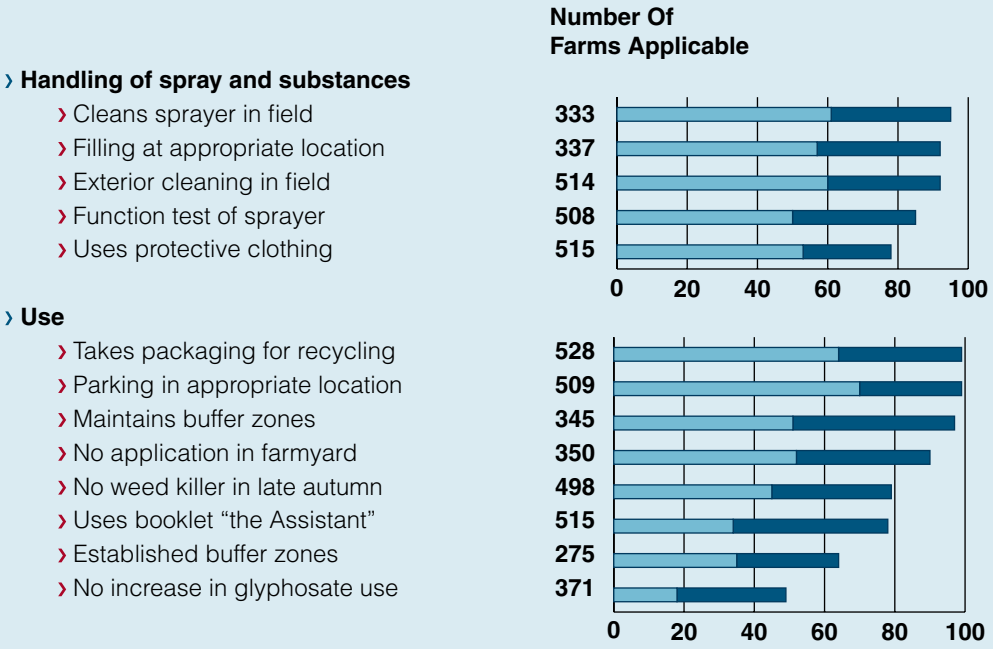


Diagram 5. Measures which reduced the risks in handling plant protection substances following advice from Focus on Nutrients before (light blue field) and after (dark blue field) 2000, percentage of total number of farms where measures are possible. Data provided for 791 farms in 2007–2010.

Of those who completed the follow-up, 35–36 per cent state that they today fill their spray on a watertight surface with collection, bio-bed or with mobile equipment in the field and that after spraying they rinse the spray and spray out the rinse water. They say that today they always take empty packaging well rinsed to a collection point and no longer spray glyphosate in the farmyard.

Soil compaction

Focus on Nutrients also gives advice on how farmers can reduce soil compaction. Compacted soil increases losses of phosphorus and nitrous oxide. Crop root development is less favourable when the soil is compacted which also affects nitrogen uptake. Measures to reduce the effects of machinery during different operations make an important contribution to reducing compaction.

Result of Environmental objectives follow-up

As regards soil compaction, at the time of the follow-up of environmental objectives, 45–46 per cent of farmers claimed that today, compared with before 2000, they take more account of tyre pressures and timing of different activities in the fields (diagram 6).

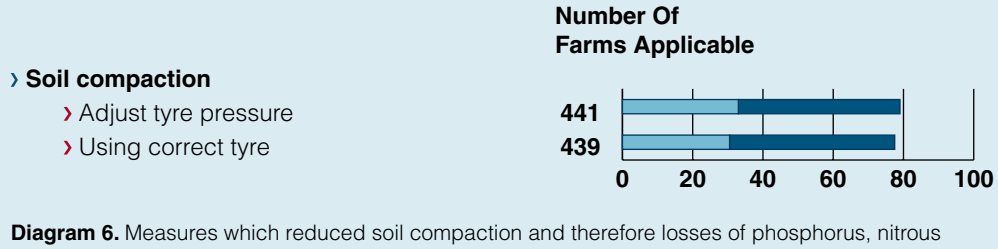


Diagram 6. Measures which reduced soil compaction and therefore losses of phosphorus, nitrous oxide and nitrate following advice from Focus on Nutrients before (light blue field) and after (dark blue field) 2000, percentage of total number of farms where measures are possible. Data provided for 791 farms in 2007–2010.

