



# NOT ON OUR CORNFLAKES



The Case **against** Nocton-style  
Factory Milk and **for** a Sustainable  
British Dairy Industry

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### INTRODUCTION

FROM SUZI MORRIS, UK DIRECTOR,  
WORLD SOCIETY FOR THE PROTECTION OF ANIMALS

2010 has seen proposals advanced for two intensive indoor 'mega-dairies' in Britain. The first, the high-profile and controversial 8,100-cow proposal close to the Lincolnshire village of Nocton, is on a scale unprecedented anywhere in western Europe and by its very size represents a critical tipping point for the future of British dairy farming. The second, since withdrawn, was earmarked for the village of South Witham, also in Lincolnshire, and proposed to house nearly 3,000 cows in equally intensive conditions.

That two vast industrial ventures should be proposed in such rapid succession shows that dairy farming in Britain has reached a crossroads. Our conventional dairy farmers, under whose stewardship Britain's dairy cows have grazed countryside pastures for generations, are sliding out of business at an accelerating rate. Industrial-sized units using intensive methods are presented as filling the growing vacuum created by their absence, but are actually exacerbating the pressures on smaller farmers. We recognise that our British dairy farmers are among the best in the world, and many carry out exemplary management of their herds, yet often receive little credit or financial reward for doing so.

We also recognise that good and bad animal welfare occurs on both small and large farms. The focus of our concern is the threat posed by mega-dairies, and the systems they employ to manage their cows. It is emphatically not about the British dairy industry as a whole, which as a nation we should take more pride in and give more credit to.

#### > The hard-pressed dairy cow

WSPA's first concern is for the welfare of the many thousands of cows who would have the misfortune to be co-opted into such systems. Make no mistake – these cows will spend the vast majority of their brief lives indoors, housed in cubicles, with little if any grazing. Based on the US industrial model, these systems will have milking parlours that run around the clock, cows milked three times a day and intensive feeding regimes designed to maximise their milk yield. Cows farmed in this way are more likely than their pasture-based cousins to be lame and suffer debilitating mastitis. Antibiotics, stress, fear and aggression are common features of their lives. And the enormous pressure on their metabolism means they are finished – no longer economic to keep – at a very early age.

#### > Irresponsible greenwashing

But these industrial proposals represent so much more than an erosion of the cows' welfare. Contrary to Nocton Dairies' claims, the environmental consequences of intensively farming cows indoors are enormous, on a local, national and even international level. Calling this "some of the most environmentally-friendly milk in the world"<sup>1</sup>, as they have done, is greenwashing on a strikingly irresponsible scale.

#### > Not in my coffee, nor on our cornflakes

Just as they no longer tolerate caged eggs, I believe British people do not want their milk to come from factory-farmed cows. Unlike one of the Nocton Dairies developers, on record as saying that "Cows do not belong in fields"<sup>2</sup>, British people believe that cows do belong in fields. They do not want cows to disappear from British pastures, and our landscape irreparably transformed, US-style, as gigantic dairy warehouses replace conventional dairy farms. They want milk that is natural, and rich in natural





nutrients. And I do not believe they will tolerate a disconnect between their vision of where their milk comes from and this future, industrial reality. So, if Britain's struggling dairy industry is to survive, we must support and invest in a way forward that meets British consumers' expectations – and not the very opposite.

### ➤ **An industrial, unsustainable vision**

If proposals such as these are given the green light, they will be held up as the way forward for milk producers in Britain and globally. But in America, where 'concentrated animal feeding operations' have become widespread, these industrial systems are increasingly recognised as unsustainable environmentally and ethically. American people are now waking up to what their livestock industry has become and what they have lost – perhaps forever.

Those who promote keeping cows indoors and feeding them concentrates are overlooking the cheapest, most sustainable and welfare-friendly feed available to them: pasture. Many pasture-based models (which do include some supplementation of the diet with concentrates) are profitable

for dairy farmers, place less pressure on the cows and the environment, and promote long-term productivity rather than short-term gain. So it is unthinkable that Britain should sleepwalk into the same trap as the US and move towards farming our dairy cows in an industrial way. Instead, we should be looking to countries such as Sweden for models of sustainable, future-facing farming.

### ➤ **A rallying call**

Britain is a world leader in terms of animal welfare and environmental concern. As global demand for animal produce multiplies, it has never been more important for us to showcase sustainable, environmental and welfare-friendly ways forward for livestock farming and to invest in their success.

We highlight the Lincolnshire proposals because their scale represents a watershed. Allow such proposals and suddenly all such operations become acceptable. The right focus for British dairy is not short-term yield but an enlightened balance of long-term productivity, animal welfare, environmental intelligence and the interests of consumers, both in Britain and globally. Concerned organisations

should use this immediate threat as a platform for supporting dairy farmers and promoting – together – a sustainable and humane way forward. Otherwise we risk looking back in a decade's time and realising that it is too late to regain what we have lost.

**Suzi Morris**  
Director, WSPA UK





## SUSTAINABILITY IN DAIRY FARMING: A WATERSHED MOMENT

Pasture-based dairy farming has helped shape Britain's countryside for centuries, with herds of grazing cows a welcome and expected feature of our landscape. In recent years, however, that has begun to change, with the increasing housing of dairy cows in more intensive, factory-style operations. These methods arise in response to the economic pressures facing the industry. But, as with all other activities of our society, we have to ask: are these new dairy farming methods sustainable, or do we need a change in direction?

It is widely recognized that sustainable agriculture must be economically, environmentally and ethically responsible. Of course farmers and agricultural businesses need to address economic pressures. But doing so while ignoring the environment and ethics is impossible.

