

FEED RATIOS ON THE EDGE OF SCIENCE

Nordic Feeding

A QUICK INSIGHT INTO NORFOR
WWW.NORFOR.INFO

Smart IT
simplifies
complex
reality

The key to
feed intake

Feed values
not fixed
anymore

Hidden treasures

Farmers dig for gold
in roughage

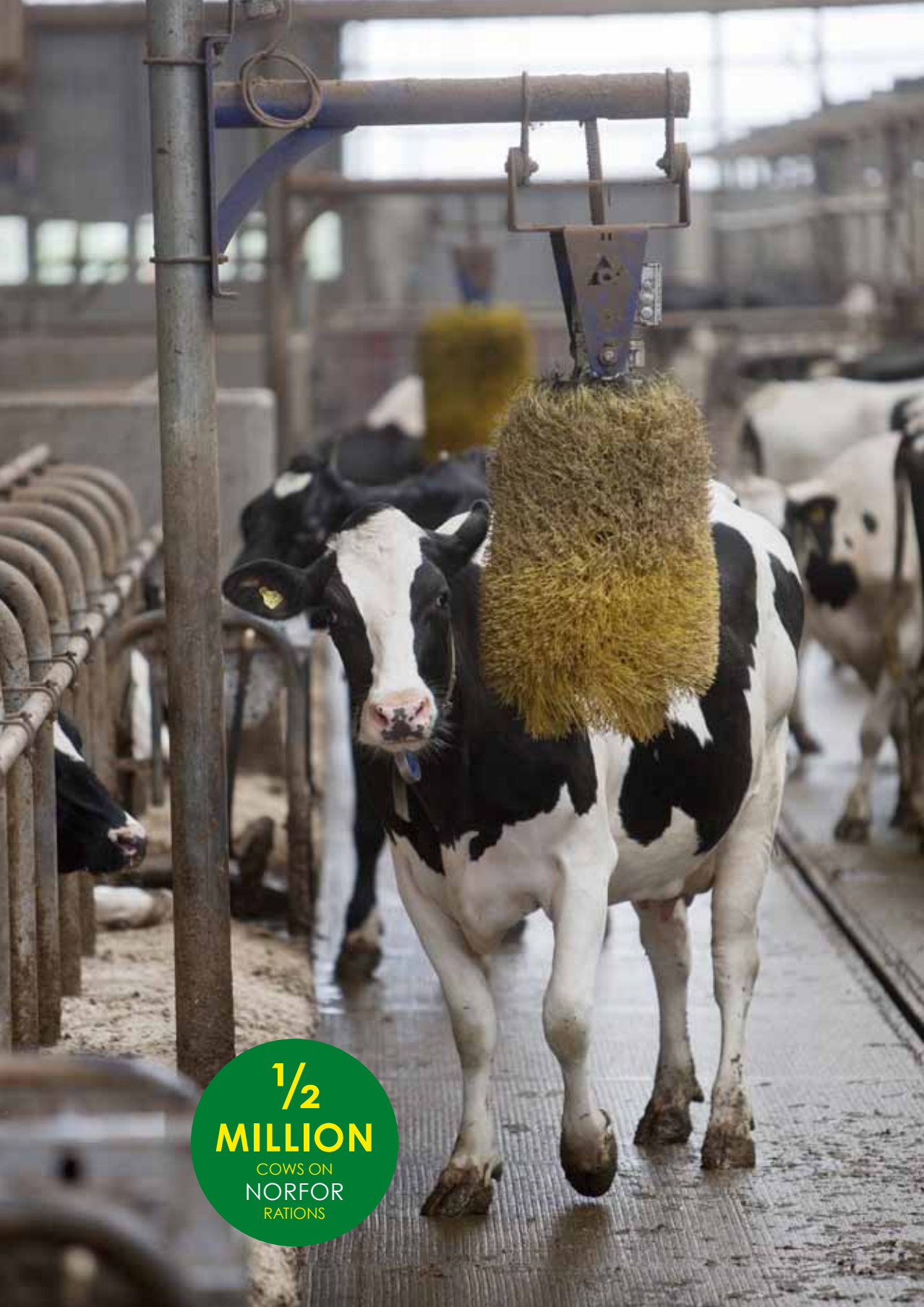
THE BENEFITS OF
NorFor
ONE SHOT

16 PAGES ON
FEEDING & RESEARCH
IN INTERACTION



NorFor

Nordic Feed Evaluation System



1/2
MILLION
COWS ON
NORFOR
RATIONS

▲ PHOTO: ANDERS NORSELL/JONSSON BILDER

THE WORLD OF NORFOR

A new way of feeding

Welcome to the world of NorFor. NorFor is a unique feed evaluation system where the latest scientific achievements are integrated with daily farm work. NorFor is based on new science about how dairy cows and growing cattle utilize the feed. This has resulted in a feed evaluation model in which the nutritional value of the feed is dynamic.

