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4-2011 >>>



genoBULLETin



» CONTENT 4/2011

- 3 Two main breeding strategies for future dairy farmers
- 4 100 ton milker
- 5 Low sales of antimicrobial agents in Norway
- 6 On the track of cows with Norwegian descent
- 9 Safer with supplementary regulations
- 10 The crossbreeding experience in Italy

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A proud young girl showing her Norwegian Red calf at Agrisjå 2011 (Norwegian Farm Show).
Photo: Mari Bjørke

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Two main breeding strategies for future dairy farmers

Crossbreeding is gaining momentum in the dairy sector worldwide. Complimentarity using more breeds has been a part of the agriculture sector for decades – pig and poultry industry and seed stock and we now see it in our business as well.

To make it simple, based on a big number of scientific studies, many thousands of cows, the dairy producer has two main breeding scenarios:

Pedigree breeding – This is the way to go if the sales of genetic material (livestock, embryos etc) is what is bringing the highest income to the farm (paying the bills).

Crossbreeding – using the best breeds available in a crossing system in order to have the best commercial cow. This is the way to go for the farmers where the highest net profit per liter of milk is the target. Lower cost of production because of improved the fertility, disease resistance, calving ease and longevity in the dairy herd. More free time due to trouble free cows is also the result of dairy crossbreeding. Truly: Breeding for Better Lives!

We know crossbreeding is working all over the world, all climates and all conditions. A well designed crossbreeding program will produce cows that are more profitable and easier to manage then purebreds in most her circumstances. Being a commercial dairy producer we believe you should consider this option. The Geno Global team and our partners worldwide, will be very happy help set up crossbreeding system on your farm.

Wishing you all the best for the festival season and a prosperous new dairy year !

Tor Arne Sletmoen
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Holstein x Norwegian Red (NRF) daughter after NRF sire Braut in Holland. Photo: Elly Geverink

100-TON MILKER



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100 ton milker

➤ heading towards the Norwegian record with calving interval of 12.1 months

➤ Norwegian Red cow Dikka was born on December 21, 1998. Her father was NRF bull 4570 Gjønnes and her mother was the daughter of 4075 I. Torland. Her mother ended up with a lifetime production of 106 tons, while her maternal granddam was also a strong cow that produced more than 70 tons. The goal for Dikka is to beat the Norwegian record, something that is definitely within reach.

Dikka lives in the middle of Norway on Flittie Farm in Lesja, Oppland. Here there are 75 cows milked by a robot. The average yield for the herd is slightly more than 9000 kg.

This is what owner Ole Bjørner Flittie has to say about his super cow:

Dikka has been an incredibly strong cow, who's been an institution on the farm for many years. Her average of 11000 liters during 11 lactations and calving interval of 12.1 months speak for themselves. Dikka has always been the boss. When she goes to the milking robot, the other cows move aside. It's clear that she holds their respect. Dikka has also been extremely adaptable, and has functioned with three different operating systems. She lived in a tie stall until December 2007,

and then was milked in a dairy stall on a cooperative pasture in the summer. After that, she became used to a robotic milking system. The first day we had the robot was really interesting. The cows were driven to the barn the evening before, and in the morning there she stood, right next to the robot. She understood that this was where she'd be milked, and she milked 25 liters that very first time. Dikka's best year was 2009, when she produced 13035 liters and produced as much as 60 kg on a daily basis.

Dikka has an amazing exterior, considering her high production throughout the years. Really nice topline and strong legs. She also has an especially good rear udder. It's a pleasure to have such a well-functioning cow on the farm, and I hope that we'll be able to keep her for many more years. Her health has been good. She's expecting her 12th calf on January 25th, and we're naturally hoping for a heifer calf with 22017 V Föske, who we think is a good match for her.