In other livestock sectors, along with the rest of the European Union, Britain is moving away from the most intensive methods of animal housing. We are phasing out the use of individual crates for sows, so small that they cannot turn round, and battery cages for hens kept for their whole productive life on barren wire.

So it is extraordinary to see developments in dairying move in the opposite direction: away from a situation in which people are confident that dairy cow welfare is well protected<sup>3</sup>, to a level of intensification in breeding and housing that has been criticized by the European Food Safety Authority<sup>4</sup> and that most people would instinctively reject if they knew more about it.

Current proposals for giant, factory-style dairy operations run counter to Britain's global reputation for farm welfare. In this country and elsewhere there is increasing evidence that with industrial 'cow factories' of this sort the cows, the milk, the farmers, the public and the environment are all at risk of suffering long-term consequences. This is a critical stage for sustainability in dairy farming: a watershed moment for the future of the industry, the cows, our countryside and our food.

### ➤ Proposals in Lincolnshire, 2010

The operation proposed at Nocton, Lincolnshire, is on a scale unparalleled in western Europe.

Nocton Dairies<sup>5</sup> proposes to house 8,100 Holstein cows in 22 acres of sheds in groups of 500, producing 250,000 litres each day.

Kept inside when in milk (ten months in 12) and in inclement weather, and milked three times a day, they would be bedded on sand in cubicles and fed on silage and concentrates produced by a co-operative of local farmers, their manure processed in an anaerobic digester and spread on 21,000 acres of local land.

If allowed to proceed, this would become the increasingly familiar local face of an alarming global trend. Even more recently, a proposal for a 3,000 head dairy at South Witham, also in Lincolnshire, was trailed in Nocton's wake<sup>6</sup>, although it has now been dropped in the face of opposition.

In 2008, the average herd size in England was 126 cows, and more than nine in ten dairy farms still have fewer than 200 cows<sup>7</sup>. WSPA considers a large British dairy to be in the range of 250-300 cows though recent developments in the UK have seen herd sizes up to 1000-1200. Mega-dairies based on the American model are not yet in existence in the UK but in the US they tend to house several thousand cows. If our supermarkets and the public accept the milk produced from massively larger developments, the floodgates will open. Smaller farms will be even less likely to survive and our rural landscape will change forever.

Before we know it there will be a new norm. What once was deemed a step too far will become established fact. As with most unwelcome social developments, the greatest danger is complacency.

### ➤ The international perspective

A gigantic agro-industrial dairy facility such as proposed at Nocton is not news in other countries. In North America it has been allowed to become commonplace. Indeed, Nocton Dairies state<sup>8</sup> that:

The design and technology used in the proposal are based on those employed on similar scale units in the US and Canada.

But analysts and public alike are waking up to the fact that a national dairy industry run along such lines is not sustainable in the long term. In 2008 the US-based Pew Commission on Industrial Farm Animal Production stated<sup>9</sup> that:

The present system of producing food animals in the US is not sustainable and presents an unacceptable level of risk to public health and damage to the environment, as well as unnecessary harm to the animals we raise for food.

And this 'system' involves not just housing but breeding. The Farm Animal Welfare Council, in their 2009 *Opinion on the welfare of the dairy cow*<sup>10</sup>, explained that:

Dairy farming in the US is mainly intensive with an emphasis on milk yield to the near exclusion of other criteria with a result that the lifespan of the cow is only about five years and i-s associated with low fertility. Conversely, Swedish dairy farmers have placed greater emphasis on the robustness of their dairy cows with benefits in terms of a lower incidence of metabolic and endemic diseases and a higher fertility than in British herds.

Countries such as Sweden address not just narrowly-conceived 'efficiency' but also other aspects of sustainable farming with a genuine future. Sweden has passed a law for agricultural animals that requires all husbandry systems to accommodate the animals' instinctive natures. For example, the law grants cattle 'the right to graze' in perpetuity<sup>11</sup>.

As livestock farming becomes increasingly intensified worldwide, there are signs of burgeoning consumer resistance<sup>12</sup> and increasing concern among experts<sup>13</sup>, echoing the successful movements against caged egg production in Europe.

### ➤ "Greenwashing" the proposals

At first sight, the Nocton Dairies proposal may indeed appear acceptable – even logical. If a cow can be milked three times a day, for 11,000 litres of milk a year, without negative effects; if 8,100 such cows can survive and possibly even thrive in 22 acres of sheds with an on-site vet and instant access to medication; if their feed can be grown on the surrounding fields and compressed to an efficient size and the manure spread upon the same land in a constant regenerative cycle, even generating electricity along the way, is that not progress?



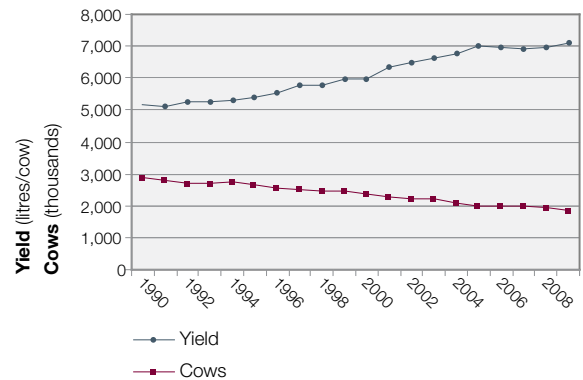
## ANIMAL WELFARE CONCERNS: THE COWS

Nocton Dairies' ambition to base their operation on the intensive US model threatens to drive British dairy farming into a damaging cul-de-sac in terms of cow health, welfare and longevity.

