

geno **BULL** *etin*

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Content

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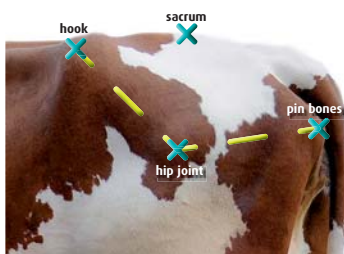
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Solveig Goplen, Geno

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Welcome!

We are proud to launch the GenoBULLETin which will present some of the articles from Buskap (the Norwegian Geno magazine) for international readers. Buskap has been read by Norwegian dairy farmers for 61 years and is distributed throughout Norway. GenoBULLETin is directly translated into English from Buskap and articles about our bulls, the Norwegian Red (NRF) breeding system and farm reports from our customers world wide will have highest priority. GenoBULLETin will be distributed electronically to our international partners and contacts and from them to our customers and others interested in crossbreeding with Norwegian Red (NRF). Geno BULLETin will be published at www.genoglobal.no.

We hope Geno BULLETin will provide some valuable input to our international NRF-community in promoting the use of Norwegian Red (NRF) breed to the world.

Tor Arne Sletmoen
MANAGING DIRECTOR GENO GLOBAL

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■ 1016 Anita is daughter of 10402 Bosnes. Photo: Solveig Goplen



BREEDING

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■ A medium-sized group of 22 bulls had their first official total merit indices calculated in September. Progeny group size decreased slightly from the previous evaluation (230 daughters with information about the heifer fertility). However, a decrease is normal in the autumn. Ten of the 22 bulls had a total merit index of ten or more. The best was 10402 Bosnes with 21, 10425 Sem with 18, and 10372 Hjelmset with 16. Unfortunately, Sem no longer produces viable semen and is therefore no longer of consideration. 10402 Bosnes excels in the traits of milk, resistance to “other diseases” (other than mastitis), udder conformation and calving, but is somewhat weak on beef. 10372 Hjelmset’s strong points are udder conformation and the maternal (sire of cow) aspects of calving. As a whole, the group distinguishes itself with high values for total merit index, fertility, and resistance to other diseases.

**Elite sires
as of October 2009**

Geno’s board had decided that two of the current elite sires were to be removed. These bulls are 10382 Torp and 10183 Aasheim. Aasheim has been included for a long time, whereas Torp has thus far only had a three-month career as an elite sire. As a result of the current evaluation, 10402 Bosnes and 10372 Hjelmset join the list of elite sires, as does 10232 Sand. Sand is already familiar because he was an elite sire from July 2008 to April 2009. He is included primarily for the leg conformation trait in the breeding plan. Similarly, 10391 Efstad with a total merit index of 13 is retained due to his records on milk leakage. Therefore, 12 elite sires are included

Many good bulls in

Geno has added 10402 Bosnes and 10372 Hjelmset to the list of elite sires, as well as 10232 Sand. 10382 Torp and 10183 Aasheim have been removed from the list.