The effect of Focus on Nutrients on the farming community

Skills development and from words to deeds

Over the years a number of surveys have been carried out among farmers on their attitudes to environmental issues and their experiences of working with Focus on Nutrients. In one such survey undertaken in spring 2011 (Landja), 91 per cent of farmers in Sweden's southernmost counties said that they are aware of Focus on Nutrients. The corresponding figure the whole of Sweden for members of the Swedish Federation of Farmers, LRF, was 84 per cent. Among farmers outside Focus on Nutrients' target group, such as those with less than 20 hectares, farmers in forest regions in Svealand and in Norrland, the project was less well known; 58–66 per cent.

Another survey (ARS) carried out in the county of Västra Götaland in 2010 focused on farmers who had received a visit from advisers from Focus on Nutrients. Of these, 82 per cent said they were satisfied or very satisfied with the advisory services and the attitude of the advisers. More than half said that they had changed their production as a result of advice received, particularly changes in fertilisation. The main reason for these changes was environmental concern, but financial aspects also mattered.

In the summer of 2011, Focus on Nutrients put questions about itself to farmers at two regional events (in Skåne and Västmanland), and also by phone to farmers in the county of Örebro. The farmers said that the most important thing about Focus on Nutrients is that it provides knowledge about plant nutrients in general and about using plant nutrients in a resource-efficient manner. In their opinion Focus on Nutrients has a good understanding of environmental issues and agriculture's conditions and give farmers concrete advice and tools. Focus on Nutrients is perceived as knowledgeable, professional, good for the environment, and interesting. 55–57 per cent of participants in Skåne were satisfied or very satisfied with the advisory services and believed that it had given them new knowledge. Advisory services were to a large extent deemed to be "good for the environment"; 67 per cent gave this option 4 or 5 points on a scale from 1 to 5, while the claim "of benefit to the farmer" was graded four and five by 61 per cent of participants.

Knowledge enhancement among advisers

In Focus on Nutrients information has been collected and provided about which of the measures carried out by the farmers have had a positive or negative environmental impact. This has been done through a research abstract in a newsletter, at continuation courses for advisers and with documentation for adviser visits. Since advisers from the regular advisory companies have been engaged for Focus on Nutrients' advisory services, innovations in the environmental field which have been profitable to implement have also reached the farmers when advisers provide production advice.

What would have happened on the farms without advice from Focus on Nutrients?

Project management has been asked which of the recorded changes would have taken place even without the advisory services provided by Focus on Nutrients. It is difficult to have an opinion about this since national compilations also include Focus on Nutrients' farms. Most of Sweden's agricultural advisers and full-time farmers have come into contact with Focus on Nutrients in many contexts. This makes it almost impossible to find a control group that has not been influenced.

Statistics Sweden regularly issues compilations that could be compared with the information in Focus on Nutrients' database. For example, according to reports from Statistics Sweden ammonia losses from agriculture as a whole declined by 5 per cent between 2003 and 2007. Surpluses in national nutrient balances decreased by 7 kg per hectare for nitrogen, and by 1 kg per hectare for phosphorus during the same period. However, it is hard to compare the results from Focus on Nutrients' farms, which are mainly located in the most intensive farming areas, with these figures which are based on all agricultural land, including areas with far more extensive agriculture.

International perspectives

Focus on Nutrients receives international attention

Focus on Nutrients has turned out to be a pioneer when it comes to testing individual, repeated farm advisory services on a large scale. The combination of traditional information and agri-environmental payments has been successful in Sweden.

Interest in advisory services as a tool in agriculture's environmental work has shown a clear increase during the ten years Focus on Nutrients has been in operation. The Swedish environmental objectives have been a driver for the development of Focus on Nutrients. The EU framework directive on water has resulted in a new, major "order" to implement water management measures. This has led to a discussion on increased investment in advisory services.