### ➤ Intensive selection for high milk yield comes at a price

The black-and-white, robust-looking Friesian cows that used to be familiar in our fields are increasingly replaced by bony animals with mostly Holstein genes. The Holstein breed that now dominates the UK and global dairy industry would be used at Nocton. Whereas the Friesian was suited to production of both milk and beef, mainly from grass, the Holstein breed has been subjected to more intense selection than any other over many decades, almost exclusively for increased milk yield, with the effect that milk production per cow has more than doubled in the past 40 years. The following graph<sup>14</sup> covers all breeds, but Holsteins predominate.

## UK dairy production



But this increase in yield has come at a high price. Predominant focus on a single attribute comes at the expense of others, which is why the modern Holstein cow is characterised by a declining ability to reproduce, increasing health problems and a shortened lifespan. The European Food Safety Authority<sup>15</sup> has emphasised that:

Long term genetic selection for high milk yield is the major factor causing poor welfare, in particular health problems, in dairy cows.

The Authority went on to make the following recommendations:

To improve dairy cow welfare there is an urgent need to promote changes in the criteria used for genetic selection in the dairy industry. Higher weight should be given to fitness and welfare traits when these may conflict with selection for milk yield. Genetic selection for improved fertility, health and longevity is likely to improve welfare and lead to greater profit for the farmer.

### ➤ Encouraging trends in UK dairy...

This is in fact beginning to happen in the UK dairy industry, and one favourable outcome has been a slight increase over the last few years in the number of lactations for which cows are kept. On average, dairy cows in the UK are now kept for 3.6 lactations before being culled at the age of about six years.<sup>16</sup>

### ➤ ... risk being reversed by the Nocton plans

However, Nocton Dairies intends to model its facility on the intensive methods of the US, where the average number of lactations is under three, average lifespan is closer to five years and fertility is low<sup>17</sup>.

Worryingly, the anticipated 250,000 litres of milk per day from the 8,100 cows at the Nocton facility suggests a yield per cow of around 11,000 litres a year, strikingly higher than the current UK average of around 7,000 litres<sup>18</sup>. This will only be achievable by a combination of further selection for yield and intensive husbandry methods. While some farms do achieve high yields while safeguarding many aspects of welfare, this depends on giving considerable attention to the condition of every individual cow. With the low ratio of stockworkers to cows at Nocton, aiming for such high yields will be a very high-risk strategy. Indeed, recent advice from the Farm Animal Welfare Council<sup>19</sup> makes it clear that the two other planks of the Nocton proposal – large herd size and

permanent housing – are both high-risk for animal welfare, and critically dependent on every detail of management. The Nocton proposal does not promise adequate management; nor could this reliably be achieved on every farm that followed such a model.

### ➤ **Three-times-a-day milking: possible but problematic**

Milking cows three times each day (instead of the usual two) does indeed increase milk production, by up to 15%. For a cow with an over-full udder, being milked more often may come as a short-term relief and may even reduce incidence of mastitis. However, as it increases daily milk yield, this method exacerbates one of her principal problems: negative energy balance. In the first few weeks after calving, the cow uses more energy in making milk than she can physically take in by eating, and loses body condition:

In most practical circumstances, the capacity of the mammary gland to synthesize milk exceeds the capacity of the cow upstream to find, eat and digest enough food to supply the mammary gland with nutrients, [leading to her feeling] simultaneously, hungry, ‘full up’ and physically tired.<sup>20</sup>

This negative energy balance is already worse and longer-lasting in cows strongly selected for high yield. These problems are exacerbated by three-times-a-day milking, especially as the milking itself – gathering the cows, taking them through the parlour and then returning them to their cubicles – takes time. This reduces the time available for eating, as well as for other important activities such as grooming and resting.

### ➤ **Health problems exacerbated by intensive methods**

Cows have a natural lifespan of up to about 20 years. Most dairy cows in the UK are culled at an average of about six years old, largely because of problems with health and fertility affected by both genetics and husbandry. This makes it not only an animal welfare issue but also an economic problem.

**Lameness** is the single biggest welfare problem for dairy cows in the UK, affecting an average of 17 per cent of cows at any one time with no sign of significant improvement since at least 1990<sup>21</sup>. Lameness is worse in higher-yielding cows<sup>22</sup>. Cows housed in cubicles, as they would all be at Nocton, also fall lame more frequently<sup>23</sup>. A lame cow suffers pain, loses weight, yields less milk, is less fertile and more at risk of mastitis and indeed early culling<sup>24</sup>.

**Mastitis**, a painful infection of the udder, is also more common in intensively bred and housed herds. It is the most common disease of dairy cows, affecting between 20 per cent and 40 per cent of animals each year, and accounts for nine per cent of premature culling.<sup>25</sup>

### ➤ **Greater risk of disease**

As with any intensive farming, keeping so many cows in such a confined space means that any contagious disease would be very difficult to control, even with strict monitoring and an on-site vet. In addition, if there is a requirement for heifers to be imported from outside (to replace cows that are culled) rather

than replaced from within the herd, this would carry a risk of importing disease to the area. Worse, if this huge herd were infected by TB, Foot and Mouth or other similar diseases, the consequences would be devastating.

It is possible that these risks could be managed well, even on a large unit. However, this would depend on the veterinarian and stockworkers and their ability to prevent, detect and deal with problems including sick animals. The low staff-to-cattle ratios proposed in the Nocton plan give no reason for confidence.

Having an on-site vet serves the purpose of treating inevitable health problems as opposed to ensuring good, all-round welfare.

### ➤ **Fertility adversely affected**

All of these problems contribute – along with the poor body condition resulting from extended negative energy balance – to low fertility. Farm Animal Welfare Council (FAWC) (2009)<sup>26</sup> states:

Infertility is a main reason for premature, involuntary culling of dairy cattle. It is not, in itself, a welfare problem but can be an indirect indicator of poor welfare. In the UK, the conception rate has declined about one per cent every three years and is now around 40 per cent; it is lower today than it was 40 years ago.