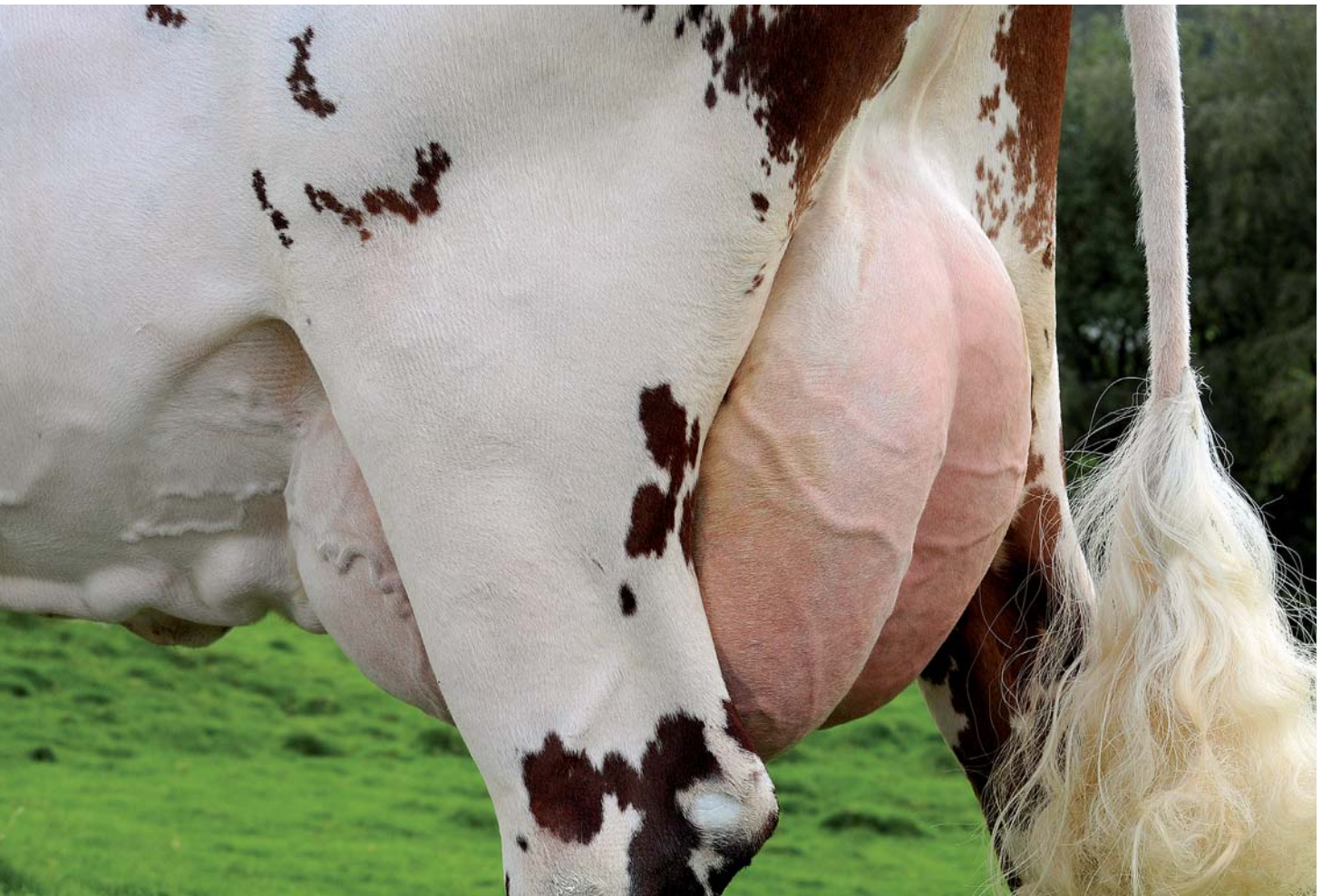
Table 1. Elite sires as of October 2009

Bull	Sire	Total merit index	Group	Horned/ Polled
10100 Askim	4761	15	2/07	K
10115 Raastad	4948	26	3/07	H
10176 Surnflødt	4956	20	1/08	H
10177 Braut	6620	18	1/08	H
10190 Jevne	4948	18	1/08	H
10232 Sand	5156	17	2/08	H
10245 Hjulstad	5277	25	2/08	H
10278 Haga	5277	19	3/08	H
10327 Sandnes	5292	14	1/09	H
10372 Hjelmset	6636	16	3/09	H
10391 Efstad	5438	13	2/09	H
10402 Bosnes	23001	21	3/09	H



■ The daughter of 10372 Hjelmset, 751 Julie. Owner: Sverre Wathne. 10372 Hjelmset’s strong points are udder conformations and the maternal (sire of cow) aspects of calving. Photo: Solveig Goplen.

the September evaluation



■ The daughter of 10402 Bosnes, 1016 Anita, has a remarkable udder. Owner: Erik T. Ravdal from Ålfjord in Rogaland. Bosnes received 112 for udder. Bosnes also has a milk index of 121. Photo: Solveig Goplen.

Table 2. Promising future sires

Bull	Sire
10406 Halsne	22002
10414 Undheim	5399
10418 Lilleøyen	5277
10430 Muan	23001
10432 Velsvik	5300
10439 Årsvoll	5438
10441 Elvestad	5399

on the list as the peak season for insemination approaches. As a whole, the group is strong on udder conformation, fertility, milk, protein, and milking speed. With the exceptions of Hjulstad, Braut and Sand, the group is also good in terms of the inbreeding index. There is presently only one polled bull, 10100 Askim. The 12 elite sires as of October 2009 are presented in Table 1.

Future bulls

There also appear to be several good bulls for the next evaluation.