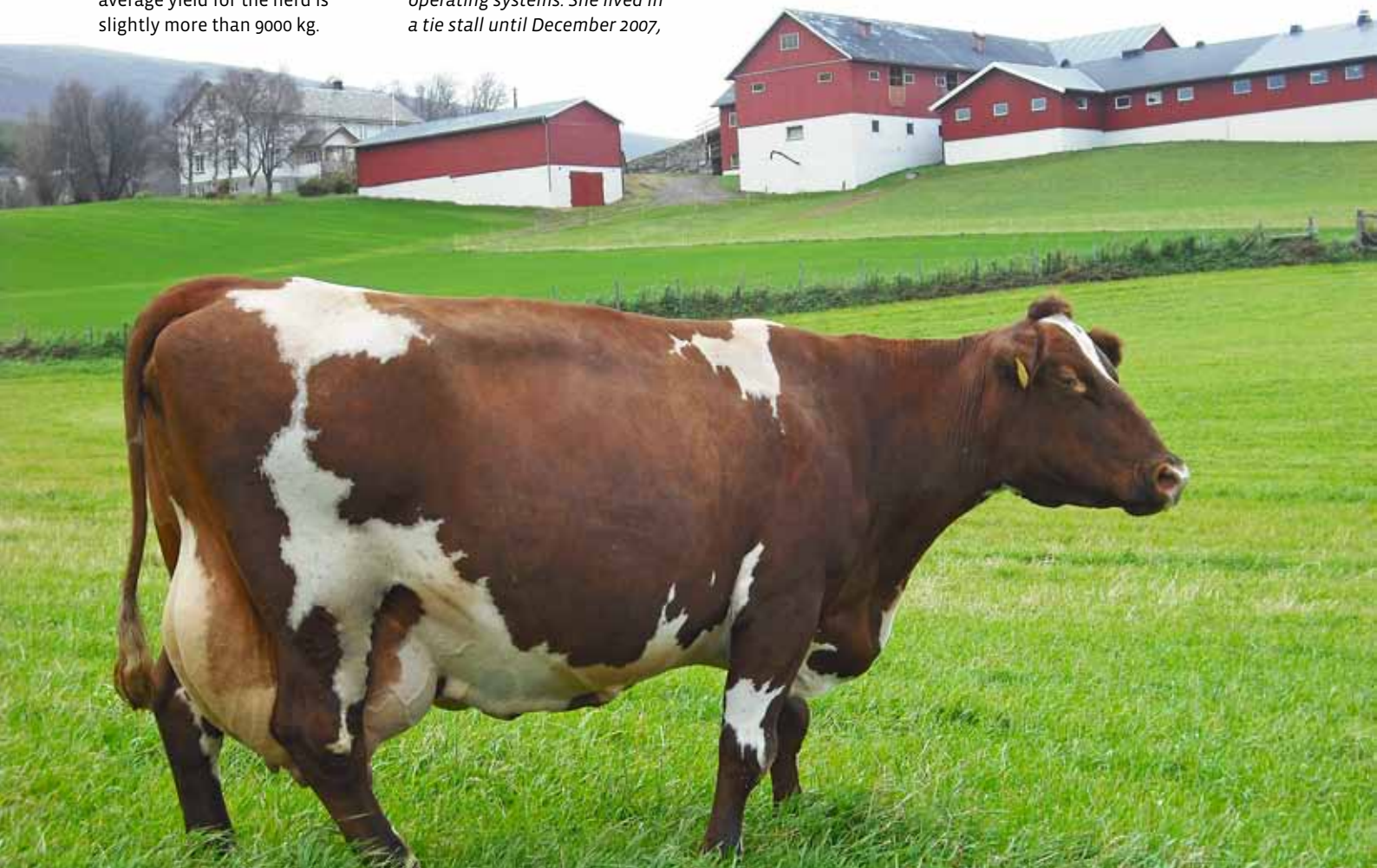


Photo of Dikka, taken a month before she was dried off. Her exterior is impressive after an average of 11000 liters in 11 lactations.

» Norway has had a substantial reduction in use of antibacterial treatments in cows in the last two decades.