### ➤ **Physical and social conditions – cows do care how they are kept**

Cows are highly developed, sentient creatures. They can feel and express emotions such as pain, pleasure and fear<sup>27</sup>. Two striking examples are the excitement they show when they have solved a problem, such as learning to open a gate<sup>28</sup>, and their animated leaping and bounding when they are released onto pasture after confinement. Their welfare is intimately affected by their physical and social environment.

In the Nocton Dairies facility, the cows would rarely be released onto pasture:

The cows will be indoors, free to roam in open sided, airy, sheds when they are in milk but when they are “dry” and the weather is also dry then there is plenty of grazing on the farm.<sup>29</sup>

As a dairy cow is typically lactating for around ten months of the year, her “dry” period is only around two months. The time she might spend at grass would therefore be limited to an absolute maximum of 17 per cent of her life, weather permitting. Where their dry period falls outside the grazing season, or conditions are considered unsuitable, individual cows may get no access to grazing at all.

### ➤ **Too little room to move**

As for being “free to roam,” consider the dimensions of the Nocton housing:

The cows in 500 cow groups will have an area of 335m x 7.5m, so 5.025m<sup>2</sup> per cow loafing area plus their own space of 2.6m x 1.2m in a sand cubicle plus shared time in the collecting yard, three hours per day, and when the movement lanes are not used in the middle of the building, some 33m wide, they will have the shared use of this area.<sup>30</sup>

This would be very restricted space for movement even in a typical herd of around 100 cows. For up to 500 animals it is correspondingly more so.

### ➤ **Highly social animals, de-socialised**

Cows are most comfortable in small, regular social groups and the unnaturally large groups of 500 animals are far too large to support the social interaction so critical to managing stress levels among working animals.

Cattle management at Nocton would involve not only unnaturally large groups but also frequent re-grouping leading to cows becoming disorientated and aggressive when frequently re-grouped. Even without constant re-grouping they are extremely unlikely to become familiar with each other.

Another significant social factor is that cows have complex social rankings, and they will defer or challenge other cows they are grouped with. So in this narrow house, further restricted by cubicles, they would be even less able to move around freely. Cows also slip and fall more in larger groups, leading to more injuries.

Re-grouping may be by yield, by breeding cycle stage or for hoof trimming. Heifers find this especially stressful as bullying by older cows is commonplace.

### ➤ **Keeping cows in cubicles: not their choice**

Partly because of the movement restriction it causes, cubicle housing is not favoured by dairy cows, which show a strong preference for a straw yard, regardless of whether the cubicles are large or small<sup>31</sup>. Cows kept indoors are more aggressive and fearful, while cows kept in cubicles are even more restless and less tolerant of each other<sup>32</sup>. Even if well-managed, cubicle housing can lead to leg and foot disorders and other injuries. The prevalence of hock damage, for example, is much greater compared to cattle in straw pens (46 per cent versus 25 per cent), let alone those in pasture<sup>33</sup>.

### ➤ **Poor ratio of stockpeople to cows**

Nocton Dairies emphasises the need for appropriate staffing and local job creation. However, their figures<sup>34</sup> indicate that there would be only 13 stockworkers in each shift, looking after over 8,000 animals. This means more than 600 cows per worker – and those workers would primarily be dealing with milking and routine management, leaving them limited opportunities to detect and address any health and welfare problems that arise in these huge groups of cattle.

We are already witnessing the steady erosion of livestock husbandry skills as increasing reliance is placed on science and technology. The concentration of cows into fewer, larger herds such as those proposed at Nocton Dairies would serve only to accelerate this process. Even with sub-groups of 500 cows (far larger than the average herd in the UK today), stockpeople would have little more than a robotic role to play rather than taking a proactive lead in welfare and prevention.

### ➤ **Cow welfare summary: the wrong direction**

The Farm Animal Welfare Council has said<sup>35</sup> that all farm animals should have “a life worth living” and a growing number should have “a good life.” Yet they also comment<sup>36</sup> that:

The evidence is that the welfare of dairy cows has not improved significantly over the past decade. There are still critical issues about the welfare of the dairy cow that should be addressed over the next few years.

By contrast, the Nocton proposal threatens to worsen welfare problems caused by intensification of the dairy industry, in the behaviour, health, longevity, physical and social well-being of the cows involved. FAWC<sup>37</sup> does comment that large groups and housing have both potential advantages and disadvantages for welfare – as do all systems – but the Nocton proposal gives no assurance that they will achieve the advantages and avoid the disadvantages. An undermanned herd of over 8000 animals is a disaster waiting to happen.



### **ANIMAL WELFARE CONCERNS: THE CALVES**

There are also major concerns for the welfare of calves – both those that would be produced at Nocton and those bred elsewhere to start the Nocton project and then to continually replenish the vast herd.

### ➤ **Mastitic, antibiotic milk fed to calves contravenes the Defra code**

For 8,100 cows to lactate, they must give birth to 8,100 calves each year. The Nocton Dairies proposal states that cows would be inseminated with semen from beef bulls, to produce crossbred calves reared for meat. But to make this economic<sup>38</sup>:

Milk from mastitic cows under treatment would be kept on site and used to feed young calves.

This directly contravenes advice in the Defra Code of Recommendations for the Welfare of Livestock<sup>39</sup>:

You should not offer milk from cows treated with antibiotics or those being treated for mastitis to calves fed on whole milk.

## > Early to market contravenes the Defra code

Nocton Dairies<sup>40</sup> also say that:

Calves produced at the unit would be reared to between two and three weeks old ... The amount of additional trade at Louth Market could be as high as 3,500 bull and 3,500 heifer calves a year.