The most promising are shown in Table 2. Two promising bulls on the list are not available: 10430 Muan has to be culled due to bad temperament and 10441 Elvestad died on the 22nd of December in 2008. Still, five promising bulls remain. Of these, 10406 Halsne is already producing semen, whereas the other four were placed under quarantine in September. The five bulls have total merit indices of between 17 and 23. Preliminary milk indices range all the way from 91 to 136. One of the bulls, 10439 Årsvoll, is polled. ■

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Avlsforsker – begge Geno

■ In order to achieve a sustainable genetic progress it is important to maintain genetic variability in the population. Not having a conscious strategy about the use of sires could lead to increased inbreeding and reduced genetic variation. To avoid a large increase in inbreeding in the NRF breed, Geno has started an initiative which is intended to prevent individual sires from having a too strong influence in the population. Strong influence of individual sires occurs when:

- Few sires are used very often
- Few bull-sires with many sons becoming test bulls
- Few sires with many daughters becoming bull dams

Relationship index

In recent years, tools have been developed to calculate how closely related the different bulls are with the rest of the NRF population. A relationship index is calculated for each bull, which presents the extent to which it carries the same genes as the rest of the population. Such an index indicates the degree to which a bull should be used when taking inbreeding into consideration. A high index indicates that the individual bull is related to the rest of the population to only a small degree and thus that use of such a bull will not have negative consequences in terms of inbreeding. In principle, the extent to which a bull with a low relationship index is used should be limited, and fewer sons and maternal grandsons of such a bull should become test bulls.

- When purchasing calves as test bull candidates, the degree to which the calf is related to the rest of the NRF population is already taken into consideration.

Controlling inbreeding in of test-bull candidates

Relationship with cow population is now taken into account in selection of test bull candidates. Hence Geno is putting even more emphasis on reducing increase in inbreeding.

How is the relationship index used?

Through selection of elite sires

The relationship index has been utilized in connection with the selection of elite sires since 2006. The bull's total merit index (TMI) used to be the main criterion in selecting elite sires. Today, the TMI and the relationship index are weighted 70% and 30% respectively and combined into a selection value. This means that a high TMI is worth less if the bull's genes are commonly represented among the cows in the population.

Moreover, the use of a bull highly related to the population can be reduced by assigning a low «AI-code». This will limit the number of times the bull will appear as a first choice on the on-farm mating plan.

We see that among the more recently progeny-tested bulls, those who have 5277 Ulsaker or 5156 Galde as their sires usually end up with a low relationship index. This is because these two bulls were widely used both as sire or maternal grandsire to many cows. The same is true of those bulls which have 4581

Nyløkken in their pedigree. There will be some variation in relationship index within the groups of sons from each individual bull sire, depending on which bulls are found in the pedigrees on the maternal side of the bull.

Trough selection of test bull candidates

The earlier the point at which the relationship index can be taken into consideration in the selection process, the more value it has. This is the background for why we have now started to use the relationship index in connection



selection

with recruiting bull calves. A selection value for all purchased, recorded, and listed test bull candidates is now calculated in the same way as for progeny-tested bulls, based on a combination of TMI and relationship index. This is used internally at Geno upon evaluation of every potential bull calf. The selection value of the calf in question is compared with those of the calf's purchased, recorded, and listed half-brothers. The goal is to then buy those combinations that are best with respect to both genetic gain and inbreeding.

Calves of a bull which has sired a significant number of previously acquired sons will eventually receive a lower selection value because this bull's genes are already represented as a result of its purchased half-brothers. This is currently the case for the sons of 10032 Haugset, 10039 Haga and 10115 Raastad, all of whom are popular bulls with high breeding values and who therefore have been frequently used. Only those offspring of these sires with extremely high breeding values and/or which have a somewhat unusual pedigree on their maternal side will be considered for purchase.

Further possibilities forward

For the foreseeable future, we would like the relationship index to be taken into consideration already at the stage where the population is scanned to search for elite matings. This will ensure that the advisor avoids having to evaluate bulls which would be rejected for purchase due to a low relationship index. This requires some technical organization. At the moment, we would like to acquire more experience in including the relationship index in the purchasing stage of the process.

The inbreeding index will in time be presented in the Sire Catalogue.

BREEDING



Bjørn Johansen

■ 10245 Hjulstad is the NRF bull which has thus far achieved the highest ever udder index of 143 in evaluation 1 (his udder index was 139 in evaluation 2 this year). In and of itself, this is quite sensational and it also has good timing, because everyone who installs a milking robot depends on their cows having good udders.

But the bull, which has a

total merit index of 25, also has a phenomenal pedigree as far as udder conformation is concerned. Counting as far back as five generations (which includes 31 bulls), only a single bull has emerged with minus points for the udder. His relatives include 3923 M. Ås in the third generation on both his maternal and paternal sides. M. Ås still has an udder index of 118.