What the animal gets out of a certain feed component is not fixed. It varies with what else is included in the feed ration and with the individual animal that will consume the ration. Making this knowledge useful requires a totally new way of analyzing the feedstuffs as well as an advanced nonlinear model to calculate the feed rations.

Despite the complexity under the surface, NorFor has proven to be stable and useful on farm level. Today half a million dairy cows in Denmark, Sweden, Norway and Iceland produce milk on feed rations optimized by NorFor. The result is increased feed efficiency and reduced environmental impact.

STRENGTH THROUGH COOPERATION

The companies behind NorFor

NORFOR HAS been developed in cooperation between four nationwide farm consultant companies in Denmark, Sweden, Norway and Iceland. Thanks to these four companies, NorFor had from the very beginning an organization for running, maintaining and developing work. This ensured that the new model would not be left in a vacuum after the development phase. It is also this frame set that enables the ongoing improvement of NorFor through a close integration between the experiences in the field, and the research in the academic world. It is therefore fair to say that NorFor provides feed rations on the edge of science. The four companies that stand behind NorFor are the Knowledge Centre for Agriculture (Denmark), the Swedish Dairy Association, Tine SA (Norway) and the Farmers Association of Iceland.

NORFOR
ON THE WEB
NORFOR.INFO

HOW TO GET
IN TOUCH &
HOW TO
COOPERATE
PAGE 16

THE NORFOR
SYSTEM IS WELL
DOCUMENTED.
THE BOOK
"NORFOR –
THE NORDIC
FEED EVALUA-
TION SYSTEM"
DESCRIBES
THE SYSTEM IN
DETAIL. ORDER
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PEOPLE
IN THE HEART
OF NORFOR



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Henrik Bjarre Jakobsen got his eyes opened to rumen load. Today his cows get alfalfa.

DANISH DAIRY FARMER

Carefully guarding the rumen load

What's new to me and what I consider as the best thing about NorFor is the issue of rumen load, says Henrik Bjarre Jakobsen, Danish dairy farmer.

– NorFor carefully takes into account how the different feedstuffs work together and how they affect the rumen. This is the base for composing far better feed rations than before. Today I know exactly how much sugar and starch I can feed my cows.

BJÆRRE JAKOBSEN changed the feed evaluation system to NorFor in January 2011, as one of 35 dairy farmers in Denmark who evaluated the NorFor system in practice.

– NorFor is much better than the system we used earlier because it considers how the different feedstuffs react to one another in the rumen, says Bjarre Jakobsen.

– The rumen load index is also good because it takes in consideration that the quality of the feed varies from one year to another. The content of sugar and starch, which is tough for the rumen, varies.

HE SAYS HE always thought that a lot of grass silage is the best feed for the cows rumen, but after using NorFor he realized that grass can sometimes be a heavy diet.

– Grass silage that is harvested in the early season contains a lot of sugar which is tough for the cows bellies, says Henrik Bjarre Jakobsen.

This knowledge made him change his feed mix. Today he gives his cows less grass silage, and has started to give them alfalfa silage. The daily amount of alfalfa silage is 4 kg per cow and he also gives them 8 kilos of grass silage (you find more facts about the feed ration to the right).

– When I started giving the herd alfalfa I learned that the cows utilize the nutritional content of the feed ration better. It all works better than before, he says.

EARLIER Bjarre Jakobsen made his feed rations with his computer using a homemade spreadsheet. He thinks the NorFor feed planning tool is easy to overview and he says that the consultant services have been working well. He still makes his feed rations on his own, only picking up the phone to call the consultant when necessary.

– The change has not been difficult, he says.

Bjarre Jakobsen runs a feeding control every second week.



NAME: Henrik Bjarre Jakobsen
NUMBER OF DAIRY COWS: 300
BREED: Danish Holstein
AVERAGE MILK YIELD: 11 500 ECM/cow/year

FEED RATION:
 (cow/day)
Grass silage: 8 kg
Maize silage: 25 kg
Alfalfa silage: 4 kg
Soya: 1,6 kg
Rapeseed cake: 3,2 kg
Wheat (or barley): 2,5 kg
Sugar beet pulp, molassed: 1,7 kg

MILKING SYSTEM: Herring bone parlour with 16 stalls.

– The NorFor ration formulation is more detailed than the previous feed ration, and it is easy to check how the herd performs compared to my goals.