Again this contravenes the Defra Welfare Code<sup>41</sup>, which says that “Calves should not be marketed until at least four weeks.” Very young calves are particularly unable to cope with transport and marketing because their immune system and stress response are not fully developed and they are unable to regulate their body temperature properly, leading to mortality rates of up to 23 per cent<sup>42</sup>.

## > Male calves – short, wasted lives

In external herds supplying heifers to Nocton, half the calves born would be males, around 600 per year. Such male calves, with the same genetics as the females – intensively selected primarily for milk yield – have in recent years been regarded as unsuitable for beef production. Most have therefore been killed at or shortly after birth. There have been concerted efforts to address this waste of life – regretted by all concerned, including dairy farmers – and to increase the use of these animals for beef<sup>43</sup>, including by more selective breeding from particular Holstein bulls to produce calves that are more suitable for beef production. However, a significant number of male dairy calves continue to be killed after birth.

Production of cross-bred calves at Nocton is claimed to avoid the usual problem of superfluous males from dairy herds. In reality, however, it simply moves the problem off-site.

If the dairy industry were to move towards dual-purpose animals that could also be used for beef, this problem of the short, wasted lives of male calves would disappear, with a corresponding reduction in many of the welfare problems of the over-bred cow.



## CONCERNS OVER MILK QUALITY

The dairy industry exists to produce nutritious milk. Yet its nutrition level is threatened by intensive production, with both genetic selection and housing once more implicated.

### > Genetic selection for increased yield may mean less nutritious milk

There is evidence that selection for increased milk yield may reduce levels of vitamins and antioxidants in milk. Scientists found that daily secretion of alpha-tocopherol (a form of vitamin E) and beta-carotene (a precursor of vitamin A) into milk is limited in quantity and is independent of milk yield<sup>44</sup>. They concluded:

It follows that continuing breeding and management systems that focus solely on increasing milk and milk fat yield will result in a steady dilution in the milk fat of these vitamins and antioxidants.

### > Keeping and feeding cows indoors may mean less nutritious milk

Cows housed indoors also miss the beneficial effect of pasture on the vitamin content of milk. Pasture grass enriches milk with vitamin A and alpha-tocopherol in comparison with hay or concentrates<sup>45</sup>.

Studies have also demonstrated the value of pasture for the fatty acid profile of milk. For example, there were 500 per cent more conjugated linoleic acids (which may play a role in the prevention of cancers) in the milk fat of cows eating only grass than in others fed a typical mixed ration of forage and grain<sup>46</sup>.

### > The message is clear

If we want the milk we have come to expect, as rich as possible in vital nutrients, we should feed cows on pasture and reduce the intensive selection pressure for ever-higher milk yield.

### > The public perspective

There is a growing consumer conscientiousness about where food comes from, how it is produced and the quality of life and welfare of the animals that produce it. This movement led to the rejection of battery eggs, and similar trends are emerging

in the meat sector, publicised by mainstream TV programmes, supported by supermarkets, championed by celebrities and even fast food companies.

To date, the dairy industry has largely escaped such close scrutiny. But if intensification continues, a growing and significant groundswell of opposition is likely.

### ➤ **British people believe cows belong in fields**

The sight of cows in fields leads the public to believe that is how most dairy cows live. In a recent survey<sup>47</sup>, 95 per cent of respondents in the UK said that they believed keeping cows permanently indoors was unacceptable. In the same survey only 22 per cent perceived the welfare of dairy cows to be poor.

But if we open the factory gates to farming on this scale, the gulf between the new reality and people's perception of how their milk is produced will be ever wider. This gulf needs to be publicised. The public should know what is done on its behalf. And in 2010, yet another poll shows that people care about farm animal welfare, with 40 per cent rating this as their most important concern in buying food, more than any other factor<sup>48</sup>.

The impetus towards intensive indoor systems for dairy cows in the UK is therefore in direct opposition to British people's beliefs about how cows should be kept, and their growing concern about the welfare of the animals producing their food.

### ➤ **Consumer power: encouraging trends from retailers**

These realities are increasingly recognised by major retailers. For example, in 2010, Marks & Spencer enhanced its long-standing 'Milk Pledge' scheme with 'Milk Pledge Plus,' rewarding its farm suppliers for meeting the highest standards of animal welfare, health and sustainability<sup>49</sup>. In a similar move, Sainsbury's new Dairy Development Group scheme pays farmers extra per litre for adhering to an agreed welfare standard<sup>50</sup>. Asda, Tesco and Waitrose have also introduced positive initiatives.

Opening the store shelves to the Nocton Dairies model would require a major about-turn from the supermarket chains in the face of growing resistance from their consumers to industrial factory farm production. And if the public refuses to accept factory-farmed milk, as is increasingly likely, production methods will have to change – in favour once more of the adaptable cow serving more than one purpose, on a pasture-based farm.

## LEARNING FROM GERMANY: A CAUTIONARY TALE

When conventional battery cages were banned in 2009, many egg producers invested in "enriched cage systems" – only to find that ALDI, Lidl and Netto, who account for almost half the eggs sold in the country, had taken policy decisions not to sell eggs from any type of cage at all – even enriched ones. As a result, despite the high investment in enriched cages, most egg producers will now have to convert to non-cage systems.



## THE ENVIRONMENTAL PERSPECTIVE

The UN's Food and Agriculture Organisation calculated in 2006<sup>51</sup> that livestock production releases 18 per cent of human-produced greenhouse gas (GHG) emissions, alongside many other environmental impacts.

The importance of environmental responsibility in relation to farm animals cannot be overstated.