The mother of 10245 Hjulstad, 292 Olea, was a daughter of 4581 Nyløkken with an udder index of 108. His father, 3666 F. Granmoen, had an udder index of 117 in his days of glory.

Although Hjulstad does not have a high milk index himself, he can be used as part of a breeding plan with other individuals that are positive in terms of their milk yield.

Private plane to Norway to see NRF cattle

Erling Mysen, freelance journalist, text and photo, er-mys@online.no

■ Gordon Bellerby came to Norway in May with the Flying Farmers Association, a British organization. Bellerby has his own airplane and airstrip at home behind the barn on his farm near Leeds. He also has a dairy herd of a few hundred Holstein cows. While the other participants on the Norway trip were visiting a museum, Bellerby took Arnfinn Landa (a member of the Geno board) for a visit to the dairy producer Arnstein Røyneberg in Sola in the south-western region of Jæren. Røyneberg has a beautiful herd of NRF cows.

"I'm thinking about changing to a different breed of cow, and the NRF is a potential alternative," says Bellerby. With a private plane, Jæren is just a stone's throw away from his farm in England. There are more than 400 members of Flying Farmers in England and Scotland. Many of them have private planes which they write up as a business expense. Every year, the association has agricultural study trips to other European countries and/or other parts of the UK.



■ English dairy producer Gordon Bellerby on his trip to Norway with his own private plane.

What is a **FUNCTIONAL**

BREEDING

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■ The shape of the pelvis is one of several decisive factors for whether a calving proceeds normally. Good width between the hook bones and pin bones, together with a good height of the sacrum makes for a roomy birth canal. In addition, the pin bones should be clearly lower than the hook, so that the rump is somewhat sloped and the calf is born in a natural, downward direction.

Optimal development in wild animals

In wild ruminants such as moose and red deer, the shape of the pelvis has probably developed in an optimal manner for easy calving. Development has progressed without human involvement, and animals with positive characteristics have played an important role in the evolution of the species. In cattle and other domesticated animals, the shapes of both the rump and other body parts have been more or less influenced through generations of breeding. We humans have favored individuals with popular exterior qualities that are judged as attractive or otherwise considered favorable. In the past, the selection of breeding animals has not been sufficiently scientifically documented with respect to functionality. This is still partially true of some groups involved with domestic animals today.

“Beauty pageant” for cows

Competitions where prizes are awarded on the basis of the cow's exterior are important in many countries. We also have such activities in Norway, like the so-called travelling exhibitions where judges travel from farm to farm. This serves as a pleasant event and stimu-

lates interest in cattle. In countries such as the US, exhibitions often have more of the characteristics of a show, involving extensive preparation of the animals to be judged. They are washed, shampooed, sprayed and blow-dried in order to accentuate their positive aspects and downplay their more negative ones. Judges who share opinions about the most attractive and best exterior work throughout the world, and thereby greatly affect breeding programs. This is especially true for the Holstein breed, but similar appearances are also often preferred in other breeds.



■ 167 Ashild and 10177 Braut. Photo: Solveig Goplein

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Good-looking rump not functional