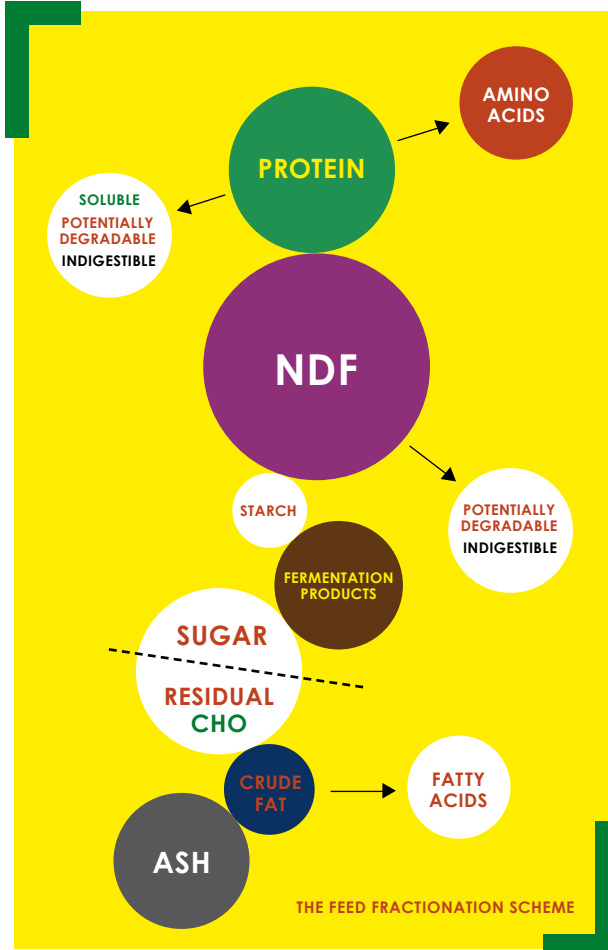
How high is the milk yield related to your goals, what percentage of the energy in the feed have the cows been utilizing, and how much do you have left when the feed cost is subtracted from the dairy bill, are examples of herd goals that Henrik Bjarre Jakobsen points out.

Henrik Bjarre Jakobsen runs a dairy farm 30 km west of Herning at the Danish west coast.

RUMEN LOAD KNOWLEDGE
 – The knowledge about how different feedstuffs work together and how they affect the rumen, that's the best thing about NorFor, says Henrik Bjarre Jakobsen.



PHOTO: MERETE MARTIN JENSEN/WIDENCENTRET FOR LANDBRUG KVÆG



NUTRITIONAL VALUES ARE MOVING TARGETS

Feed's not just feed

The whole idea of the NorFor model is to imitate what happens with the feed inside the cow. This process is affected by a wide range of factors, both in the cow itself and in the feedstuff. Therefore it is very important to analyze the feed to determine its chemical and physical properties.

TRADITIONALLY, feedstuffs have been assigned for fixed values of energy and protein. With the NorFor model more precise information about the nutrient content and degradation characteristics of the feedstuffs is essential. In addition to the common analyses crude protein, NDF, starch and ash, some new variables are added such as soluble protein, indigestible NDF and fermentation products. These data are important when evaluating the potential of the feed ration. What the cow finally gets out of the feed

ration depends on many factors, since the metabolism of ruminants is very complex. NorFor has created a huge reference feedstuff base, reflecting the most commonly used feedstuffs on farms in the Nordic countries. The reference feedstuff base can be used by commercial labs to calibrate their NIR-equipment, to enable them to offer quick and cheap analyses for their customers.

In addition, NorFor has a list of recommended methods for feed analysis and is also regularly initiating blind tests to ensure a high quality of the feed analyses. When a commercial feed laboratory has analyzed a feedstuff, they need to process their analytical results through a NorFor application on the NorFor server.

The application calculates the final values to be delivered to the customer. This concept makes sure that all feed characteristics are calculated exactly the same way and always by an updated software version.

NORFOR ALSO CONTAINS an extensive public feed table, including not only roughage and other homegrown feedstuffs, but also most of the commercial feed products on the market. This means that the NorFor model offers a choice between many competing feed products from different companies when looking for the cheapest possible feed rations on farm level.

To be able to set the feedtable up, NorFor has a close cooperation with the feed companies in the NorFor area. If companies from countries outside the Nordic region in the future want to join NorFor, the feedstuff base and the framework for handling feed analyses will make a very good starting point. It will always be necessary to add local feedstuffs for the region in question, but a lot of the basal work has already been done.

Detailed recommendations. NorFor provides a list of recommended methods for feed analysis according to the NorFor system. Learn more on www.norfor.info.



GOOD IS MORE
Cows can eat larger amounts of high quality roughage than previously believed.

GETTING THE MOST OUT OF THE FARMS OWN FEED

NORFOR
ON THE WEB
NORFOR.INFO

No waste of feed or milk

Strong evidence for predicting intake

One main purpose of the NorFor model is to enable the farmer to maximize the use of feedstuffs that he or she produces on the farm. In the Nordic countries roughage is fundamental in the feed rations and the more a farmer can utilize the nutritional content of the roughage, the less concentrate needs to be purchased.

This is nothing new in itself of course, but with NorFor the precision in predicting how much and what feed the animal is able and needs to eat to hit the optimum

level, is far better than with the previously used static feed evaluation models. Knowing the characteristics of the roughage and the relevant facts about the cow, it is now possible to find the exact amount of concentrate feed that is needed to maximize milk yield. This prevents both underfeeding and overfeeding with concentrate.