Other national environmental advisory services

During the years with Focus on Nutrients the question has often been asked whether there are similar initiatives in other countries, but it has not been easy to find any. The UK has something similar to the Swedish work on both nutrients and plant protection, called the Voluntary Initiative (VI). This started as an alternative to a previously planned tax on plant protection products. VI became British agriculture's attempt to reduce the risks associated with plant protection products without increased additional charges such as taxes.

Otherwise individual advice is sometimes a part of other projects, often at regional level aimed at a limited number of farmers (100–200 individuals). One example is the TEHO project in Finland, which has mostly worked with erosion and phosphorus losses. Another example is a Danish regional project on certain fiords. The recently started, EU-funded Baltic Deal Project is in the process of building a system of demonstration farms to be used for training and advisory services.

Transnational agri-environmental advisory initiatives around the Baltic Sea

Seven partners from as many countries around the Baltic are taking part in the ongoing Baltic Deal project. Both advisory organisations and farmer organisations are represented. This is a flagship project in the EU's Baltic Sea Region Strategy.

With a budget of approximately SEK 40 million from the Baltic Sea Region Interreg Program and the NEFCO/NIB Baltic Sea Action Plan Fund, the project strives to optimise the use of plant nutrients and thereby reduce leaching in a cost-effective manner but with no loss of production. This will be achieved by further developing the advisory organisations but also through the development of a network of more than 100 demonstration farms featuring innovative and inspiring measures and practices.

Inspired by the good experiences and positive results in Focus on Nutrients, several initiatives have been taken to encourage more and better advisory projects in the Baltic Sea region.

Latvia and Sweden held a joint seminar in Riga in 2007 where more than 40 experts and project managers involved in advisory services from nine countries met to discuss national and Baltic needs and ambitions. This seminar led to the start of the Swedish funded project, Baltic Agreement, with partners from Estonia, Latvia, Lithuania, Poland, Finland and Sweden. This two-year project focused in 2008 and 2009 on contributing to the advisory organisations being better equipped to provide advice on improved use of plant nutrients which would lead to reduced leaching. The positive experiences gained from these activities made five farmer organisations develop an idea for a project which led to the current Baltic Deal project.