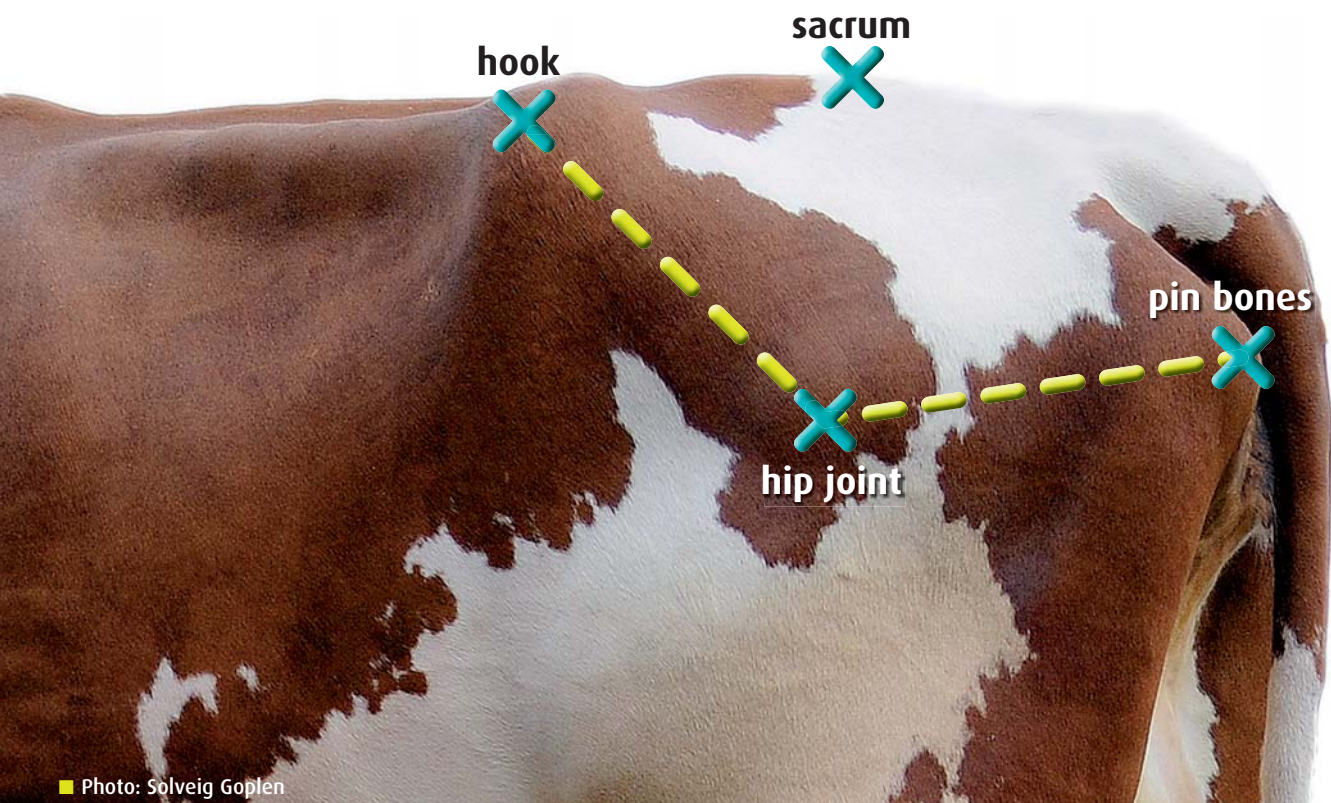
In countries where exterior characteristics are heavily weighted in breeding, a straight spine all the way back to the tailhead is desired. Many of us consider this a “good-looking” rump, but it often

results in a relatively flat rump with high pins. This frequently borders on a condition we call “tipped pelvis” where the pins are higher than the hook bones. One argument in favor of high pin bones has been that the rear udder of the cow is raised, which leads to fewer difficulties with the low and tilted udders. Problem udders certainly need to be improved, but this backfires if one's enthusiasm to remove one problem only leads to the creation of another.

Comparison with other countries

Studies in both Northern Ireland and California show that purebred NRF cow and NRF/Holstein crosses have fewer calving difficulties than purebred Holstein cows. Even though the causes of calving difficulties are complex, with the size of the calf playing a decisive role, the shape and slope of the rump

rump?



■ Photo: Solveig Goplen

is also very important here. In Norway, animals with functional rumps have been favored due to the many years of breeding where importance has been placed on calving ease. This development has not been affected much by outward appearances but rather by practical considerations about what is a functional rump.

Rump and uterine inflammation

After calving, the uterus of the majority of cows will be infected with a combined flora of different microbes. A more lengthy and serious infection requiring treatment may affect particularly those cows which retain the afterbirth. Most cows, however, have an impressive ability to clean themselves after calving, because among other things, the uterus contracts and expels the contents. Drainage is important here, and the shape of the pelvis is

not completely insignificant. In cows with a rump sloping up from hook to pin, the natural post-calving drainage from the uterus and vagina is prevented. This can contribute to uterine inflammation and decreased fertility.

Japanese research

In this respect, a recent Japanese study of the incidence of urine accumulation in the cranial portion of the vagina in Holstein cows is of interest. Through monthly examinations, researchers found that 26.7% of the cows involved the study had some pooling of urine in their vagina, which in moderate and serious cases resulted in significantly decreased fertility primarily due to the greater risk of uterine inflammation. Cows in poor condition with a horizontal vulva were especially vulnerable to urine pooling in the anterior vagina. Such cows do not have much fat or

other types of connective tissue around the reproductive organs and often have a sunken rectum. Moreover, manure can enter the vagina of cows with a horizontally-positioned vulva, something which increases the danger of infection. The Japanese investigation shows that cows which have a pelvis that tilts upward have more problems with urine pooling on the floor of the vagina and therefore also have more problems with uterine inflammation.

NRF more like wild ruminants?