Low sales of antimicrobial agents in Norway

Arne Ola Refsdal
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Veterinarian Geno

An agency of the European Union, European Medicines Agency, has analyzed trends in the sales of veterinary antimicrobial agents in nine European countries that had surveillance programs over several years. The following countries participated in the study: Czech Republic, Denmark, France, Finland, Netherlands, Norway, Sweden, Switzerland and United Kingdom. The study, covering the period 2005–2009, comprised cattle, pigs, poultry, sheep, goats and horses and shows a twelve fold increase in use of antimicrobial drugs during that period in the country with the highest sale. Norway had the lowest sales of veterinary antimicrobial drugs normalized by a population cor-

rection unit (CPU). Pure penicillins account for approximately 50 % of the preparations used in Norway.

In Norway, cattle account for more than 50% of the species included in the study. This means that a reduction of treatments in cattle will have a significant effect on the total use of antimicrobial agents. According to the Norwegian Health Card statistics for cattle, there has been a substantial reduction in veterinary treatments, and especially mastitis treatments, during the last two decades. Partly this is due to a successful campaign on prudent use of antimicrobial agents that was conducted in the second part of 1990 by the Norwegian hus-

bandry organizations and the Norwegian Medicines Agency. However, more than 30 years including health and fertility in the breeding program of the Norwegian Red Breed (NRF) also has contributed substantially to this favorable trend.

The study shows that the use of antimicrobial agents in Norway is very low and even has a small

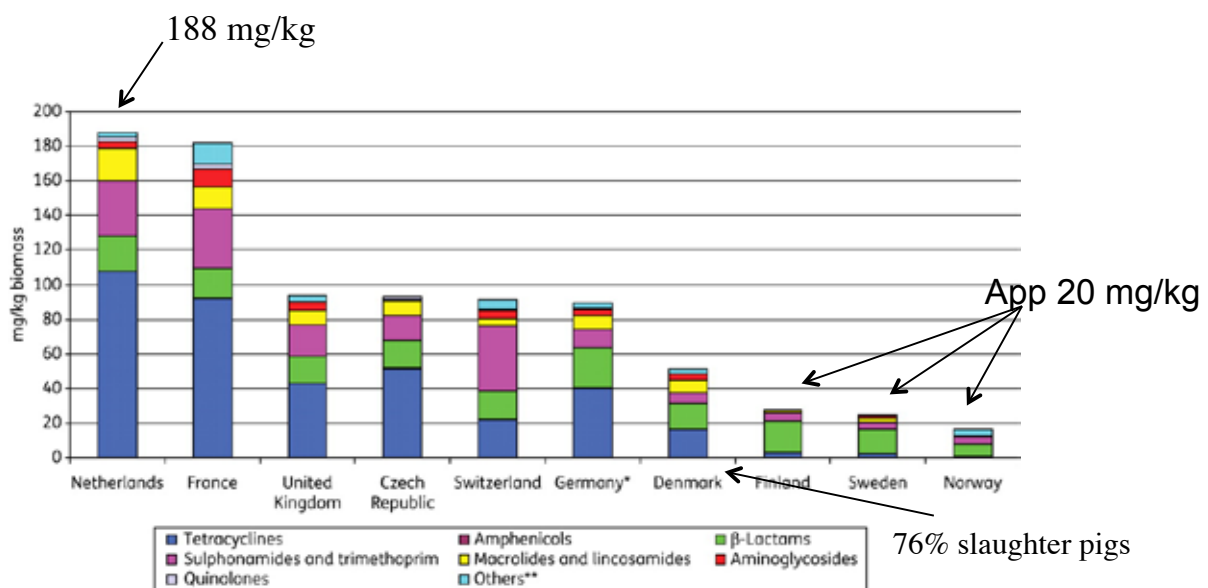
decline the last years. Keeping the use of antimicrobial agents as low as possible is important to reduce the risk of developing and spreading antibiotic resistance in the food chain among others. Breeding programs giving high weight to mastitis resistance and other health traits is important for animal health and welfare but also for a reduction in the use of antimicrobial agents.