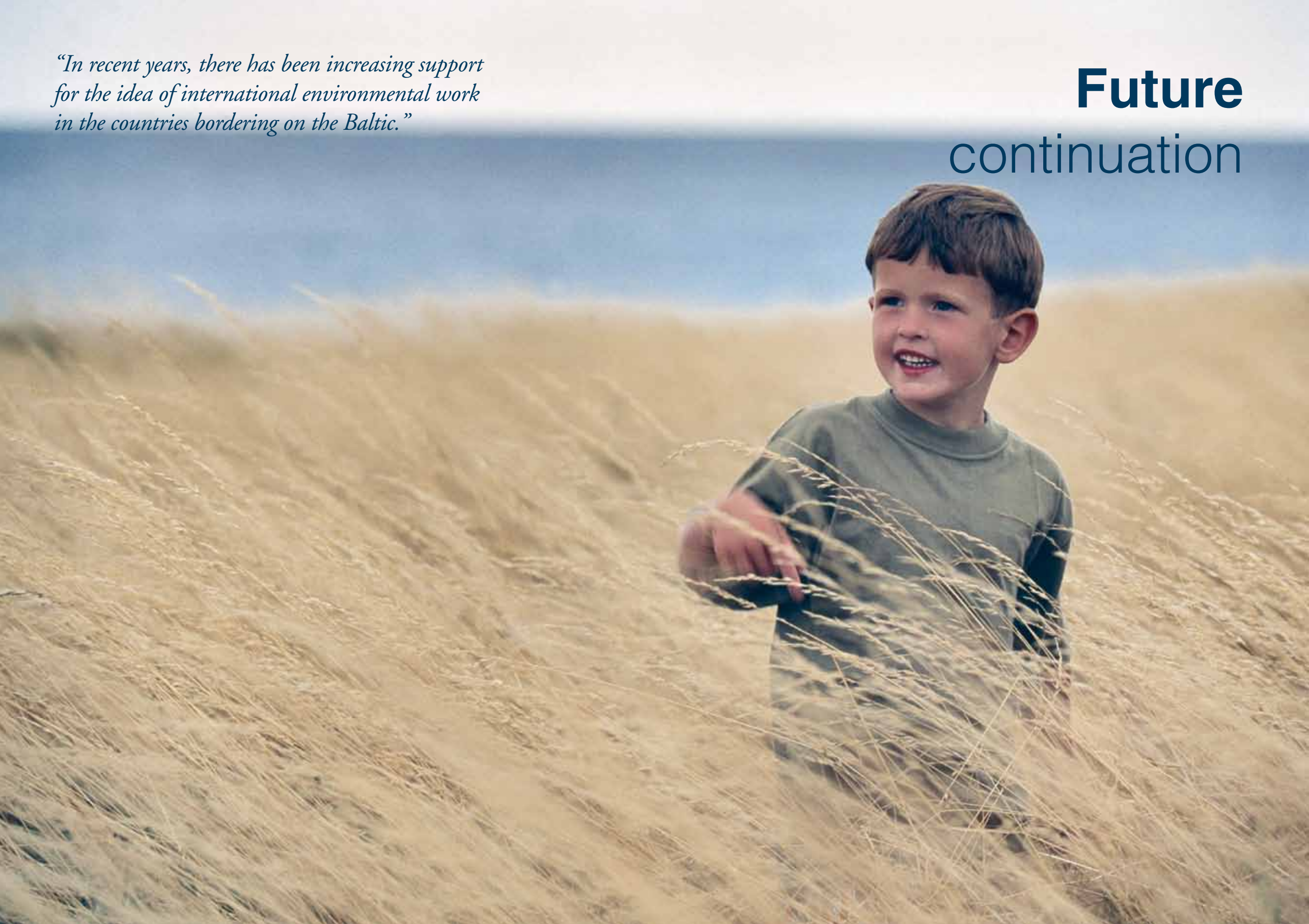
International developments

Looking ahead, there is much to suggest that advisory services are increasing, not as projects but as a part of day-to-day work. Poland has started small-scale advisory services on environmental matters. Scotland has introduced one-to-one visits to farms, and Finland proposes to make TEHO permanent as an agri-environmental payment for compiling an environmental handbook for the farm. At EU level as well ahead of the reform of the EU common agricultural policy, discussions have taken place about advisory services playing a larger and more central role. One key reason for this is that advisory services offer a flexible and farm-specific activity which allows customised solutions for individual farms.

From this perspective, Sweden and Focus on Nutrients has been a pioneer and several international delegations have visited the project to obtain more information. Focus on Nutrients has been presented at international conferences and trade fairs in the Nordic countries, the Baltic countries including Russia, and the EU. This can be described as a form of export of Swedish environmental skills within agriculture.

"In recent years, there has been increasing support for the idea of international environmental work in the countries bordering on the Baltic."

Future continuation



Future, continuation

Naturally, advisory services to farmers do not solve all the environmental problems of agriculture. But neither do the other two instruments: legislation and agri-environmental payments. On the other hand, all three together have a chance of contributing to sustainable agriculture in the long term.

The three instruments mentioned above often combine with agricultural policy and other developments in agriculture to reduce leaching of nitrogen and phosphorus. This is how it has been for most of the last 20 years. Leaching has declined considerably in recent decades both due to actual environmental measures and to the fact that agricultural production in Sweden has declined. However, in the future crop farming and livestock production may increase again, and eradicate some of the leaching reductions that have been achieved. Production may also increase in other countries around the Baltic. In recent years, there has been increasing support for the idea of international environmental work in the countries bordering on the Baltic. The fact that it takes time to affect the sea has also been pointed out. The usual way of expressing this among researchers today is that it will take several decades before there are any clear and significant signs that the health of the Baltic Sea has improved.

2013 is the final year of this programme period of the EU common agricultural policy (CAP). Before the new period begins is a suitable time to restart the discussion on how to renew Focus on Nutrients and environmental initiatives. The section on lessons learned in this brochure may be one of the starting points. Without anticipating such a discussion there are already at least four clear continued "orders" for well-functioning environmental advisory services to agriculture.