According to our health data, neither calving difficulties nor uterine inflammation present much of a problem to NRF cows. This is the result of several factors, but one reason may be that most NRF cows have a favorable rump shape. Perhaps this shape is closer to that we find in wild ruminants? ■

Irish milk production



REPORT

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FROM THE CONGRESS

■ There is a great deal of competition for acreage, and therefore many farmers want to expand their production through a more intensive use of pastures. This requires good planning, a system and – not least – daily inspections of the pastures to evaluate the amount of dry matter, grass height and need for pasture mowing. Manure must be spread at a time when it is most effective, and grazing pressure has to be constantly adjusted according to what each pasture can produce. The goal is that the herd will be able to meet their feeding requirements on the pasture – extra additions of concentrate or silage considerably increases costs and lowers profit margins.

Grazing pressure

The number of cows per hectare is an important factor in a pasture based system. For an Irish farmer to be able to expand, the goal is to increase the grazing pressure by up to 3.3 cows per hectare. The greatest degree of digestibility of the grass also has to be ensured, which means a lot of leafy matter and little stalk. Experiments show that grazing down to 3.5 to 4 centimeters (8 to 9 centimeters at the start of the season) is optimal.

Pasture growth

If grass growth is insufficient in periods, then one must feed concentrate, but more than 250 kilograms per cow per lactation is rarely used. Grass management requires daily inspection of pastures to evaluate the amount of grass and its height. This has to be

FEED THE PASTURE, NOT

Important measurements in pasture based production are intake of grass dry matter and the milk solids production per decare. The milk solids yield per cow is less important.

measured at first, but after a while the practiced eye can evaluate this accurately enough. The Irish are not concerned about the age of the field and let it remain for many years as long as it yields enough grass.

Low cost

On an energy basis, the Irish calculate that pastures cost only 33% as much as silage and 25% as much as concentrate. In addition, harvesting, storage and feeding out

Key figures	Current level	Goal
Milk solids (fat + protein), kg per hectare	660	1250
Work (cow/full time labor unit)	44	100
Work costs per hectare (euro)	1760	770
Economic surplus per hectare (euro)	1070	2620
Margin per kg dry matter (fat + protein) from milk	13.6	17.4



■ Holstein cows, NRF cows and crossbreeds in perfect harmony on Joe Mulcahy's pasture.

- grass and crossbreeding

"Grasping the opportunity" was the name of this year's European Dairy Farmers (EDF) congress (www.dairyfarmer.net) For the Irish, this means getting even more out of their pastures. In these times of record-low milk prices, there is growing interest in low-cost production systems. With a grazing period lasting from the first of February until the middle of November, the entire lactation period can be carried out on the pasture with a minimal addition of concentrate. A calving interval of more than twelve months disturbs such a system. Fertility is therefore a prioritized trait, and has led to an interest in crossing NRF with Holstein. In the following pages, we relate some of the impressions that we have gathered about the Irish system, as well as their experiences with NRF.

THE COW

costs are lower. There are only very limited requirements for housing space for cows that are in their dry period. A minimum of machinery together with many cows per full time labor unit also contributes to lower costs.

There are three known paths to more profitable milk production: Sell for a higher price, produce more with lower costs, or increase production. The Irish strategy involves economizing through lower costs, but the Irish also believe that Irish milk production has the necessary conditions for strong growth – maybe a doubling – in a freer market without quota limitations.

FACTS

Irish milk production

- Irish milk production
- 19,000 dairy farmers
- Milk yield: 4,600 kg
- Herd size: 55 cows
- More than 80% of milk is exported.
- Farmgate milk price in June: 21–23euro cents (NOK 1,83–2,0)

Milk price

The EDF has calculated that its members must receive a milk price of 34.7euro cents per kilogram ECM in order to break even. If the quota costs are included, then the breaking point increases by an average of 1.6euro cents per ECM (varying from 0 to 19euro cents).

VISIT TO THREE FARMS

Best at low costs

Joe Mulcahy has a quota of 770 tons and is among the best in Ireland when it comes to low-cost milk production.

The grazing season on Joe's farm lasts from the first of February until the tenth of December. At first, the cows are turned out to pasture on fields that have not been used since October. On the turn-out date, the pastures should have 110 kilograms of grass dry matter in order for there to be 8-10 kilograms of grass dry matter per cow each day that they are grazing. Maize, grass silage, and three kilograms of concentrate are also given. From the middle of February, the cows graze around the clock. Parts of the pasture acreage is removed from grazing and fertilized with 90 kilograms of nitrogen and 17000 liters of slurry per hectare.