NorFor has strong scientific proofs for making better predictions of the cow's consumption and utilization of feed than older static models.

GUARDING THE LEVEL OF STARCH AND SUGAR

Don't overload the rumen

Low pH kills important bacteria

To get hold of the good in the fiber fraction of the feed the cow depends on microbial activity in the rumen. This activity is affected by the feed ration. Too much sugar or starch decreases the pH in the rumen, which negatively affects NDF breakdown by the microbes. A rumen load index is included in NorFor to keep the starch and sugar content of the feed ration on a healthy level.

SPACE IN THE RUMEN?
WATCH OUT FOR ENERGY
THEY GET CHEATED BY THE BRAIN

The secret of a cow's appetite

To be able to compose top class feed rations it is very important to understand how the nutrient content of the feed is utilized by the cow. However, it is even more important to predict the total amount of a specific feed ration that the cow is willing and able to consume.

This amount is determined by facts about the cow such as body weight, lactation stage, etc and by what is included in the feed ration.

The rumen of the cow has a maximum space to be filled up with feed. Therefore it is important to know how different feedstuffs contribute to the filling. For example, high-fiber feedstuffs fill the rumen more per kilogram of dry matter than feeds with lower fiber content.

However, it is also known that cows in many cases stop eating before their rumen is full. This is because of metabolic regulation, which can make the cow feel like she has had enough, before the rumen is full. To regulate these reflexes it is important to measure and control the energy supply from the feed. If it contains more energy than the animal needs, it might limit how much of the feed ration the cow is willing to consume.

When NorFor predicts the voluntary feed intake of a cow, both the physical and the metabolic factors are taken into account. This is unique and very important. How much the cow is able and willing to eat has a great effect on how much milk she will produce.



PHOTO: BERT METLID/PUBLISHING FARM

BREED
NORWEGIAN
RED CATTLE
NRF

9 500
KG ECM
PER COW
PER YEAR

EARLY
ADOPTERS
NORWAY WAS
THE FIRST COUNTRY
TO INTRODUCE
NORFOR
IN FULL SCALE

85
DAIRY COWS
IN THE
COWSHED

**SKODJE SAMDRIFT,
NORWAY:**
PARTLY MIXED RATION
GRASS SILAGE 42 KG/COW
STRAW 0,5 KG/COW
CONCENTRATE 4 KG
RUMEN PROTECTIVE FAT 200 G.
IN ADDITION:
CONCENTRATE IN THE
AMS BOXES

NORFOR IN PRACTICE
Petter Arne Ekroll, left, is the
manager of Skodje Samdrift.
Colleague Halvar Skodje, right.

NORWEGIAN DAIRY FARMERS

NorFor is a valuable tool

A new vocabulary. A new way of thinking.

Think that NorFor is a useful tool, says Petter Arne Ekroll, Norwegian dairy farmer.

– It is easy to analyze whether the feeding gives the expected response. If we notice something unexpected in any of the groups, the system helps us to understand what has happened.

Ekroll is one of five farmers running the dairy unit Skodje Samdrift. When establishing the unit of 85 cows in October 2010, they were already familiar with the NorFor system. Peter Arne Ekroll did not find the system difficult.

– It took a while to get used to the new vocabulary and the new way of thinking.

They use professional consultants from the TINE dairy cooperative. They optimize the mixed rations based on feed analyses of the nutritional content of the silage.

– The mixed ration, which the consultant puts together, works well. What we then do is to continuously check milk yield and milk contents, and watch the body weight of the cows. It certainly feels easy once the accurate feed mix is obtained, says Ekroll.

At Skodje, the silage is stored in round bales which makes it easy to control the different qualities of the roughage. With that control they can make the same mix all through the year and use the same type of concentrate to match the silage. Petter Arne Ekroll thinks it is easier to get this right with round bales than with a silage tower.

Petter Arne Ekroll is the manager of the dairy unit Skodje Samdrift 35 km east of Ålesund at the Norwegian west coast.

PHOTO: SESSELJA BIGSETH/NORSK LANDBRUK



PROFIT AND BIOLOGY HAND BY HAND IN NORFOR

Reaches the goals at minimal cost

Exploring so many more feed rations

Most people want to reach their goals at the lowest cost and dairy farmers are no exception. Traditionally the tools for feed planning on dairy farms start by composing a few feed rations based on fixed nutritional values for different feedstuffs. After that, these different feed rations are compared regarding to their feed cost. Unfortunately, this method leaves a huge number of possible feed rations unexplored. As the calculation leaves out a great deal of information on how the

cows will utilize the feed, rations calculated this way can also include alternatives that very well might result in lower milk production. In NorFor, calculation of a feed ration is done under the restriction of lowest possible cost combined with very high requests on the feed ration to deliver a maximum milk yield. NorFor offers a feed ration that much more precisely corresponds to the nutritional need of the cow or group of cows, and at the same time is composed by the cheapest feed components available.