FACTS

The European Medicines Agency is a decentralised agency of the European Union, located in London. Its main responsibility is the protection and promotion of public and animal health, through the evaluation and supervision of medicines for human and veterinary use.

www.ema.europa.eu

Amounts, in mg, of veterinary antibacterial agents sold in 2007 per kg biomass of pig meat, poultry meat and cattle meat produced plus estimated live weight of dairy cattle



Grave, K. et al. *J. Antimicrob. Chemother.* 2010 0:dkq247v1-247; doi:10.1093/jac/dkq247

On the track of cows with

Journalist

Pernille Mengshoel

Bondebladet - Norwegian
Farmers Weekly



Holstein and NRF: Harry van der Nieuwelaar has years of experience in crossing Holstein, NRF and other similar breeds.



When Mari Bjørke recently travelled to Canada, she stopped by three dairy producers who are active in crossbreeding. Bjørke is Director of Organization and Communications at Geno. Our journalist accompanied her to see how cows of Norwegian descent are doing.

Geno Global's collaborative partner in Canada, ABS Global, brought us to several farms. Two dairy producers told us about their experiences in crossing Holstein with NRF and with other breeds. The third farmer has been crossbreeding with other similar breeds for several years now, and is considering using NRF.

Popular traits

Farmers out in the world have begun to take note of NRF's special traits. The Norwegian cows are deliberately bred for a wide variety of traits, but in the final analysis, those traits that affect production count the most. "What farmers are really looking for is increased fertility and longer life for cows," explains ABS's Direct Sales Manager Doug Helm as we start out. One important reason for this is that entire income of Canadian farmers derives from milk sales, therefore making volume decisive. The question in some people's minds is whether the almost exclusive focus

of Holstein breeding on yield comes at the expense of overall profitability. "They cross in NRF for those traits Holstein once had," Helm says.

Talk of cows and breeding

The ABS representatives examined pedigrees with the three farmers who welcomed us.

"What do you think so far?"

The farmers chew it over. Even though not everything is easily measured, they have noticed some differences.

"Everything's better. In general, I can say that the crossbreds are smaller and I have fewer problems. They use less feed, have less mastitis, and their

»» Geno Global exports Norwegian Red to more than 20 countries around the world. We have visited three farms in Canada to find out how these Norwegian emigrants are faring.

Norwegian descent



Comparing: From left, Phil Wait from ABS Global, dairy producer Harry van der Nieuwelaar, Doug Helm from ABS Global, and Mari Bjørke from Geno. They are studying pedigrees and comparing cows that are crossed with Holstein and several other breeds.

hooves need to be trimmed less often. The cows also live longer. I estimate that I'd get 2.5 calves per Holstein cow, but I hope for between three and four calves with the crossbreds," answers Harry van der Nieuwelaar.

Fifteen years ago, he moved from the Netherlands to Canada and bought a farm. He started with Holstein, but has crossed in several breeds. He first crossbred with Meuse Rhine Issel (MRI), and then he started with NRF and Swedish Red (SRB). He feels that NRF has many of the same traits as the other breeds he has used.

Better economy

"What is your milk yield like?" "It's decreased a bit, but at the same time the fat content is higher," he says. Fat in milk is important because the dairy pays more for it. He feels that many factors play a role in breeding. Overall, he believes that genetic variation is key. This is exactly what he thinks is the one of the problems in

modern livestock breeding, and why he chooses to cross in several breeds.

Would he advise others to do the same? The answer is not clear-cut. "What works for me may not necessarily work for others," he says.

Production diseases

Dutchman Roelf Hovig runs the Worklust Holstein Farm in Ontario. There were neither animals nor machines on the farm when he moved there twelve years ago. He had a number of start-up problems, with mastitis, milk fever, and ketosis. This surprised him, because he hadn't had any of these problems in the Netherlands. Hovig also came to the conclusion that Holstein cows are bred too exclusively for increased yield, and after some time began to cross in other breeds. His problems then vanished.