Field walk

Growth on the pastures has to be 66 kilograms dry matter per hectare in April if the cows are to be able to meet their requirements. In the April/May period, four tons of concentrate and some silage are given in addition to grazing to avoid a decrease in yield. Experience is necessary to be able to estimate how much acreage the cow herd needs at any given time and when the herd needs to be moved to the next pasture. Joe doesn't carry out any measurements, but bases his decisions on the experience gained through his daily inspection rounds. What is impressive is that results show that he reaches the break-even point (excluding the milk quota) with a milk price of only 8.8euro cents. The average among Ireland's EDF members is almost double that, and the average dairy farmer's results are even higher.

Impressive

Joe Mulcahy participates in field studies where Holstein, NRF and crossbreeds are compared. "Health status and fertility performance make the NRF crosses really impressive," says Joe. "They milk as much as the Holstein cows, with only a bit less milk solids yield. They're very good animals for a large herd because



■ "No mastitis, no lameness, easy calving, no late calving, and they help to keep the cell count low," is Joe Mulcahy's summary of his experiences with NRF crosses.

they easily go back in calf and cycle 19 days after calving." He adds, "Their temperament, however, is a bit tougher and they need to get used to the milking parlor."

Plans for the future are to continue using NRF semen for his heifers. At the same time, he'll also cross in some Holstein from New Zealand. However, he doesn't want to use Jersey. "I want to use breeds where both the calf and cow sell," he says.

Joe thinks that the reason for the Holstein's problems is too much inbreeding, and that it is important to keep distinct breeds in order to profit from crossbreeding. Good fertility results and a low rate of culling (15.7%) allow Joe to sell both heifer calves and cows.

continue →



Grazing down to 3.5 centimeters

Increased grass production per unit area will allow Shane Fitzgerald to expand to 180 cows.

Shane Fitzgerald works systematically by cutting and weighing grass from small squares to estimate the total amount of grass on the pasture. His goal is to increase grazing pressure to 3,2 cows per hectare. Shane says that grazing grass short isn't a problem; it just grows back thicker and better. But it should not be grazed to below 3.5 centimeters. The cows have to learn to graze the grass down, which means that Shane has to be patient and wait for a long time before moving them.

Little concentrate

The amount of grass is decisive for pasture rotation, and cows return to the same pastures 12 to 16 times in the course of the grazing season. Shane thinks that type of seed is more important than the age of the field. The pastures are not mowed on a regular basis.



■ A barn built simply and inexpensively. For euro100,000, Shane has built a wintering barn with wood chips for bedding, a platform next to the feed alley, and drainage down to a manure lagoon. His experience is that it worked extremely well for cows, but that heifers became too dirty. They weren't heavy enough to press the water up through the layer of wood chips, something which is necessary to flush the manure.

NRF will be the main breed in the future

The Dunne brothers aren't nervous about breaking new ground, and began with crossbreeding as early as 2000. 75% of their herd is now crossbreeds. They have tried both SRB and NRF, but Tom says that NRF is their breed of choice for the future. The reason is that they think that NRF has better fertility performance than SRB.

"NRF cows are easy calvers and the calves are on up their feet fast. The cows quickly go back in calf after calving, and they can be kept in the herd for a long time," says Tom. "The spring this year has been terrible, with an extreme amount of rain and difficult pasture conditions. This has meant a lot of stress for the cows, but the NRF cows have tackled this better than the others. Despite the difficult conditions, all the purebred NRF cows





■ Shane Fitzgerald has a “Ryan Air philosophy”: low costs, maximal profits, and simple systems.



The grazing season continues until around the fifteenth of November. Shane says that he wants at least a two-month dry period (and preferably a three-month period for first-calf heifers) so that the animals can build up their reserves before their next calving.

Wanted to cross everything

In 2003, Shane joined crossing trials run by the Moorepark Research Centre, when he started out with eight purebred NRF animals and seven NRF/Holstein crosses. He still has fourteen of these animals in their fourth lactation, something which is impressive in itself.

Shane has tried various crossbreeding programs, and 65% of his herd is now Holstein/New Zealand Holstein and 30% is Holstein crossed with either Jersey or NRF.

“Crossbreeding improves fertility and lets me sell my surplus of heifers and cows. Better fertility also means longer grazing seasons,” is Shane’s answer to why he invests in crossbreeding.

Good legs, only one case of mastitis in four years, the same amount of milk solids as Holsteins produce, and improved fertility is how Shane describes his experience with NRF. He admits that a less-than-systematic crossbreeding program has created a bit of an unclear situation. When asked what he would have done with a purebred Holstein herd and the knowledge that he possesses today about crossbreeding, he immediately answers, “Then I’d cross the whole herd with NRF!”