OPTIMIZATIONS ARE CUSTOMIZED

Constraints narrow the field

Varies from farm to farm

Optimizations are always made within constraints. Ranges can be set up for how much of a certain nutrient that can be included and how much of a certain feedstuff that is available. In a practical situation the most obvious constraint is the amount of homegrown feed. This is a resource that the farmer wants to use, but it cannot be included in larger quantities than are available.

EASY TO USE
NO COMPLEXITY LOST
COMPUTERS DO MASSIVE WORK

Nonlinear model makes the menu

The ambition of NorFor is to describe feed utilization inside the cow mathematically. This is very complicated in itself. Adding a demand to the system to investigate all possible feed rations from a given set of feedstuffs available on the farm and point out the cheapest one that fulfils the production goals, makes it a real challenge.

The solution to meet this challenge was to let two modules calculate input to an optimization unit. One module is used to evaluate feed rations and predict the production response. The other module, the one-day feeding control, calculates the herd feed efficiency for a specific period.

Finally the optimization unit produces a feed ration that meets all the nutritional requirements. This optimization unit is a package of software and algorithms developed by researchers at Stanford University and at the University of California, specialized at solving large-scale optimization problems (linear and nonlinear).

To calculate feed rations this way on a daily basis is unique. It is very complicated to build these models, and it takes a lot of resources to maintain and develop them.

One of the strengths of NorFor is the combination of complicated behind-the-scene functions, and the relatively easy-to-use interface that meets the farmers and advisors.



A TOOL FOR
SUSTAINABLE
AGRICULTURE

ENVIRONMENTAL TOOL
NorFor can analyze
the nitrogen flow in
milk production.

CHASES NITROGEN AND PHOSPHORUS

Efficiency for life

Dairy production and beef production are two sectors of agriculture that in recent years have been questioned from an environmental point of view. One of the main issues has been their contribution to anthropogenic emission of greenhouse gases.

IN THIS PERSPECTIVE NORFOR has already contributed in making the dairy production in Denmark, Sweden, Norway and Iceland more resource efficient. In Sweden there are lots of examples of how dairy herds have been able to reduce the use of protein feed without any effect on the produced amount of milk. This reduction has advantages in many aspects. One is that the amount of uncontrolled nitrogen has been reduced, which is positive in a micro as well as a

macro perspective. Moreover, it is generally positive when resources are used more efficiently. In this case the need of imported protein to the Nordic countries has been reduced. On farm level, feed cost can be reduced by using less purchased protein feed.

TO MINIMIZE the emission of greenhouse gases it is important to increase nitrogen efficiency within the animal. NorFor can predict the output of nitrogen for a given diet and production level. The system calculates the amount of nitrogen that will be excreted in milk, weight gain, manure and urine respectively. Thus, NorFor can be used as a tool to evaluate the environmental impact of different

diets and can also be used to optimize the utilization of nitrogen in milk production. In addition to that, NorFor can also be used as a tool to lower the emissions of methane. The NorFor model includes a function that predicts methane emission from lactating cows and dry cows. It is therefore possible to investigate how changes in feed rations can contribute to lower those emissions. This part of NorFor is quite new and is not fully implemented yet.

ANOTHER FIELD where NorFor may have an environmental implication is in controlling the phosphorus cycles of dairy and beef production. If the feed ration to a dairy cow or a growing cattle contains more phosphorus than the animal needs, the extra phosphorus ends up in the manure. Overfeeding of phosphorus has no advantages. On the contrary it is expensive, it may have negative environmental effects locally and regionally and it is a waste of limited global resources. As NorFor can predict the utilization and excretion of phosphorus it can be used as a tool to minimize overfeeding of phosphorus.

By the way. Cattle are normally fed more potassium than they require. NorFor can also be used to evaluate the potassium utilization and excretion in dairy cows.

▼ ISTOCKPHOTO



IT STRUCTURE ENSURES RELIABILITY

Freedom within a uniform framework

Computers bring science to the farm

Building a system like NorFor is challenging in many ways. One major challenge is to set up an IT structure that is robust and efficient. The NorFor IT platform is the technical solution that makes the latest scientific progress in dairy cow nutrition available on farm level.

An important objective when planning the IT structure was to make sure that everybody involved worked with the latest version of the system. As a result all NorFor users today access the same server. However, it was also essential to

make it possible for each country to develop unique herd management clients so that these could be integrated with existing tools, national cow recording systems and traditions. Therefore two IT platforms were created. One is a web-based client that is accessed and used online. The other is built as an off-line client that is synchronized with the NorFor server before starting the ration formulation. Denmark, Norway and Iceland use the web-based client while Sweden uses the off-line solution.

GET WHAT YOU EXPECT?