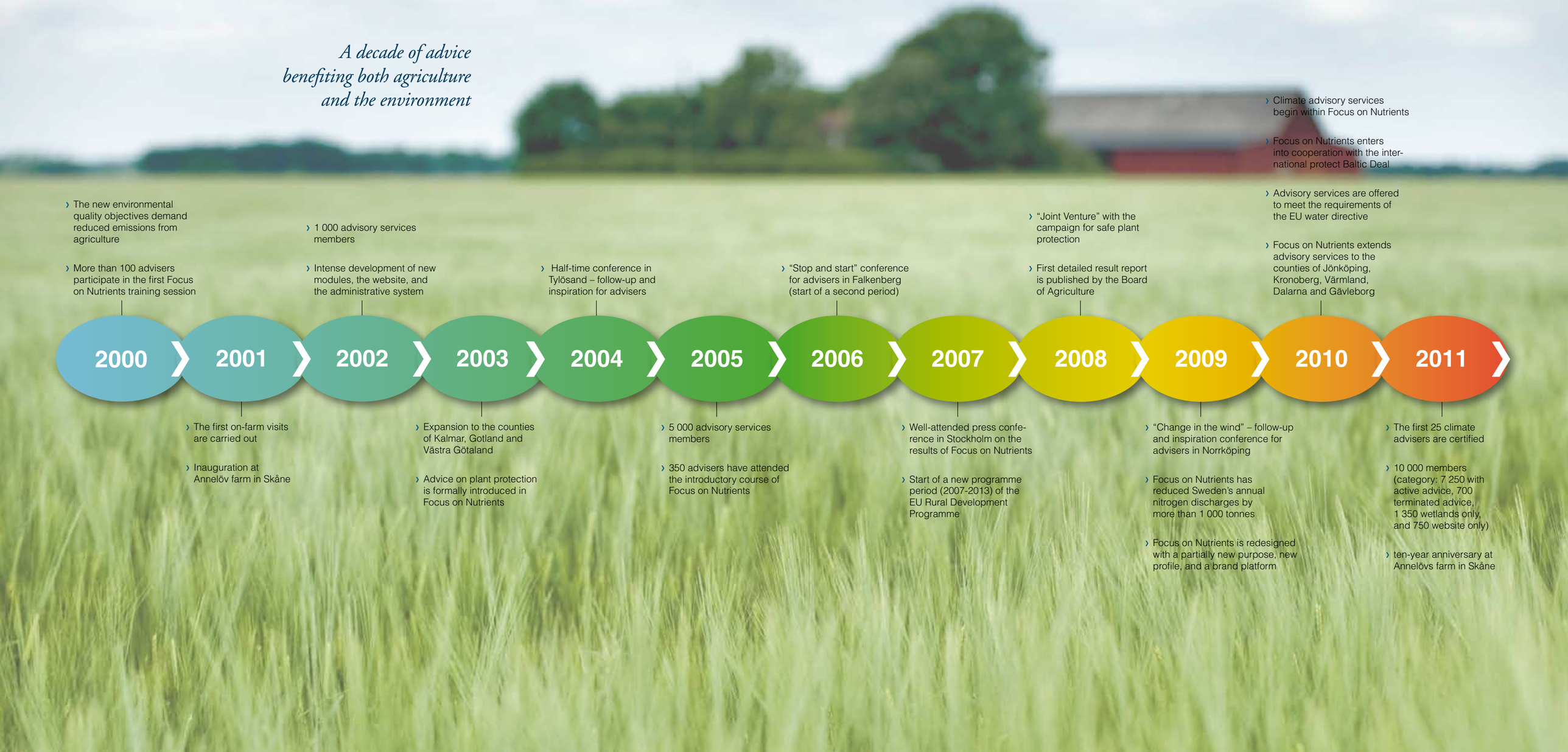
1. CLIMATE ISSUE. The first is the climate issue where activities have only just started and will grow in both content and significance. Focus on Nutrients has a clear role to play here during the period 2014 to 2020.