Brothers Tom and Mike Dunne have a lot of experience with crossbreeding. The choice is made: NRF will be their primary breed.



■ Tom Dunne began to cross with SRB in 2000, but thinks that NRF are better in terms of fertility and has become an enthusiastic NRF ambassador.

were in calf after the first service, whereas we’ve had problems with the others,” he adds.

The Dunne brothers have not had any problems with the legs or hooves of the animals with NRF genes, and there have been very few incidents of mastitis. Eleven of the twelve NRF cows are now in their seventh lactation.

The original plan was to use a two-way cross with Holstein and NRF, but based on what their experiences, the Dunne brothers now want to use NRF only. This also fits in with their goal of having a middle-sized cow.

Milking once a day

Their goal is a 300-day lactation. Tom says that they will shift to milking twice a day for 100 days and then once a day for the remaining 200 days. Tom estimates the decrease in milk production to be 10 to 15%, while

they gain by not having to hire an extra hand.

They give 250 to 300 kilograms concentrate per year per cow.

Surplus that counts

Tom emphasizes that it is the surplus that counts. He is not interested in giving more concentrate to produce a few extra liters of milk with a low profit margin. Expansion of the business will take the form of more dairy cows rather than higher yield. Their pasture system is intensive, with 3,3 animals per hectare. Their goal is to increase to 300 cows within a few years. Then they need more acreage, and the only practical solution is to rent land. Rental prices are around euro 390 per hectare, whereas they would have to pay euro 41000 to 71000 per year to buy.

FAKTA

Key figures Joe Mulcahy

- Milk quota of 770 tons
- 156 cows
- Yield of 5,177 kilograms ECM
- Grazing season of 308 days
- Approximately 55 hectare pasture system
- 3 cows per hectare of pasture
- 1100 kilogram milk solids (fat/protein) per hectare
- Calving interval of 380 days

Key figures Shane Fitzgerald

- Milk quota of 782 tons
- 163 cows
- Yield of 5,855 kilograms ECM
- Grazing season of 285 days
- Approximately 56 hectares of pasture for dairy cows
- 2.9 cows per hectare of pasture
- 1030 kilogram milk solids (fat/protein) per hectare
- Calving interval of 368 days

Key figures Tom og Mike Dunne

- Milk quota of 1.1 tons
- 208 cows
- Yield of 4,958 kilograms ECM
- Grazing season of 270 days
- Approximately 65 hectares of pasture for dairy cows
- 3,3 cows per hectare of pasture
- 1200 kilogram milk solids (fat/protein) per hectare
- Calving interval of 369 days



NRF better than SRB

Researcher Frank Buckley has been a key figure in the testing of new breeds and crossbreeds in Ireland. Montbelliard and Normande have been studied and dismissed, and interest is now centered on NRF, Jersey, and Holstein.



■ Frank Buckley at Research Centre Moorepark.

During the EDF congress, researcher Frank Buckley led a workshop about crossbreeding where he said that the individual properties of the offspring of crossbreeding will end up at an average of the parent's levels plus the effects of heterosis. In practice, the heterosis effect means that the NRF/Holstein crosses will produce almost as much milk as the purebred Holstein animals, while their fertility will be almost as good as that of purebred NRF cows. The heterosis effect decreases with later generations. Frank is convinced that a three-way crossbreeding is optimal, because then the heterosis effect stabilizes at a higher level (88%) than with two-way crossbreeding.

Frank Buckley presented the good results from studies with NRF, and thought that the economic profit for the farmer was around euro160 per cow per year. A problem-free, easily cared-for cow is that much more important in bigger herds. Research results show that NRF gives easy calvers and greatly improves fertility and udder health, among other traits.

When asked directly, Frank answered that he thought NRF was better than SRB both in terms of fertility and mastitis. NRF places greater selection emphasis on these traits, and Frank thought that the collaboration between the red breeds in Viking Genetics would increase the difference between NRF and SRB.

Table 1 Crossbreeding trials 2006–2009. Results from 46 commercial farms.

Traits	Holstein	NRF	Holstein x NRF
Milk	5860	5513	5777
Fat percent	4	3.93	3.95
Protein percent	3.48	3.49	3.49
Somatic cell count	130,000	114,000	116,000
Pregnancy rate after 1st service (percent)	52	60	60
Pregnancy rate after 6-weeks insemination period	62	69	77