### ➤ **Livestock and GHGs**

Farming livestock produces several GHGs, including carbon dioxide (in large quantities), methane and nitrous oxide (in smaller quantities but with more effect on global warming)<sup>52</sup>:

Carbon dioxide is released when fossil fuels are used in fertiliser and feed grain production, and when forests are converted into grazing or feed crop land. Methane is produced by digestion, particularly by ruminants: cattle, sheep and goats produce more methane per unit of feed consumed than monogastric animals. It is also released from manure ... Nitrous oxide emissions result primarily from fertiliser and manure application.

### ➤ **A Mountain of Manure**

A large dairy farm produces enormous amounts of manure. The 8,100 cows in the Nocton development would produce around 187,000 cubic metres of manure a year<sup>53</sup>. This is equivalent to the untreated waste produced by a city roughly twice the size of Lincoln, and about enough to fill Wembley Stadium annually.

This manure would be spread on surrounding land. There are strict guidelines covering the spreading of slurry on farmland, which should ensure that manure management is as good as it would be on the equivalent number of smaller farms. Yet the proposal represents a major environmental challenge. The waste from 8,100 cows and their calves needs a vast area available for direct spreading: about 21,000 acres. Nocton Dairies has not at time of print obtained permission from other landowners to allow this, as pointed out by the Environment Agency response to their proposal in 2010:

The spreading of nitrogen loading to land is restricted by the Nitrate Vulnerability Regulations. The applicant has not clearly demonstrated that they have sufficient land to dispose of the nitrogen in accordance with these regulations<sup>54</sup>.

Even if they are able to secure agreements from local arable farmers for manure spreading, that does not equate to environmental responsibility: water and soil pollution are still real and very present threats.

## THE ANAEROBIC DIGESTER SCRUTINISED

Nocton Dairies make much of this element of their waste management system. The impression given is that it will satisfactorily address the issue of GHG production while providing electricity to the national grid. In fact this will only tinker at the edges of the problem.

Manure accounts for around 10 to 20 per cent of the total GHG emissions<sup>55</sup> from dairy farming, and the Nocton anaerobic digester would not affect the remaining 80 to 90 per cent. It will do nothing for the emissions from feed production, silage effluent or enteric fermentation (released when the cattle belch). Nor will it eliminate all pathogens in the manure and can even leave veterinary medicine residues, with some toxins actually multiplying or becoming more concentrated in the anaerobic digestion environment<sup>56</sup>.

In short, we must not allow the proposed installation of an anaerobic digester to support the masquerade of 'environmentally-friendly milk.' It is the most glaring example of the 'greenwashing' that surrounds the Nocton Dairies proposal.

## > Water use and pollution

Dairy production is already extremely inefficient in use of water: it takes 990 litres of water to produce one litre of milk<sup>57</sup>. Intensive production is especially thirsty, requiring additional water for cooling, cleaning and drinking. In intensive systems, animals get only ten per cent of their water requirements (including servicing) from feed compared to 25 per cent in extensive systems, with the difference having to be supplied as drinking water<sup>58</sup>.

In Lincolnshire, the water used by 8,100 intensively farmed cows and their offspring would make enormous demands on the resources of an already dry county. The Environment Agency warned:

In order to secure an adequate water supply for the proposal the applicant is likely to need to make an application to us for new additional water resources and/or vary existing abstraction licences. As there is no scope for increased abstraction from the Lincolnshire Limestone aquifer, there is no guarantee that the applications will be successful<sup>59</sup>.

Furthermore, leaching and run-off from manure spreading may themselves threaten water supplies. This would be a concern in any area but the environment around Nocton is especially vulnerable. The soil is shallow and there is a public water source nearby, as stressed by the Environment Agency:<sup>60</sup>

We consider that the risk to groundwater is unacceptable because ... The development lies directly on a Principal Aquifer ... the groundwater is particularly sensitive at this site and must be protected from pollution ...

## > A record in pollution

“More than two kilometres of an important tributary of the River Torridge were polluted as a result of this incident that was one of the worst we've seen for some time. Milk waste can be very harmful when it enters rivers and streams because it strips the water of oxygen causing fish to suffocate. While we managed to recover more than 70 dead trout and coarse fish, the total number killed would have been considerably higher”.<sup>61</sup>

The company fined for this leak was Parkham Farms Ltd., headed by Peter Willes – one of the three farmers behind the Nocton Dairies proposal.

## EUTROPHICATION: A GRAVE THREAT TO RIVERS AND LAKES

Eutrophication is the excessive loading of nutrients into the water system. Its effects include a massive overproduction of algae and a consequent lack of oxygen in the water with disastrous consequences for fish and the ecosystem.

Over 50 per cent of the total river length in England was classified as having high levels of phosphate and over 30 per cent as having high levels of nitrate<sup>62</sup>. Agricultural land is now the major source of nitrate in rivers and aquifers in England and Wales.

With one cow excreting 18 to 20 times as much phosphorus as a human<sup>63</sup>, the enormous amounts of nutrients produced mean that some eutrophication would be unavoidable, however Nocton Dairies managed their waste.

## > Antibiotic resistance – a potential health catastrophe

The evolution of antibacterial drug resistance is a major problem in modern medicine, as more and more strains of bacteria emerge that are almost 'pan-resistant' and dangerous to animal and human health<sup>64</sup>.

At Nocton, the sheer volume and concentration of medicines used in so many cows – unavoidable with such acute housing density – would mean that even with the anaerobic digester operational, some element of antibiotic pollution through manure run-off would be inevitable. Cows cannot fully absorb antibiotics used to treat conditions such as mastitis, meaning that residues, excreted in active forms, are able to leach into the water table. In the US, livestock is responsible for 50 per cent of antibiotic pollution of freshwater resources<sup>65</sup>.