Predictions hit the target

Monitor herd performance

NorFor also contains a module that predicts the amount of milk that can be expected based on facts about the cow and the feedstuffs included in the feed ration. Since the feed evaluation corresponds closely to how the cow actually utilizes the feed, the prediction of milk yield becomes very precise. This is important in monitoring if the cows give the expected response.

EXTENSIVE NETWORK

Collecting data here and there

The NorFor server has a back office part and a web interface for users and administrators who need to report or get information. The feed laboratories report their results through the web interface. The results are stored and available for the farmer to use when optimizing feed rations. The feed industry uses the web interface to report details about their commercial compound feeds, including prices. The national client software reports facts about the herds that are using NorFor.

The back office part of NorFor contains four different modules. These modules calculate feed values and houses an extensive feedstuff table, including both farm-specific feedstuffs and commercial feedstuffs. The modules also calculate and optimize feed rations and measure the feed efficiency in the herds using NorFor.

A TOOL FOR SCIENCE
NORFOR IS USED IN EDUCATION & RESEARCH

”With NorFor we get input to research and our results reach out faster.”

PETER UDÉN
ASSOCIATE PROFESSOR
IN RUMINANT NUTRITION
SWEDISH UNIVERSITY
OF AGRICULTURAL SCIENCES

▲ PHOTO: BERIT METLID/PUBLISHING FARM

Emil Persson has seen with his own eyes how much silage his cows can consume.

SWEDISH DAIRY FARMER

Heading forward with roughage

Four years ago the feeding strategy at Komstagården in the south of Sweden was thoroughly revised. The farm, which is run by Eva and Roland Persson together with their son Emil Persson, started to use NorFor. The system was introduced to the farm by Eva-Maria Lidström, a far-sighted dairy consultant in the region.

When the feed rations had been recalculated with NorFor, the cows started to eat more silage. The roughage content in the feed rations increased by nine per cent and the need for concentrate was lowered accordingly.

For Komstagården this meant that they got the same amount of milk, but at much lower cost. At the time they had 200 cows and the cost for commercial feedstuffs was reduced with almost 20 000 dollars per year.

EVA-MARIA LIDSTRÖM remembers that it was mainly in the later part of the lactation that they were able to decrease the amount of concentrate in the feed rations. She also recalls that the cows suddenly consumed in average two kg dry matter of silage more than what was possible according to the old feeding standards. At the same time the fertility was unchanged and no other changes in animal welfare were observed.

Since then a lot has happened on the farm. In the beginning of 2009 the dairy production moved in to a new barn with four AMS-boxes

and capacity for 280 milking cows. The farmers at Komstagården have continued to develop the feeding and are now using a partly mixed ration for all lactating cows. This mixture is composed for 27 kilo ECM per cow per day. In addition, the cows are fed concentrate individually in the AMS-boxes. The maximum amount of concentrate is five kg per day for the highest yielding cows.

SINCE NORFOR was introduced at the farm a lot more attention has been put to the cow's ability to eat roughage. Roughage is produced on the farm and if it can be used efficiently a lot is gained.

– I have seen that this strategy works, says Emil Persson.

He is convinced that they are able to reach an annual milk production of 11 500 kg ECM.

– But we will not increase the amount of concentrate in the feed rations. We will increase the roughage instead. The cows can eat more roughage if they produce more milk.

Emil is also aware of the importance of introducing this roughage strategy already when growing the heifers. The heifers need to develop their rumens early, so that they get a good capacity to house large amounts of silage when they are older.



EARLY NORFOR ADOPTERS AMONG THE FIRST IN SWEDEN MILK YIELD RISES CONTINUOUSLY

NAMES: Eva and Roland Persson and Emil Persson
NUMBER OF DAIRY COWS: 285
BREED: Swedish Holstein
AVERAGE MILK YIELD: 10 800 kg ECM/cow/year

FEED RATION: (kg feed/cow/day/27 kg ECM)
Grass/clover/alfalfa silage: 16 kg
Pressed beet pulp: 13 kg
Maize silage: 17 kg
Barley straw: 0,3 kg
Minerals: 0,1 kg
Concentrate: 3,5 kg
Extra concentrate to the highest yielding cows in the AMS boxes.