He now has 50 dairy cows and works 45 hectares together with his wife, and is extremely pleased with

BRIEF OVERVIEW OF CANADIAN AGRICULTURE

Dairy politics

Dairy producers earn their entire income from the milk sales, but are not subject to market swings. Governmental control has three main elements. Production is regulated by quotas determining daily production and are measured in terms of fat content. The quotas are determined regionally.

Canada has had import restrictions since the 1940s. Last but not least, the milk prices are administratively determined for each region. The producers negotiate collectively, and the prices are decided on the basis of production costs.

Actors in the market

The Canadian market is dominated by three large dairy companies:

Saputo is a company with employees in Canada, the USA, Argentina, Germany, and Great Britain.

Agropur is a cooperative with 3459 members.

Parmalat is an Italian multinational company which operates on five continents: Europe, North and South America, Australia, and Asia.

Three supermarket chains sell 65% of foodstuffs.

Canadian dairy cows

Canada has 34 million residents and slightly more than 100,000 cows. One third of agricultural land and three fourths of the cows are located in Ontario.

The average dairy farm has 76 annual cows and averages a yield of 9768 liters per year.

The most important dairy breed in Canada is Holstein.

The largest breeding organization is Semex, which has around 60% of the market. ABS now has about 10% of the market.

Geno has been involved in Canada since 2004. During this time, Geno has switched partners from Semex to ABS.

production. "I'm a lucky man. I have a farm and a fantastic wife," says Hovig. Hovig shows us a cow which is 25% Holstein, 50% SRB, and 25% MRI. He hasn't yet tried NRF, but is certainly considering the breed. The challenge lies in finding the right bull, one that gives good, productive animals.

This is true of all breeding. He



» On the track of cows with Norwegian descent

thinks that his problems could maybe have been solved by finding a good Holstein bull, but he was never able to find what he was looking for.

Better milk price

Yield has decreased from around 10000 to 9000 kg since he started crossbreeding. At the same time, he can also report an increased fat content and higher protein content. He too has earned a higher per liter price for milk. He now earns an annual average of 87 cents per liter milk. "This is 10 cents more than the norm for this area," he explains.

GENO GLOBAL

Geno Breeding and A.I. Association is a cooperative organization owned by 12,000 Norwegian dairy farmers. Geno Global is owned by Geno and is in charge of all the export of Norwegian Red (NRF) sire semen. Geno Global has subsidiaries in Italy and the UK. The company cooperates with distributors and sales companies in various other countries such as USA, Holland, Ireland, Germany, Poland, Colombia and Israel.

In addition, he tells us that feed costs have decreased, and he thinks his books will show that his total economy has greatly improved, more than if he had continued with purebred Holstein cows.