Nocton Dairies' proposed use of mastitic milk (from cows undergoing antibiotic treatment for mastitis) to feed its calves exacerbates the problem. This resistance may spread to soil bacteria, providing a persistent reservoir of antibiotic resistance in the environment<sup>66</sup>.

### ➤ Pathogens and nitrogen – a public health risk

Animal manure contains pathogenic bacteria, such as Salmonella, Listeria, Escherichia coli, Campylobacter, Mycobacteria, Clostridia and Yersinia. Many of these are zoonotic, causing infections in both animals and people. While pathogens are generally reduced through anaerobic digestion, some are very persistent and may even multiply. Spreading digested residues containing pathogenic bacteria constitutes a very real public health risk.

Nocton Dairies' stated intention to incorporate such crops as alfalfa would fix atmospheric nitrogen in the soil, increasing the likelihood that the additional nitrogen in the slurry spread on this land would be surplus to crop requirements and more susceptible to run-off and leaching into drinking and surface water.

It makes for a potent cocktail, with all the ingredients for a public health time-bomb.

### ➤ Environmental summary: entirely the wrong direction

It is clear that on grounds of environmental responsibility, the intensification of dairy farming on the scale proposed by Nocton Dairies is not sustainable. Building a new dairy unit the size of a small town would put intolerable strain on our climate, our water supplies and our health.



## A SUSTAINABLE, PROFITABLE FUTURE FOR DAIRY FARMING

“Continuing use of intensive strategies may result in the UK dairy herd being unsustainable in as few as ten years due to increasing calving interval and reduced fertility”.<sup>67</sup>

Increasing intensification is not the only economically viable answer. There are alternative approaches that move dairy forwards at a pace that can be maintained for generations rather than a few years, and are more compatible with broader criteria for sustainability: environmental and ethical as well as economic.

### ➤ Dual-purpose cows make double sense

Compared with the modern, high-output Holstein, other breeds are better adapted to pasture, which is still by far the most cost-efficient way of keeping and feeding cows.

Dual purpose cows bred to produce good levels of milk output whilst also delivering a good beef calf suit more extensive systems. These cows have a natural ‘safety valve’, which allows them to divert feed energy towards self-preservation at times rather than forsaking all else in favour of milk output. The more constant level of body condition that is maintained as a result means cows that are healthier, more fertile and have a longer herd life – all factors that not only benefit the welfare of the cow herself but which also enhance profitability for the farmer.

### ➤ A higher net margin per cow

The European Farmers Network<sup>68</sup> argues that:

By adopting robust dairy breeds, either by purchasing purebred stock or through cross breeding, dairy farmers can acquire sustainable bloodlines that are easy to manage, provide what the industry wants and return a profit.

Indeed, the European Farmers Network figures demonstrate a higher net margin per cow in a crossbred herd than for typical, high output Holstein animals. They calculate less milk income per cow, but lower feed costs and lower replacement costs, and achieve higher calf sales because all the calves – including the males – can be grown for beef.

### ➤ Refreshing the gene pool

This sort of sustainable approach also avoids the narrowing genetic diversity of the widely-used Holstein breed, which is increasing susceptibility to existing and new diseases that have been so devastating to dairy and other animal production in recent years. It therefore:

- Optimises productivity without compromising animal health, welfare and fertility
- Maintains genetic variation to allow adaptation to changing conditions and future disease challenges, and
- Meets consumer expectations in terms of quality, safety, nutritional value and high standards of animal welfare.

The Nocton Dairies proposal ticks none of these boxes.

### ➤ Grazing brings all-round benefits

Of course achieving sustainability in dairy farming involves not just genetics but also husbandry, with the use of pasture a principal consideration.

Livestock kept in well-managed extensive conditions use local resources and recycle the productivity of the land. Feeding cows on pasture also has a range of benefits for ecosystems, helping to maintain critical biodiversity. These grasslands also play a crucial role in sequestering carbon, actually helping to offset the GHG emissions from grazing ruminants. In other words it can actually absorb carbon rather than releasing it, helping to offset release elsewhere<sup>69</sup>. Keeping livestock on pasture also has the potential to reduce nitrous oxide emissions<sup>70</sup>. In the proposed intensive, indoor-fed system, none of these benefits apply.

Feeding cows on pasture also costs significantly less. Recent research concludes that the higher the proportion of grazed grass in a cow's diet, the lower the costs of milk production – from as little as €10-15 cents per litre produced from grass to as much as €34 cents per litre in indoor systems<sup>71</sup>. There are many small and medium size dairy farmers in Britain with high standards of animal welfare that keeps cows grazing between to 6 to 8 months a year. Organic farming is an example of pasture-based, high animal welfare dairy farming.

## ➤ Feeding our cattle: competing or complementary?

Already one third of the world's total arable land is used for animal feed-crop production. Intensive dairy farming exacerbates this situation, as its concentrated demands mean that more and more crops are being used for feeding cattle rather than humans. This use of arable crops for forage brings the intensively farmed cows into direct competition for food with humans and may therefore become a problem as issues such as food security and self-sufficiency become more important.

Around 73 per cent of the agricultural area of the UK is more suitable for livestock grazing than for crop production<sup>72</sup>. Arguably the most efficient use of the 27 per cent that can support human crops is for human crops, rather than high-protein animal feed. It is more efficient all round: pastoral cows produce 60 per cent more protein for human consumption than they consume, which is not the case when most of their protein feed comes from soya and similar sources.

Growth of feed crops is also heavily dependent on fertilisers that are based on fossil fuels and that are thus a non-renewable resource: the same goes for the fuel used to bring the food to the cows. Pasture-based dairy production therefore:

- Minimises greenhouse gas emissions and pollution of air, water and land;
- Preserves soils, landscapes and biodiversity;
- Minimises competition with humans for food and water resources;
- Minimises reliance on external inputs of feed, energy and other resources.