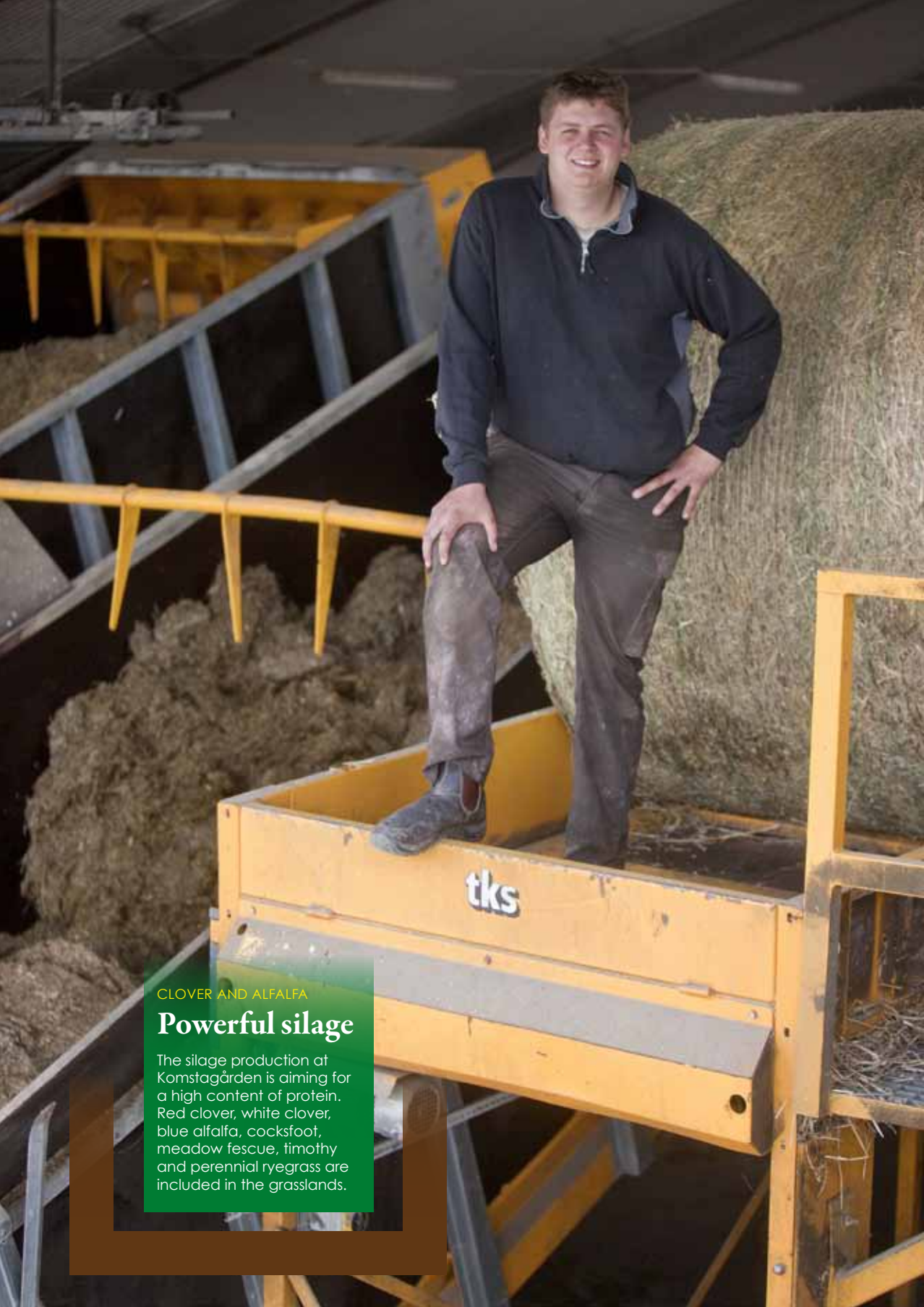
MILKING SYSTEM: Four AMS boxes that soon will be five as a result of high production per cow which limit how many cows that can be milked by each AMS box. The number of cows will be around 330 when the fifth AMS-box is installed.

Emil Persson runs a dairy cow farm together with his parents 86 kilometers east of Malmö in the south of Sweden.



CLOVER AND ALFALFA
Powerful silage

The silage production at Komstagården is aiming for a high content of protein. Red clover, white clover, blue alfalfa, cocksfoot, meadow fescue, timothy and perennial ryegrass are included in the grasslands.



▼ BERIT METLID/PUBLISHING FARM

▲ PHOTOS: ANDERS NORSELL/ JÖNSSON BILDER

Field and science on speaking terms

Development by dialogue

Dairy farmers and their consultants have a strong voice in NorFor. But they are not always right.



A GOOD TALK
Experiences in the field gives important input to the development of NorFor

A STRONG TOOL

Consultants sell better advice

Ann-Theres Persson is a consultant for dairy farmers at the company Växa in the south of Sweden. She thinks that the introduction of NorFor has made a great difference in dairy production.

– Those of my clients that produce high quality roughage get a lot more out of it. They certainly can buy less concentrate with no effect on the production level of the cows. Before we got NorFor we didn't dare to recommend those large quantities of roughage in the feed rations, but now we do.

The economic optimization also makes it easy to make a fair comparison of commercial feedstuffs from different feed companies. – This service is highly appreciated among the farmers, says Ann-Theres Persson.



“Many of my clients have increased their profit with NorFor”

ANN-THERES PERSSON
DAIRY FARM CONSULTANT

One of the most interesting parts of NorFor is the close cooperation between the scientific world, farmers and farm consultants. It may not be unique with a close cooperation as such, but doing it within the framework of an extensive new feed evaluation system linked to farm management tools is as rare as it is exciting.