Large family operation

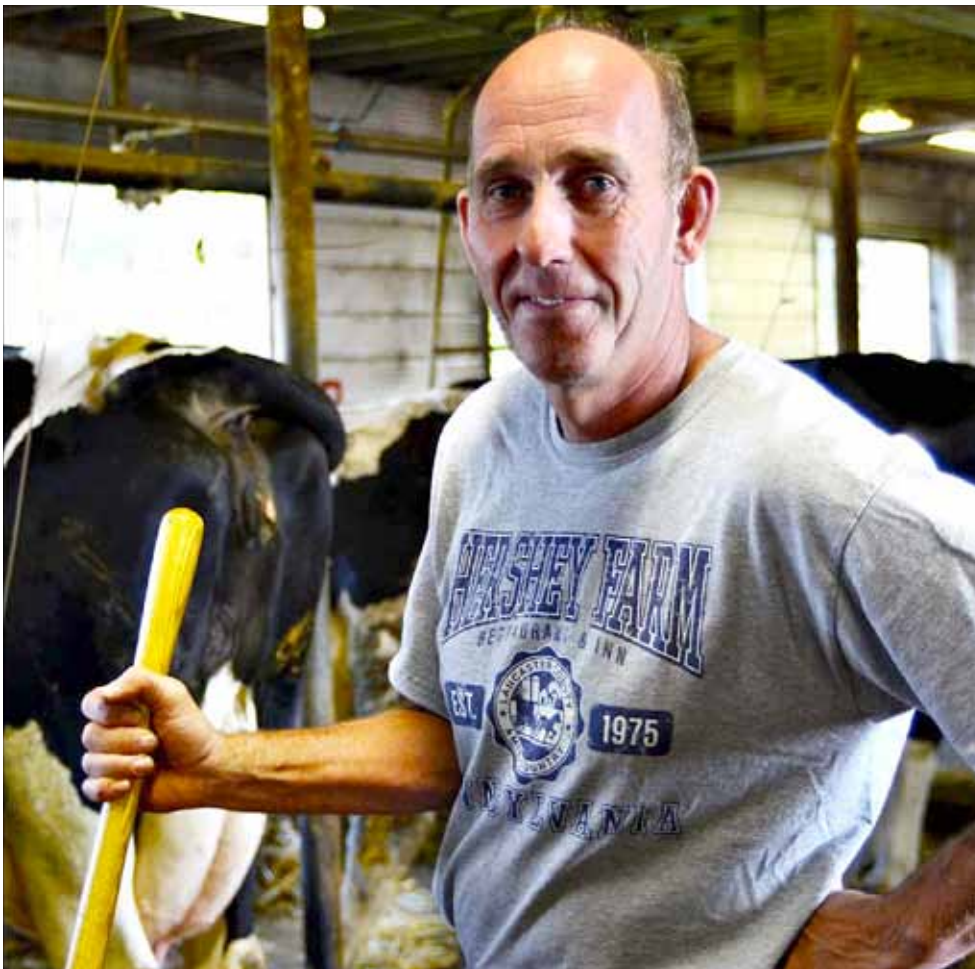
Our final farmer is Jason Buchner, who runs a dairy farm together with his whole family. His father, uncle, brother, sister, and a cousin all work in the farm operations. At the time of our visit, they had 193 cows that were milked daily. Their milk yield is around 12000 kg, with a fat percent between 3.4 and 3.6%. They milk three times per day. The milk price is usually 74 cents per liter.

Carry out inseminations by themselves

They carry out all inseminations by themselves, something for which Jason plays an important role. In the first round, they inseminated their cows with NRF bulls, and they now have animals from both the first and second generations in the barn. About half of the second-generation animals have been crossed again with Holstein.

Jason has not yet found any major differences between the crossbred animals and the purebred Holstein cows, although he too says that his yield is somewhat lower and fat content is higher. There are fewer problems with hooves. Fertility has also increased, and they now need fewer insemination attempts per calf. They usually estimate that they need 3.5 doses of semen for each Holstein calf born, which is said to be very good by Canadian standards.

Geno's Mari Bjørke smiles and is quick to reply that she is used to lower numbers in Norway, where the average for NRF is 1.62.



Considering NRF: Roelf Hovig runs Worklust Holstein Farm in Ontario. He has been crossing Holstein with other breeds for many years. Now he is considering NRF.

Safer

with supplementary regulations

» Because our cattle population is free from BVD, we are vulnerable to reintroduction of the disease and have to be especially vigilant.

Nina Svendby

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» The livestock industry imposes regulations on the importation of live animals and reproductive material, above and beyond the governmental regulations. The reason for these restrictions is that Norway is either free or nearly free from a number of diseases that are widespread in other countries. Import exposes us to the risk of both old and new animal diseases. Any laxness with these extra regulations may result in a reintroduction of BVD.