The Nocton Dairies proposal ticks none of these boxes.

## ➤ Cows fare better on grass

Keeping cattle on pasture is also important for their welfare. Aside from the benefits to foot and leg condition, grazing also allows for their natural behaviour – one of the Five Freedoms that are essential to animal welfare<sup>73</sup>. Cows evolved over millions of years as grazing animals, living and feeding on grassland. To achieve the ethical aspect of sustainability it is important to respect their natures, and to keep them in the natural environment of pasture throughout the grazing season.

## ➤ Sustainability summary: it begins with the cow

Dairy farming can be an important part of a sustainable future for British agriculture, but only if we re-learn how to place the animals at the centre of decision making. The positive impacts on genetics, husbandry and long-term economics will benefit not only the animals but also farmers, consumers and the environment.



## IN SUMMARY

WSPA and its allies believe that an intensive dairy farming model based on high investment, minimal grazing and round-the-clock milking of intensively selected single-purpose cows will inevitably compromise not only animal welfare but also the environment, our landscape, our rural communities and our food security.

Insofar as dairy stakeholders promote the relentless pursuit of higher milk yields and economies of scale as the only way forward for UK dairy farmers, the issue will continue to be falsely presented as a straight contest between 'traditional' (i.e. inefficient) and 'modern' (i.e. efficient and profitable).

If intensive, indoor proposals like the Nocton Dairies facility are allowed to go ahead, they will be held up as the inevitable way forward for UK milk producers. We must be rigorous in questioning their assumptions and highlighting the implications – for the cows, for the public, for the environment, for our landscape, and for dairy farmers themselves – or risk looking back in a decade's time when it is too late to regain what we have lost.

At the time of writing this report, the original proposals from Nocton Dairies were being revised in preparation for resubmission. We have assessed the animal welfare, environmental and other implications arising from information in these original proposals.

**NOT  
ON OUR  
CORNFLAKES**



## BUILDING SUSTAINABILITY AND INTEGRITY INTO MILK PRODUCTION.

FROM NEIL DARWENT, FARMS DIRECTOR FOR LORDSWOOD FARMS, SOMERSET.

The news that 2010 has seen proposals for the development of large scale dairy farms, on a hitherto unprecedented scale, comes as no real surprise to me. For many years market forces have been driving UK milk producers to become more competitive, as retailers and others in the supply chain seek to increase their margins.

We now buy much of our food from big supermarkets who look to source the food they sell from fewer, bigger suppliers in an attempt to streamline the supply chain and cut costs. Thus enabling retail margins to be maintained whilst offering consumers cheap food. As the primary producer engaged in this chain, farmers come under increasing pressure to produce milk at a lower cost and, as a result of this, many are increasing the size of their herds to achieve economies of scale.

Dairy farmers are going out of business at an alarming rate – reported at more than one a week. In response to low milk prices farmers are driven to increase output in an attempt to dilute their costs of production. This relentless drive for efficiency and profit has significant consequences for both the farmer and his cows. Many farmers are unable to afford the necessary investment in their

businesses to enable them to remain competitive. In addition to this, the pressure placed upon cows to work harder and deliver higher yields can lead to a breakdown in herd health and welfare as systems become more intensive.

### ➤ What price for efficiency?

Simple milk production systems generate little revenue for anyone other than the farmer who tends his herd. However, the promotion of industrial models generates profit for those who sell the tools for intensive methods. A focus on breeding dairy cattle for high milk yields has been central to developing modern milk production systems, with conversion of feed into milk established as the key measure of efficiency. But, this pursuit of efficiency has, in many instances, failed to address the true cost of health and welfare on our farms.

### ➤ There is another way

Bigger isn't always better. A long term approach to UK dairy farming is needed if we are to create truly sustainable milk production systems and avoid the same problems that the US is just waking up to now. Consolidating the UK dairy cow population into fewer, larger herds will present a number of serious issues, not only for welfare, but also the impact on our environment, social implications for traditional farming communities, milk quality and the true cost of milk production.

On most UK dairy farms valuable stockmanship skills are central to the success of the business. Dairymen with have an overview of the whole herd through their daily contact with the cows and understand the behaviour and needs of individual animals in their care. But will be to difficult to apply this knowledge in herds of the size of mega-dairies, where technology and protocols will have to be relied upon. People working on these vast

units will fulfil specialised roles, with little opportunity to get to know individual animals, reducing the ability to ensure any continuity of care for the cows. The reality is that health and welfare issues will be harder to pick up on.

It is possible to develop profitable dairy farming models that place health and welfare at the heart of the system. Balanced breeding of dairy cattle can deliver extended longevity (lifespan), good fertility, high quality milk and produce valuable beef, all of which can improve profitability. By adopting robust dairy cow genetics on farms that make good use of pasture, we can produce good quality milk whilst generating a good return for the farmer and safeguarding the welfare of our herds.

### ➤ The future is up to us all

If all dairy farms in the UK were run on the scale of Nocton Dairies, we would need only 232 farms, instead of around 11,500 at present – and that would raise serious issues for farmers' livelihoods in the countryside and for the cows farmed in mega-dairies.

Protest however, will only achieve so much and WSPA want to promote public understanding of the pressures the dairy industry is under and try to create a forum for debate and help to create sustainable milk production systems that meet the needs of the consumer, the farmer and the cow. Farmers can't work to the welfare standards that they and the public want unless there is commitment to helping maintain smaller farms.

I ask consumers to consider how much they value the secure supply of high quality milk they currently enjoy from UK farms and support our dairy farmers, whilst urging supermarkets to reduce their margins, so that farmers can invest in their businesses before we no longer have a choice in how our milk is produced.



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