THE CLOSE collaboration results in consultants and farmers being able to point out the most wanted services to be added to the system. One example is the demand for a function in NorFor that calculates the need for protein and energy related to the growth of dairy cows

in their first lactation. This issue was picked up by the developers and is now applied in NorFor.

SOMETIMES the results of NorFor calculations are questioned by people in the dairy business. In the beginning many of the consultants felt that the consumption capacity of high yielding cows was overestimated by NorFor. In this case NorFor proved to be right which over time led to a new insight among farmers and consultants. Dairy cows can consume a lot more roughage than most people involved in dairy production had previously believed, if the rations are carefully composed.



NORFOR USER
Betzy Marie Davíðsson is a dairy farmer in Iceland.

ICELANDIC DAIRY FARMER

Feeding gets more exciting

Higher yield, better business

Baldur Sveinsson and Betzy Marie Davíðsson started using NorFor three years ago. At this time it was still an experimental project in Icelandic dairy production. In their work with NorFor they have a very close cooperation with their farm consultant.

– Our consultant chooses a concentrate based on the quality of the roughage that we have, says Betzy Davíðsson.

NORFOR PLAYS a very important role when it comes to choosing concentrate. Baldur and Betzy think they feed a little bit more concentrate than they did before using NorFor. On the other hand the milk yield has increased which

makes it an altogether good business. Today they feed concentrate five times a day.

One of the biggest changes that came with NorFor is that they are more focused and interested in feeding issues now. There is no doubt they will continue using NorFor.

– As long as we have access to a good consultant that helps us with the feed rations we will continue with NorFor. It is important for us to be able to discuss NorFor feed matters with our consultant, says Baldur Sveinsson.

Betzy Marie Davíðsson and Baldur Sveinsson are dairy farmers 50 kilometers east of Reykjavik on the southern part of Iceland.

ICELAND
LITLA ÁRMÓT FARM
FEED RATION
GRASS SILAGE 9 KG DM/COW
BARLEY 2.5 KG DM/COW
CONCENTRATE 3 KG
NUMBER OF DAIRY COWS: 32
BREED: ICELANDIC

REGULAR MEETINGS
INTELLECTUAL FREEDOM
UNIVERSITIES CLOSELY INVOLVED

Workshops for progress

NorFor regularly organizes workshops with researchers and farm consultants in order to have an ongoing dialogue about how to improve the system. Once a year, twenty farm consultants meet with NorFor representatives to give their latest impressions on how the NorFor model is doing in the daily work with the clients' herds.

Two times a year NorFor representatives meet with researchers in feed nutrition from universities in the Nordic countries.

This forum is called the NorFor Scientific Advisory Group. During these workshops the researchers inform about their latest research projects and discuss if any of the results can be used to develop the NorFor model. At the same occasion the NorFor representatives talk about their thoughts and needs as a result of the work and development of NorFor, giving inspiration and ideas to the scientists. These forums both help keep the NorFor model as close as possible to the edge of science.

NORDIC FEEDING

A quick insight into Norfor
June 2012

Published by: NorFor F.M.B.A.
Managing Director: Hans Lindberg
Information Officer: Marie Liljeholm

Editor: Niclas Åkeson/Publishing farm
Art Director: Berit Metlid/Publishing farm
Produced by: Publishing farm
Printed by: Printfabriken
Cover photo: Berit Metlid

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Unique interface in each country

EACH COUNTRY that uses NorFor has their own farm management software and hence their own interface. In Denmark, Norway and Iceland, the farm management systems are working online towards the NorFor servers. The Norwegian and Icelandic software is called *TINE OptiFôr* and in Denmark it is called *DMS (Dairy Management System)*.

The Swedish system *Individram* is a local PC software that is regularly synchronized with the NorFor server. For more information on how NorFor is implemented in the different countries, contact the national client managers below.

CEO HANS LINDBERG ON THE FUTURE OF NORFOR

"The system is up – what's next?"



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EVER SINCE we started to develop NorFor back in 2002 we have focused on getting the system to work properly. Today it's up and running. We continue to develop NorFor and we have a lot of exciting improvements coming up. But we also discuss our strategic goals. Is it beneficial for us to grow outside the Nordic countries? Would it be interesting for others to join in? In any case we are always keen to cooperate with dedicated people. If you are a scientist, a farm consultant or anyone else with an interest in dairy cow and cattle feeding, don't hesitate to contact us.

It might be of mutual benefit.

Best regards,

Hans Lindberg

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The complete academic coverage of NorFor

Do you want to know all the details of NorFor?

In the book "*NorFor – The Nordic feed evaluation system*" NorFor is described in depth. The book is published by EAAP (European Federation of Animal Science) scientific series no. 130. It can be ordered from Wageningen Academic Publishers (ISBN 978-90-8686-162-0).

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