2. THE EU WATER DIRECTIVE. During the period 2014 to 2020 there are important dates in the water directive's timetable. The directive's requirements on good ecological status coincide with CAP's next programming period and will be natural to adapt advice on water management to meet these requirements.

3. EU DIRECTIVE ON SUSTAINABLE USE OF PESTICIDES. New and more stringent requirements on plant protection use will change everyday practices for farmers of certain crops. It will be a challenge to further reduce the risks associated with the use of plant protection products while finding alternative control strategies and preventive measures.

4. THE "USUAL" EUTROPHICATION ISSUE. Swedish environmental quality objectives and international commitments on sea environments, such as HELCOM's Baltic Sea Action Plan and the EU:s marine directive, demand further reductions in the transport of plant nutrients from agriculture to the sea.

A decade of advice benefiting both agriculture and the environment



2000

- The new environmental quality objectives demand reduced emissions from agriculture
- More than 100 advisers participate in the first Focus on Nutrients training session

2001

- The first on-farm visits are carried out
- Inauguration at Annelöv farm in Skåne

2002

- 1 000 advisory services members
- Intense development of new modules, the website, and the administrative system

2003

- Expansion to the counties of Kalmar, Gotland and Västra Götaland
- Advice on plant protection is formally introduced in Focus on Nutrients

2004

- Half-time conference in Tylösand – follow-up and inspiration for advisers

2005

- 5 000 advisory services members
- 350 advisers have attended the introductory course of Focus on Nutrients

2006

- "Stop and start" conference for advisers in Falkenberg (start of a second period)

2007

- Well-attended press conference in Stockholm on the results of Focus on Nutrients
- Start of a new programme period (2007-2013) of the EU Rural Development Programme

2008

- "Joint Venture" with the campaign for safe plant protection
- First detailed result report is published by the Board of Agriculture

2009

- "Change in the wind" – follow-up and inspiration conference for advisers in Norrköping
- Focus on Nutrients has reduced Sweden's annual nitrogen discharges by more than 1 000 tonnes
- Focus on Nutrients is redesigned with a partially new purpose, new profile, and a brand platform

2010

- Climate advisory services begin within Focus on Nutrients
- Focus on Nutrients enters into cooperation with the international protect Baltic Deal
- Advisory services are offered to meet the requirements of the EU water directive
- Focus on Nutrients extends advisory services to the counties of Jönköping, Kronoberg, Värmland, Dalarna and Gävleborg

2011

- The first 25 climate advisers are certified
- 10 000 members (category: 7 250 with active advice, 700 terminated advice, 1 350 wetlands only, and 750 website only)
- ten-year anniversary at Annelövs farm in Skåne

Focus on Nutrients has developed over the years into the extensive operation that it is today. Advisory services began in 2001 in areas where they were expected to provide the most environmental benefit – Skåne, Blekinge and Halland in southern Sweden where leaching per hectare is highest. Initially, these services focused on the nutrient balance on the farm. In due course, more advisory modules were developed for both crop production and feeding and plant protection was added as a new theme.

After a couple of years it was felt that these activities were working sufficiently well for an expansion into Kalmar, Gotland and Västra Götaland in 2003. This placed more farmers in the target group, in particular many with livestock, and meant that more advisers had to be trained. A few years later, in 2005, farmers in Mälardalen and Östergötland were invited to participate in Focus on Nutrients. This involved the Swedish plains where many farms have no livestock. The most recent expansion took place in 2010 when the climate issue was brought into the project. So today farmers in all other counties up to and including Värmland, Dalarna and Gävleborg are offered individual advice if they belong to the target group.

Focus on Nutrients is changing by introducing advisory services on climate and energy efficiency, as well as advisory services aimed at meeting the objectives in the EU water directive. The first 25 climate advisers have now been trained and certified to offer climate advice within Focus on Nutrients.

Towards the end of this ten-year period, 7 250 farmers are receiving recurrent advisory services. Some 700 have received advisory services but are no longer farmers. 1 350 have received advice about wetlands or water protection and some 750 have signed up to use calculation services on the website. This corresponds to a total participation of 10 050 farmers.

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