Freedom from BVD requires surveillance

Most cattle producers in Norway are familiar with BVD, which stands for bovine virus diarrhoea. For many years, cattle farmers, the livestock industry, and the animal health authority were all involved in a widespread eradication effort. Bulk milk and pooled blood samples were tested over a period of several consecutive years. Restrictions were imposed when analysis results tested positive. Central elements in the program included limitation on livestock sales and contact with other herds, culling of infected animals, and renewed sampling. And our efforts were rewarded! Norway was declared free from BVD, and Norwegian producers were rid a troublesome disease that had caused significant financial loss. But that freedom requires constant surveillance.

Many countries thoroughly infected

In adult animals, the virus produces relatively mild symptoms, with fever, reduced appetite and production, and often scours. If pregnant cows are infected, the calves can be stricken, frequently resulting in abortion or stillborn calves. Calves that sur-

vive infection during early pregnancy may be born persistently infected, such that they will carry the virus their entire lives. These animals are often weak and straggly, and they also infect other animals in their vicinity. Many countries have cattle populations that are thoroughly infected with BVD. Because the disease is so widespread, there are no governmental regulations for buying and selling in Europe that call for documentation of freedom from the disease.

Ask for documentation

When buying and selling animals and breeding material from other countries, we therefore risk reintroducing the BVD virus as a "stowaway". Cattle in Norway have been free from the disease for many years. Because of this, the animals' immune systems have no defenses against the virus, and a new infection would result in many sick animals. The infection can spread quickly. In an area heavily populated with livestock, the virus could spread to many other herds. Production losses would be immense in such a situation, and it would be difficult to renew fighting the disease. Although there is no effective treatment for BVD, there is an effective means to prevent infection: namely, ask for documentation that the animal does not have the disease.

Blood samples

Blood samples must be extracted from each individual animal and analyzed to test whether the animal has the virus in its body. The analysis must be carried out at an approved laboratory, and the result must be made available in a written attest. The sample must be drawn shortly before



Because BVD is one of the diseases that can be transmitted by semen, all semen imported to Norway must be from bulls that have been tested and found free from the disease. Illustrative photo from Geno Store Ree AI Centre. Photo: Rasmus Lang-Ree

the animal is due to travel to Norway, and the animal must be held isolated from other animals after the sample has been taken. Otherwise, one runs the risk of infection after the sample has been taken, such that the virus is brought to Norway despite precautions. The safest option is if the herd the animal comes from has been subject to regular sampling that documents freedom from BVD. The disease may also be transmitted by semen and embryos. Consequently, documentation of BVD status needs to be an added requirement for import of both live animals and reproductive material.

No such thing as no risk

The risk of importing infectious animal diseases is much lower for semen and embryos than with

live animals. Only a few diseases can be transmitted by semen doses, such that they cause illness in the recipient animal. BVD is one of them. Bulls must therefore be tested for BVD in connection with production of semen intended for Norway. If the bulls have antibodies, the sample is then also tested for the virus. The same regulation applies to female animals that produce embryos. In addition, donor animals must be tested in connection with breeding material intended for Norway. Our security net simply has to be so tight if we are to remain free from BVD. It is also important to realize that no test will eliminate all danger, although tests and analyses can reduce risk. The supplementary regulations also cover other diseases, to be discussed in future issues.

The crossbreeding experience in

Dario Pasetti

D.V.M and Technical
Breeding Advisor
Geno Italy



Dairy farmer
Sefano Corini.



Dairy farmer
Marco Gobetti.



Norwegian Red x Holstein in Italy. Photo: Elly Geverink

Corini's brothers farm is what -at Geno Italy- we intend for modern crossbreeding. Since 2006 NRF has been proposed and used by more and more Italian farmers. There were several reasons for including NRF in the breeding programs, ranging from the unsustainable reproductive performances of the Holstein cows - and heifers too - to the shortened productive life of highly selected cows. Other farmers have been looking for the effective progress in the profitability of their herd. Stefano and Franco Corini, two brothers are running their dairy farm in Leno, near Brescia. They took over the dairy farm from their father - who started in the 50's - continuing the family tradition. The results are very good, in few years the herd ranked in the top list of provincial dairy association. Now the herd consists of 144 lactating cows, includ-

ing 19 crossbred (Swedish Red and Monbeliarde), 12 Norwegian Red x Holstein cows for a total of 75 crossbreds including calves and heifers.

The average herd milk yield is 10.345 kg - the national average is 9.900 kg - with Calving Interval of 390 days. When we look at the crossbreds we find a milk yield of 30 kg/day compared to 29 kg/days of the purebred Holstein.

Stefano says *"I always have been looking for improving my work, for more profit and better condition for my cows. Five years ago I tried with a synchronization program, but I quit the second year since the results were not paying me back for the extra work and the expenses. I looked around for other solutions, so I began crossbreeding with some Swedish Red bulls. Very soon Norwegian Red bulls like Oygarden, Skjenaust, Haga, Braut, Ryggvold have been included*

in the breeding plan, and now we are confident in the results we got".

Geno Italy regards Corini's farm as the "perfect" example of what crossbreeding will become for the advanced Italian dairy breeders. Farmers which still have reached good results using Holstein for production, fertility, health, can improve their dairy performances using the right crossbreeding program, with the right breeds. Stefano proudly shows the exciting results of the NRF x HO crossbred compared to all the other cows in the herd.

"Milk production of NRF is always similar to Holstein, in most cases better. Today all our top producing cows are crossbreds. Days Open for Holstein is 114 days, 103 days for Swedish Red and 68 days for NRF". Moreover, the insemination rate is 2,1 for Holstein, 1,8 for other crosses, 1,2 for NRF. This is the consequence of

Italy

»» “Milk production of NRF is always similar to Holstein, in most cases better. Today all our top producing cows are crossbreds. Days Open for Holstein is 114 days and 68 days for NRF” Stefano Corini, Corini farms.



Norwegian Red x Holstein in Italy. Photo: Elly Geverink

the dramatic hot summer we had this year and only NRF have not dropped in fertility. We cannot forget the SCC which is around 150.000 for herd average and below 80.000 for NRF.

The F1 NRF calves are great too: “They never need extra care, also when they get sick they promptly recover. The male calves are sold to another farmer, which is appreciating their faster growth compared to Holstein, so he began to pay more for them. It was many years I didn’t see such good calves”.

Corini will continue crossbreeding mainly with Two-Plus or Two-Plus Extrafitness program suggested by Geno Italy and successively with Three-Plus-Fleckvieh. He is enthusiastic of the Extrafitness calves strength and vitality.

More and more farmers have visited Corini’s farm reporting the idea that

the best way to compensate the low reproductive performance of Holstein and to improve the milk yield is to use crossbreeding programs such the one Geno Italy has proposed.

Stefano continues: “NRF would be the perfect cows.... If they could be all polled!”. Stefano will not be waiting too long for using more polled bulls to have the perfect cow.

Another farm representative of how crossbreeding can be the right tool for profitability is Gobetti brothers Farm, in Scandiano – Reggio Emilia with 280 animals and 130 milking cows. Marco, Giovanni, Lorenzo started to help their father Bruno with the farm since 1974. The farm is member of a cooperative for Parmigiano Reggiano cheese, thus the milk quality is a priority.

10 years ago they started a breeding program to improve the herd profitability, the goals being fertility, masti-

tis and SCC reduction without affecting the milk yield and milk contents. They started with different breeds on Holstein, but the results were so discontinued with other breeds. Five years ago they were introduced to NRF, and Marco says “finally we found our ideal cow, the Norwegian Red”.

Since the last two years NRF is the only breed mated to Holstein “our goal is an eight years cow who gives 6 calves and only with NRF we can get it” Marco says, explaining that they plan to increase the crossbred herd population from the actual 80% to 100%, expanding the facilities cause they need extra places due to the reduced culling rate of the cows. The today production is 30 kg / day /cow, protein 3,45%, fat 3,50%.